AGENDA

State Board of Education

June 27, 2025

STATE BOARD OF EDUCATION

(January 2025)

(State Board for Career and Technology Education)

AARON KINSEY, Midland
Chair of the State Board of Education
District 15

PAM LITTLE
Vice Chair of the State Board of Education
District 12

WILL HICKMAN
Secretary of the State Board of Education
District 6

Board Members

GUSTAVO REVELES, El Paso
District 1

LJ FRANCIS, Corpus Christi
District 2

MARISA PEREZ-DIAZ, San Antonio
District 3

STACI CHILDS, Houston
District 4

REBECCA BELL-METEREAU
San Marcos, District 5

JULIE PICKREN, Pearland
District 7

AUDREY YOUNG, Trinity
District 8

KEVEN ELLIS, Lufkin
District 9

TOM MAYNARD, Florence
District 10

BRANDON HALL, Aledo
District 11

TIFFANY CLARK, DeSoto
District 13

EVELYN BROOKS, Frisco
District 14

Committees of the State Board of Education
(updated January 2025)

INSTRUCTION

Audrey Young-Chair
Evelyn Brooks-Vice Chair
Rebecca Bell-Metereau
Pam Little
Gustavo Reveles

SCHOOL FINANCE/PERMANENT SCHOOL FUND

Tom Maynard-Chair
Marisa Perez-Diaz-Vice Chair
Keven Ellis
Will Hickman
Aaron Kinsey

SCHOOL INITIATIVES

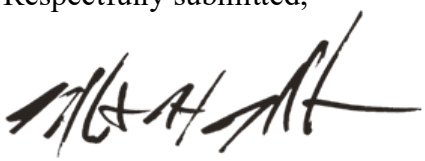
LJ Francis-Chair
Julie Pickren-Vice Chair
Staci Childs
Tiffany Clark
Brandon Hall

June 27, 2025

State Board of Education
Austin, Texas

I certify that this is the official agenda of the State Board of Education for its meeting on June 24-27, 2025. Agenda items have been prepared and reviewed by Texas Education Agency staff and are presented for the board's discussion and consideration. Where appropriate, I have proposed an action.

Respectfully submitted,



Mike Morath
Commissioner of Education

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Barbara Jordan Building
1601 N. Congress Avenue, Austin, Texas

SCHEDULE AND AGENDAS

Committees and Board
State Board of Education, Austin, Texas

Meeting Times

June 24-27, 2025

Tuesday, June 24, 2025

9:00 a.m. **Committee of the Full Board (Room 2.035)**

Wednesday, June 25, 2025

9:00 a.m. **Committee of the Full Board (Room 2.035)**

Thursday, June 26, 2025

9:00 a.m. **Committee on Instruction (Room 2.029)**

9:00 a.m. **Committee on School Finance/Permanent School Fund (Room 2.035)**

8:00 a.m. **Committee on School Initiatives (Room 2.013)**

1:00 p.m. **Committee of the Full Board (Room 2.035)**

Friday, June 27, 2025

9:00 a.m. **General Meeting (Room 2.035)**

If the Committee of the Full Board does not complete its agenda Tuesday, it will resume its meeting on Wednesday, Thursday, or Friday. If the Committee of the Full Board does not complete its agenda Wednesday, it will resume its meeting on Thursday or Friday. If the Committee on Instruction does not complete its agenda Thursday, it will resume its meeting on Friday. If the Committee on School Finance/Permanent School Fund does not complete its agenda Thursday, it will resume its meeting on Friday. If the Committee on School Initiatives does not complete its agenda Thursday, it will resume its meeting on Friday. The Committee of the Full Board will meet on Thursday upon adjournment of the last standing committee meeting but not earlier than 1:00 p.m.

NOTE: The chair may permit the board to take up and discuss any of the discussion items on a committee agenda, including hearing any invited presentations to a committee, based upon a recommendation from the committee or inability of the committee to complete its agenda on a preceding day.

The SBOE or a committee of the SBOE may conduct a closed meeting on any agenda item in accordance with Texas Open Meetings Act, Chapter 551, Subchapters D and E. Before any closed meeting is convened, the presiding officer will publicly identify the section or sections of the Act authorizing the closed meeting. All final votes, actions, or decisions will be taken in open meeting.

The agenda is online at https://sboe.texas.gov/sboe/agenda/ on the Texas Education Agency website. The posted information contains links to board action items including rule items and rule text, and selected discussion items. Public comments on proposed rules may be submitted electronically. All agenda items and rule text are subject to change at any time prior to each board meeting. To the extent possible, copies of changes made after the agenda and the schedule are published will be available at the board meeting.

TUESDAY
June 24, 2025

9:00 a.m.

COMMITTEE OF THE FULL BOARD – Room 2.035 (Barbara Jordan Bldg.)
Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; Subchapter O, Manufacturing
(First Reading and Filing Authorization)
(Board agenda page I-1)

COMMITTEE - ACTION
SBOE – ACTION

This item presents for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; and Subchapter O, Manufacturing. The proposed new rules would add new Texas Essential Knowledge and Skills (TEKS) developed by subject matter experts convened by the Texas State Technical College (TSTC) and Educational Service Center (ESC) Region 4 that are needed for completion of career and technical education (CTE) programs of study. Statutory authority is the Texas Education Code, §§7.102(c)(4); 28.002(a), (c), (n), and (o); and 28.025(a) and (b-17).

COMMITTEE OF THE FULL BOARD (continued)

2. Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025
(Second Reading and Final Adoption)
(Board agenda page I-29)

COMMITTEE - ACTION
SBOE – ACTION

This item presents for second reading and final adoption proposed new 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025. The proposed new section would establish Texas Essential Knowledge and Skills (TEKS) in employability skills for effective performance in the workplace. The employability skills standards would be required to be taught as a part of each career and technical education (CTE) course. No changes are recommended since approved for first reading. Statutory authority is the Texas Education Code (TEC), §§7.102(c)(4); 28.002(a) and (c), and 28.025(a).

3. Discussion of Draft Quality Rubrics for Instructional Materials Review and Approval Cycle 2026
(Board agenda page I-35)

COMMITTEE - DISCUSSION
SBOE – NO ACTION

This item provides an opportunity for staff to present drafts of the Instructional Materials Review and Approval (IMRA) quality rubrics for full-subject, tier-one and supplemental K–12 Positive Character Traits and Personal Skills and supplemental K–12 language arts and reading. Statutory authority is the Texas Education Code (TEC), §§31.003(a), 31.022, and 31.023 as amended by HB 1605, 88th Texas Legislature, Regular Session, 2023.

4. Texas Permanent School Fund Corporation Report/Update
(Board agenda page I-37)

COMMITTEE - DISCUSSION
SBOE – NO ACTION

This item provides an opportunity for the Permanent School Fund (PSF) Corporation's management to present a report on the Fund to members of the Committee of the Full Board (COFB) and to take questions from the COFB. Statutory authority is the Texas Constitution, Article VII, §2 and §5; Texas Education Code Chapter 43; and 19 Texas Administrative Code Chapter 33, Subchapters A and B.

COMMITTEE OF THE FULL BOARD (continued)

5.. Discussion of Pending Litigation **COMMITTEE - DISCUSSION**
(Board agenda page I-38) **SBOE – NO ACTION**

The State Board of Education (SBOE) may enter into executive session in accordance with the Texas Government Code, §551.071(1)(A), to discuss pending and contemplated litigation with the general counsel, legal staff, and, if necessary, attorney(s) from the Attorney General's Office. The Committee of the Full Board will meet in a room (to be determined) to discuss this item.

WEDNESDAY
June 25, 2025

9:00 a.m.

COMMITTEE OF THE FULL BOARD – Room 2.035 (Barbara Jordan Building)
Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for registering and taking public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Commissioner's Comments — **COMMITTEE – DISCUSSION**
(Board agenda page I-39) — **SBOE – NO ACTION**

This item provides an opportunity for the board to be briefed on current agenda items, agency operations, policy implementation, and public education-related legislation.

2. Adoption of Review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option — **COMMITTEE - ACTION**
(Adoption of Review) — **SBOE - ACTION**
(Board agenda page I-40)

Texas Government Code (TGC), §2001.039, establishes a four-year rule review cycle for all state agency rules, including State Board of Education (SBOE) rules. This item presents the adoption of the review of 19 Texas Administrative Code (TAC) Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option. The rules being reviewed address the development and administration of tests, voluntary assessment of private school students, the schedule for the release of tests, and administration and reporting of group-administered achievement tests. The statutory authority for the rule review is TGC, §2001.039. The statutory authority for 19 TAC Chapter 101, Subchapters A–C, is Texas Education Code (TEC), §§39.021, 39.022, 39.023, 39.025, 39.032, and 39.033.

COMMITTEE OF THE FULL BOARD (continued)

3. Consideration of the Commissioner of Education's Generation 30 Open-Enrollment Charter School Proposals
(Board agenda page I-45)

COMMITTEE - ACTION
SBOE - ACTION

This item provides the Board an opportunity to consider the commissioner's list of proposed Generation 30, Subchapter D, Open-Enrollment Charter Schools scheduled to open in school year 2026-2027. If awarded, the charter schools will have an initial five-year term. Statutory authority is the Texas Education Code, §12.101.

THURSDAY
June 26, 2025

9:00 a.m.

COMMITTEE ON INSTRUCTION – Room 2.029 (Barbara Jordan Building)
Members: Audrey Young, chair; Evelyn Brooks, vice chair; Rebecca Bell-Metereau; Pam Little; and Gustavo Reveles. A quorum of the State Board of Education may attend the committee meeting and discuss items on the committee agenda.
Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education
(Second Reading and Final Adoption)
(Board agenda page II-1)

COMMITTEE - ACTION
SBOE - CONSENT

This item presents for second reading and final adoption proposed repeal of 19 Texas Administrative Code (TAC) Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and proposed revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education. The proposed rule action would repeal career and technical education (CTE) Texas Essential Knowledge and Skills (TEKS) in 19 TAC Chapter 130 and would move the TEKS to 19 TAC Chapter 127 in order to ensure that all CTE TEKS are in the same chapter in administrative rule. The proposed rule action would also move some existing courses within 19 TAC Chapter 127 to reorganize the chapter. Changes are recommended since approved for first reading. Statutory authority is the Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

COMMITTEE ON INSTRUCTION (continued)

2. Proposed Amendments 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52
(First Reading and Filing Authorization)
(Board agenda page II-20)

COMMITTEE - ACTION
SBOE - CONSENT

This item presents for first reading and filing authorization proposed amendments to 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49,127.51, and 127.52. The proposal would make a technical adjustment to the prerequisites for §127.49, Livestock and Poultry Production, to align with the career and technical education (CTE) programs of study; update cross references; and update the language relating to employability skills to reference new TAC §127.15. Statutory authority is the Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

3. Discussion of Annual Audit Reports for Credit by Examination from Texas Tech University and The University of Texas at Austin
(Board agenda page II-35)

COMMITTEE - DISCUSSION
SBOE - NO ACTION

This item provides the opportunity for the committee to discuss the annual audit reports submitted by Texas Tech University and The University of Texas at Austin regarding examinations used for credit by examination. Statutory authority is the Texas Education Code (TEC), §28.023.

4. Approval of Updates and Substitutions to Adopted or Approved Instructional Materials
(Board agenda page II-40)

COMMITTEE - ACTION
SBOE – CONSENT

This item provides an opportunity for the committee and board to approve update and/or substitution requests received for State Board of Education (SBOE)-adopted or approved products. The updated content has been reviewed by subject-area specialists and determined to address the pertinent student expectations in a manner equal to the content initially reviewed and approved by the state review panel or Instructional Materials Review and Approval (IMRA) reviewers, as applicable. Statutory authority is the Texas Education Code (TEC), §31.003 and §31.022.

COMMITTEE ON INSTRUCTION (continued)

5. Discussion of the Rule and/or Proposed Amendments to 19 TAC Chapter 89, Adaptations for Special Populations, Subchapter A, Gifted/Talented Education, §89.1 Student Identification
(Board agenda page II-45)

COMMITTEE – DISCUSSION
SBOE – NO ACTION

This item presents the opportunity for the board to discuss the rule and/or proposed amendments to 19 Texas Administrative Code (TAC) Chapter 89, Adaptations for Special Populations, Subchapter A, Gifted/Talented Education, §89.1, Student Identification. The proposed amendments would ensure that a district's identification of gifted and talented students complies with all legal requirements and federal and state law. Statutory authority is the Texas Education Code (TEC), §§29.121, 29.122, 29.123, 39.236, and 48.109.

6. Consideration of Renewal of Currently Approved Innovative Courses
(Board agenda page II-47)

COMMITTEE - ACTION
SBOE - ACTION

This item presents for consideration the renewal of currently approved innovative courses that are scheduled to expire. Statutory authority is the Texas Education Code (TEC), §28.002(f).

7. Discussion of Proposed Amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter C. Other Provisions, §74.27 Innovative Courses and Programs
(Board agenda page II-51)

COMMITTEE - DISCUSSION
SBOE – NO ACTION

This item presents the opportunity for the committee to discuss proposed amendments to 19 Texas Administrative Code (TAC) Chapter 74, Curriculum Requirements, Subchapter C, Other Provisions, §74.27 Innovative Courses and Programs. Discussion of proposed amendments would ensure course curriculum complies with state and federal law. Statutory authority is the Texas Education Code (TEC), §28.002.

THURSDAY
June 26, 2025

9:00 a.m.

COMMITTEE ON SCHOOL FINANCE/PERMANENT SCHOOL FUND – Room 2.035 (BJB)

Members: Tom Maynard, chair; Marisa Perez-Diaz, vice chair; Keven Ellis; Will Hickman; and Aaron Kinsey. A quorum of the State Board of Education may attend the committee meeting and discuss items on the committee agenda. A quorum of the Committee of Investment Advisors to the Permanent School Fund may attend the committee meeting and discuss items on the committee agenda.

Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Per Capita Apportionment Rate for the 2024-2025 School Year — **COMMITTEE - DISCUSSION**
SBOE – NO ACTION

(Board agenda page III-1)

A per capita apportionment rate for each school year is set based on an estimate of the amount available for expenditure from the Available School Fund (ASF). A preliminary 2024-2025 per capita apportionment rate of $622.196 was set in September 2024. A final per capita apportionment rate is set by the commissioner of education based on actual funds available for expenditure. Agency staff will present the final rate for the 2024-2025 school year at the June 2025 meeting of the Committee on School Finance/Permanent School Fund. Statutory authority is the Texas Education Code (TEC), §§48.004, 48.251(c), and 43.001(b).

2. Selection of State Board Member Nominees for Statewide Board Positions — **COMMITTEE - ACTION**
SBOE - CONSENT

(Board agenda page III-4)

This item provides an opportunity for the committee and board to select state board member nominees for statewide board positions. Statutory authority is the Texas Constitution, Article VII, §2 and §5, and 19 Texas Administrative Code (TAC) Chapter 33.

THURSDAY
June 26, 2025

8:00 a.m.

COMMITTEE ON SCHOOL INITIATIVES – Room 2.013 (Barbara Jordan Building)
Members: LJ Francis, chair; Julie Pickren, vice chair; Staci Childs; Tiffany Clark; and Brandon Hall. A quorum of the State Board of Education may attend the committee meeting and discuss items on the committee agenda.
Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Proposed Revisions to the Framework for School Board Development — **COMMITTEE - ACTION** / **SBOE - ACTION**
(Board agenda page IV-1)

This item provides the board an opportunity to consider revisions to the SBOE's Framework for School Board Development. Statutory authority is the Texas Education Code (TEC), §11.159.

2. Recommendation for One Reappointment and One Appointment to the Boys Ranch Independent School District Board of Trustees — **COMMITTEE - ACTION** / **SBOE - CONSENT**
(Board agenda page IV-6)

This item provides an opportunity for the board to consider one reappointment and one appointment to the board of trustees of Boys Ranch Independent School District (ISD). The reappointment is necessary due to the expiration of the term of office of one board member. The appointment is necessary due to the resignation of one board member. Statutory authority is the Texas Education Code (TEC), 11.352.

COMMITTEE ON SCHOOL INITIATIVES (continued)

3. Review of Adoption of Proposed Amendment to 19 TAC Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes
(Board agenda page IV-18)

COMMITTEE - ACTION
SBOE - ACTION

This item provides the State Board of Education (SBOE) an opportunity to review the State Board Educator Certification (SBEC) rule actions that would adopt the proposed amendment to 19 Texas Administrative Code (TAC) Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes. The proposed amendment would update the SBEC's petition for adoption of rule change procedures to align with statute. The statutory authority for Chapter 250, Subchapter B, §250.20, is the Texas Education Code (TEC), §21.035(b) and §21.041(a) and (b)(1), and Texas Government Code (TGC), §2001.021.

4. Discussion of Ongoing State Board for Educator Certification Activities
(Board agenda page IV-22)

COMMITTEE - DISCUSSION
SBOE - NO ACTION

This item provides an opportunity for the committee to receive updates on current and upcoming State Board for Educator Certification (SBEC) activities and proposed SBEC rules and amendments. Statutory authority is the Texas Education Code (TEC), §§21.031, 21.035, 21.041, and 21.042.

5. Open-Enrollment Charter School Generation 31 Application Updates
(Board agenda page IV-24)

COMMITTEE - DISCUSSION
SBOE - NO ACTION

This item provides an opportunity for the committee to receive updates regarding the Generation 31 Open-Enrollment Charter Application cycle. Statutory authority is the Texas Education Code (TEC), §12.101.

THURSDAY
June 26, 2025

1:00 p.m.

COMMITTEE OF THE FULL BOARD – Room 2.035 (Barbara Jordan Building)

Public testimony – Individual testimony will be taken at the time the related item comes up for committee discussion or action. The procedures for registering and taking public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules.

1. Math Ad Hoc Committee Update — **COMMITTEE – DISCUSSION**
(Board agenda page I-47) — **SBOE – NO ACTION**

This item provides an opportunity for the committee to provide the Committee of the Full Board with updates on the status and progress of committee charges. Statutory authority is the Texas Education Code (TEC), §§7.102(c)(4); 28.002(a)(1)(B); and 28.002(c).

2. Social Studies Ad Hoc Committee Update — **COMMITTEE - DISCUSSION**
(Board agenda page I-48) — **SBOE – NO ACTION**

This item provides an opportunity for the committee to provide the Committee of the Full Board with updates on the status and progress of committee charges. Statutory authority is the Texas Education Code (TEC), §§7.102(c)(4); 28.002(a)(1)(D), and 28.002(c).

Information Materials

1. State Board of Education Meeting Schedule for 2026
(Board agenda page V-1)

According to the Texas Education Code, §7.106, the State Board of Education (SBOE) is to hold four meetings a year in Austin, Texas on dates determined by the chair. The SBOE may also hold other meetings as may be called by the chair. The purpose of this item is to announce SBOE meeting dates in 2026.

CONSENT AGENDA
STATE BOARD OF EDUCATION
June 27, 2025

(1) Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education (Second Reading and Final Adoption)

This item presents for second reading and final adoption proposed repeal of 19 Texas Administrative Code (TAC) Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and proposed revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education. The proposed rule action would repeal career and technical education (CTE) Texas Essential Knowledge and Skills (TEKS) in 19 TAC Chapter 130 and would move the TEKS to 19 TAC Chapter 127 in order to ensure that all CTE TEKS are in the same chapter in administrative rule. The proposed rule action would also move some existing courses within 19 TAC Chapter 127 to reorganize the chapter. Changes are recommended since approved for first reading. Statutory authority is the Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

(Agenda Exhibit) II-1

(2) Proposed Amendments 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52 (First Reading and Filing Authorization)

This item presents for first reading and filing authorization proposed amendments to 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49,127.51, and 127.52. The proposal would make a technical adjustment to the prerequisites for §127.49, Livestock and Poultry Production, to align with the career and technical education (CTE) programs of study; update cross references; and update the language relating to employability skills to reference new TAC §127.15. Statutory authority is the Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

(Agenda Exhibit) II-20

(3) Approval of Updates and Substitutions to Adopted or Approved Instructional Materials

This item provides an opportunity for the committee and board to approve update and/or substitution requests received for State Board of Education (SBOE)-adopted or approved products. The updated content has been reviewed by subject-area specialists and determined to address the pertinent student expectations in a manner equal to the content initially reviewed and approved by the state review panel or Instructional Materials Review and Approval (IMRA) reviewers, as applicable. Statutory authority is the Texas Education Code (TEC), §31.003 and §31.022.

(Agenda Exhibit) II-40

(4) Selection of State Board Member Nominees for Statewide Board Positions

This item provides an opportunity for the committee and board to select state board member nominees for statewide board positions. Statutory authority is the Texas Constitution, Article VII, §2 and §5; and 19 Texas Administrative Code (TAC) Chapter 33.

(5) Recommendation for One Reappointment and One Appointment to the Boys Ranch Independent School District Board of Trustees

This item provides an opportunity for the board to consider one reappointment and one appointment to the board of trustees of Boys Ranch Independent School District (ISD). The reappointment is necessary due to the expiration of the term of office of one board member. The appointment is necessary due to the resignation of one board member. Statutory authority is the Texas Education Code (TEC), §11.352.

OFFICIAL AGENDA

STATE BOARD OF EDUCATION
AUSTIN, TEXAS

June 27, 2025
9:00 a.m.

Barbara Jordan Building, Room 2.035
1601 N. Congress Avenue

Invocation

Pledge of Allegiance

Roll Call

Approval of Minutes

State Board of Education, April 11, 2025

1. Resolutions and Presentations

Resolution honoring the 2025 Student Heroes Award Recipients

Resolution honoring the 2025 Presidential Awards Excellence in Mathematics and Science Teaching (PAEMST) State Finalists

Resolution honoring the Presidential Awards Excellence in Mathematics and Science Teaching Awardees

Presentation of the Milken Educator Awardees

2025 Texas Teacher of the Year

2025 Texas Elementary Teacher of the Year

Public testimony – Individual testimony will be taken at the time the related item comes up for Committee discussion or action. The procedures for public testimony at State Board of Education committee meetings and general board meetings are provided in SBOE Operating Rules or in the information section of the agenda.

2. Approval of Consent Agenda

Any agenda item may be placed on the Consent Agenda by any State Board of Education committee.

COMMITTEE OF THE FULL BOARD

3. **Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance ; Subchapter J, Health Science; Subchapter O, Manufacturing**
(First Reading and Filing Authorization)

This item presents for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; and Subchapter O, Manufacturing. The proposed new rules would add new Texas Essential Knowledge and Skills (TEKS) developed by subject matter experts convened by the Texas State Technical College (TSTC) and Educational Service Center (ESC) Region 4 that are needed for completion of career and technical education (CTE) programs of study. Statutory authority is the Texas Education Code, §§7.102(c)(4); 28.002(a), (c), (n), and (o); and 28.025(a) and (b-17).

(Agenda Exhibit) I-1

4. **Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025**
(Second Reading and Final Adoption)

This item presents for second reading and final adoption proposed new 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025. The proposed new section would establish Texas Essential Knowledge and Skills (TEKS) in employability skills for effective performance in the workplace. The employability skills standards would be required to be taught as a part of each career and technical education (CTE) course. No changes are recommended since approved for first reading. Statutory authority is the Texas Education Code (TEC), §§7.102(c)(4); 28.002(a) and (c), and 28.025(a).

(Agenda Exhibit) I-29

5. **Adoption of Review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option**
(Adoption of Review)

Texas Government Code (TGC), §2001.039, establishes a four-year rule review cycle for all state agency rules, including State Board of Education (SBOE) rules. This item presents the adoption of the review of 19 Texas Administrative Code (TAC) Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option. The rules being reviewed address the development and administration of tests, voluntary assessment of private school students, the schedule for the release of tests, and administration and reporting of group-administered achievement tests. The statutory authority for the rule review is TGC, §2001.039. The statutory authority for 19 TAC Chapter 101, Subchapters A–C, is Texas Education Code (TEC), §§39.021, 39.022, 39.023, 39.025, 39.032, and 39.033.

(Agenda Exhibit) I-40

6. Consideration of the Commissioner of Education's Generation 30 Open-Enrollment Charter School Proposals

This item provides the committee and board an opportunity to review and take action or no action on the commissioner's list of proposed Subchapter D Open-Enrollment Charter Schools scheduled to open in the 2026-2027 school year. If awarded, the charters will have an initial five-year term. Statutory authority is the Texas Education Code, (TEC) §12.101.

(Agenda Exhibit) I-45

COMMITTEE ON INSTRUCTION

7. Consideration of Renewal of Currently Approved Innovative Courses

This item presents for consideration the renewal of currently approved innovative courses that are scheduled to expire. Statutory authority is the Texas Education Code (TEC), §28.002(f).

(Agenda Exhibit) II-47

COMMITTEE ON SCHOOL INITIATIVES

8. Proposed Revisions to the Framework for School Board Development

This item provides the board an opportunity to consider revisions to the SBOE's Framework for School Board Development. Statutory authority is the Texas Education Code (TEC), §11.159.

(Agenda Exhibit) IV-1

9. Review of Adoption of Proposed Amendment to 19 TAC Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes

This item provides the State Board of Education (SBOE) an opportunity to review the State Board Educator Certification (SBEC) rule actions that would adopt the proposed amendment to 19 Texas Administrative Code (TAC) Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes. The proposed amendment would update the SBEC's petition for adoption of rule change procedures to align with statute. The statutory authority for Chapter 250, Subchapter B, §250.20, is the Texas Education Code (TEC), §21.035(b) and §21.041(a) and (b)(1), and Texas Government Code (TGC), §2001.021.

(Agenda Exhibit) IV-18

REPORTS OF COMMITTEES REGARDING AGENDA ITEMS POSTED FOR DISCUSSION ON COMMITTEE AGENDAS

Committee chairs may provide an update about discussion items considered during the current meeting by any standing committee or ad hoc committee.

REPORTS OF OTHER STATE BOARD OF EDUCATION MEMBERS REGARDING AGENDA ITEMS AND EDUCATIONAL ACTIVITIES AND CONCERNS IN INDIVIDUAL DISTRICTS

Members of the State Board of Education may present information regarding agenda items or other relevant information about public education.

Information Materials

1. **State Board of Education Meeting Schedule for 2026**
   (Board agenda page V-1)

   According to the Texas Education Code, §7.106, the State Board of Education (SBOE) is to hold four meetings a year in Austin, Texas on dates determined by the chair. The SBOE may also hold other meetings as may be called by the chair. The purpose of this item is to announce SBOE meeting dates in 2026.

COMMITTEE OF THE FULL BOARD

Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; and Subchapter O, Manufacturing
(First Reading and Filing Authorization)

June 27, 2025

COMMITTEE OF THE FULL BOARD: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item presents for first reading and filing authorization proposed new 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; and Subchapter O, Manufacturing. The proposed new rules would add new Texas Essential Knowledge and Skills (TEKS) developed by subject matter experts convened by the Texas State Technical College (TSTC) and Education Service Center (ESC) Region 4 that are needed for completion of career and technical education (CTE) programs of study.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§7.102(c)(4); 28.002(a), (c), (n), and (o); and 28.025(a) and (b-17).

TEC, §7.102(c)(4), requires the State Board of Education (SBOE) to establish curriculum and graduation requirements.

TEC, §28.002(a), identifies the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

TEC, §28.002(n), allows the SBOE to develop by rule and implement a plan designed to incorporate foundation curriculum requirements into the CTE curriculum required in TEC, §28.002.

TEC, §28.002(o), requires the SBOE to determine that at least 50% of the approved CTE courses are cost effective for a school district to implement.

TEC, §28.025(a), requires the SBOE to determine by rule the curriculum requirements for the foundation high school graduation program that are consistent with the required curriculum under TEC, §28.002.

TEC, §28.025(b-17), requires the SBOE to ensure by rule that a student may comply with curriculum requirements under TEC, §28.025(b-1)(6), by successfully completing an advanced CTE course, including a course that may lead to an industry-recognized credential or certificate or an associate degree.

EFFECTIVE DATE: The proposed effective date of the proposed new sections is 20 days after filing as adopted with the Texas Register. Under TEC, §7.102(f), the SBOE must approve the rule action at second reading and final adoption by a vote of two-thirds of its members to specify an effective date earlier than the beginning of the 2026-2027 school year. The earlier effective date will enable districts to begin preparing for the implementation of the new TEKS.

PREVIOUS BOARD ACTION: The SBOE adopted the TEKS for all subjects effective September 1, 1998. The CTE TEKS were amended effective August 23, 2010. The CTE TEKS were again amended effective August 28, 2017. CTE TEKS for courses in education and training; health science; and science, technology, and mathematics (STEM) were amended effective April 26, 2022; June 14, 2022; and August 7, 2022. In November 2023, the SBOE adopted new TEKS for CTE career preparation and entrepreneurship courses to be implemented in the 2024-2025 school year. In April 2024, the SBOE adopted new CTE TEKS for courses in the agribusiness, animal science, plant science, and aviation maintenance programs of study as well as two STEM courses effective August 1, 2025. In April 2025, the SBOE adopted TEKS in the CTE engineering career cluster and for a set of state-approved innovative courses in CTE career clusters for agriculture, food, and natural resources; business, marketing, and finance; health science; hospitality and tourism; information technology; and law and public service, also effective August 1, 2025. A discussion item regarding proposed new TEKS for courses in the CTE career clusters for business, marketing, and finance; health science; and manufacturing was presented to the Committee of the Full Board at the January 2025 SBOE meeting.

BACKGROUND INFORMATION AND JUSTIFICATION: In accordance with statutory requirements that the SBOE identify by rule the essential knowledge and skills of each subject in the required curriculum, the SBOE follows a board-approved cycle to review and revise the essential knowledge and skills for each subject.

During the November 2022 meeting, the SBOE approved a timeline for the review of CTE courses for 2022-2025. Also at the meeting, the SBOE approved a specific process to be used in the review and revision of the CTE TEKS. The CTE-specific process largely follows the process for TEKS review for other subject areas but was adjusted to account for differences specific to CTE.

In 2023, CTE advisory committees convened to make recommendations for the review and refresh of programs of study as required by the Texas Perkins State Plan. Finalized programs of study were published in the fall of 2023 with an implementation date beginning in the 2024-2025 school year. CTE courses to be developed or revised to complete or update programs of study were determined.

At the April 2023 SBOE meeting, the board discussed and approved changes to the TEKS review process, including approving a process for selecting work group members. The changes were implemented beginning with the engineering TEKS review process. The SBOE began the review of current CTE TEKS, the development of new CTE TEKS, and the review of innovative courses to be approved as TEKS for courses in the new engineering program of study in 2024. New engineering CTE TEKS were adopted at the April 2025 SBOE meeting.

At the April 2024 meeting, the SBOE approved new TEKS for 23 courses in the agribusiness, animal science, plant science, and aviation maintenance programs of study as well as two STEM courses that may satisfy science graduation requirements, Physics for Engineering and Scientific Research and Design. Additionally, Texas Education Agency (TEA) staff shared an overview of upcoming interrelated needs for TEKS review and revision and instructional materials review and approval (IMRA). Staff explained upcoming needs related to development and amendment of CTE courses, made recommendations for completing the work in batches, and recommended including CTE in the next three cycles of IMRA.

At the June 2024 meeting, the board considered next steps related to the adoption of CTE courses that are needed to complete programs of study and a schedule for future CTE TEKS reviews. The SBOE approved recommendations that TEA present a set of innovative courses with minor edits for consideration for adoption as TEKS-based courses. Additionally, the SBOE authorized TEA to enter into interagency

contracts with Collin College, Texas State Technical College, and ESC Region 4 to develop initial drafts of TEKS for the CTE courses.

A discussion item regarding proposed new CTE TEKS for courses in the Arts, Audio Visual Technology, and Communications; Business, Marketing, and Finance; Health Science; Law and Public Service; Manufacturing; and Transportation, Distribution, and Logistics Career Clusters was presented to the Committee of the Full Board at the January 2025 SBOE meeting, and the subject matter experts convened to complete final recommendations for the proposed new courses.

This item presents for first reading and filing authorization proposed new CTE TEKS for implementation in the 2025-2026 school year.

The proposal would ensure the standards for these career clusters support relevant and meaningful programs of study. The attachments to this item reflect the text of the proposed new TEKS.

FISCAL IMPACT: TEA has determined that for the first five years the proposal is in effect (2025-2029), there are no additional costs to state government. However, in fiscal year 2025 there was a cost to the state of approximately $285,000 to secure contracts for the development of the proposed new CTE TEKS. In addition, there will be implications for TEA if the state develops professional development to help teachers and administrators understand the revised TEKS. Any professional development that is created would be based on whether TEA received an appropriation for professional development in the next biennium.

There may be fiscal implications for school districts and charter schools to implement the proposed new TEKS, which may include the need for professional development and revisions to district-developed databases, curriculum, and scope and sequence documents. Since curriculum and instruction decisions are made at the local district level, it is difficult to estimate the fiscal impact on any given district.

LOCAL EMPLOYMENT IMPACT: The proposal has no effect on local economy; therefore, no local employment impact statement is required under Texas Government Code, §2001.022.

SMALL BUSINESS, MICROBUSINESS, AND RURAL COMMUNITY IMPACT: The proposal has no direct adverse economic impact for small businesses, microbusinesses, or rural communities; therefore, no regulatory flexibility analysis specified in Texas Government Code, §2006.002, is required.

COST INCREASE TO REGULATED PERSONS: The proposal does not impose a cost on regulated persons, another state agency, a special district, or a local government and, therefore, is not subject to Texas Government Code, §2001.0045.

TAKINGS IMPACT ASSESSMENT: The proposal does not impose a burden on private real property and, therefore, does not constitute a taking under Texas Government Code, §2007.043.

GOVERNMENT GROWTH IMPACT: TEA staff prepared a Government Growth Impact Statement assessment for this proposed rulemaking. During the first five years the proposed rulemaking would be in effect, it would create new regulations by proposing new CTE TEKS required to be taught by school districts and charter schools offering the courses.

The proposed rulemaking would not create or eliminate a government program; would not require the creation of new employee positions or elimination of existing employee positions; would not require an increase or decrease in future legislative appropriations to the agency; would not require an increase or decrease in fees paid to the agency; would not expand, limit, or repeal an existing regulation; would not

increase or decrease the number of individuals subject to its applicability; and would not positively or adversely affect the state's economy.

PUBLIC BENEFIT AND COST TO PERSONS: The proposal would add course options for students to support relevant and meaningful programs of study. There is no anticipated economic cost to persons who are required to comply with the proposal.

DATA AND REPORTING IMPACT: The proposal would have no data or reporting impact.

PRINCIPAL AND CLASSROOM TEACHER PAPERWORK REQUIREMENTS: TEA has determined that the proposal would not require a written report or other paperwork to be completed by a principal or classroom teacher.

PUBLIC COMMENTS: The public comment period on the proposal begins August 1, 2025, and ends at 5:00 p.m. on September 2, 2025. The SBOE will take registered oral and written comments on the proposal at the appropriate committee meeting in September 2025 in accordance with the SBOE board operating policies and procedures. A request for a public hearing on the proposal submitted under the Administrative Procedure Act must be received by the commissioner of education not more than 14 calendar days after notice of the proposal has been published in the *Texas Register* on August 1, 2025.

MOTION TO BE CONSIDERED: The State Board of Education:

> Approve for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; and Subchapter O, Manufacturing.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment I:
Text of Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter F, Business, Marketing, and Finance

Attachment II:
Text of Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter J, Health Science

Attachment III.
Text of Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter O, Manufacturing

ATTACHMENT I
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter F. Business, Marketing, and Finance

§127.270. Commercial Lending and Real Estate (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a Level 2 or higher course from the Business, Marketing, and Finance Career Cluster. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Business, Marketing, and Finance Career Cluster focuses on planning, managing, organizing, directing, and evaluating business functions essential to efficient and productive business management, finance, operations, and marketing.

(3) Commercial Lending and Real Estate is designed to equip students with the knowledge and skills needed to excel in the field of commercial lending. Students gain an understanding of commercial lending principles and practices, develop expertise in analyzing commercial real estate properties, learn about various types of commercial loans and their underwriting processes, and explore the role of commercial lenders in driving economic development.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student understands the fundamental concepts of commercial lending and real estate. The student is expected to:

(A) define commercial lending and distinguish commercial lending from residential lending;

(B) explain how the role of commercial lending affects economic development and the growth of the real estate market; and

(C) describe the relationship between commercial real estate and commercial lending practices.

(2) The student examines different types of commercial real estate. The student is expected to:

(A) identify and describe various types of commercial properties, including office buildings, retail centers, industrial facilities, and multifamily housing;

(B) analyze the unique characteristics and investment potential of each type of commercial property; and

(C) identify and evaluate the impact of market trends on different sectors of commercial real estate.

(3) The student understands the processes involved in commercial lending. The student is expected to:

(A) describe the steps involved in originating a commercial loan, including application, underwriting, and approval;

(B) analyze the criteria, including income, credit history, and collateral, that lenders use to assess creditworthiness of borrowers; and

(C) explain the role of risk assessment and mitigation in the commercial lending process.

(4) The student uses financial analysis techniques to evaluate commercial real estate investments. The student is expected to:

(A) calculate key financial metrics such as net operating income (NOI), cap rate, and return on investment (ROI) for a given commercial lending scenario;

(B) use financial modeling to project cash flows and assess the profitability of commercial real estate projects through consideration of market trends, financing options, and risk assessment; and

(C) analyze the impact of financing terms, interest rates, and loan structures on commercial real estate investments.

(5) The student examines commercial lending and real estate legal and regulatory environments. The student is expected to:

(A) identify key laws and regulations, including zoning laws, environmental regulations, and fair lending practices, that govern commercial real estate transactions;

(B) analyze the role of contracts in commercial real estate, including purchase agreements, lease agreements, and loan documents; and

(C) identify and discuss how regulatory changes impact commercial lending and real estate markets.

(6) The student explores the various structures and terms used in commercial loans. The student is expected to:

(A) describe common loan structures, including fixed-rate, adjustable-rate, and interest-only loans;

(B) analyze the advantages and disadvantages of different loan terms, including loan-to-value ratio, amortization period, and prepayment penalties; and

(C) compare creative commercial financing options such as mezzanine financing and bridge loans in commercial real estate transactions.

(7) The student analyzes commercial real estate markets to inform investment and lending decisions. The student is expected to:

(A) conduct market research to assess supply and demand dynamics in commercial real estate;

(B) evaluate the impact of economic indicators, including employment and interest rates on commercial real estate markets; and

(C) analyze and evaluate emerging trends in commercial real estate such as urbanization and technology-driven changes.

(8) The student understands the importance of risk management in commercial lending and real estate. The student is expected to:

(A) identify common risks associated with commercial lending, including default risk, interest rate risk, and market risk;

(B) research and describe risk mitigation strategies, including diversification, insurance, and due diligence, used in commercial lending and real estate transactions; and

(C) evaluate the role of loan covenants and credit enhancements in protecting lenders.

(9) The student examines the processes involved in servicing commercial loans and managing real estate assets. The student is expected to:

(A) describe the responsibilities of loan servicers, including payment processing, account management, and collections;

(B) analyze asset management strategies for maximizing the value of commercial real estate investments, including financial analysis, performance monitoring, property management, tenant relations, market analysis, strategic planning, risk management, portfolio diversification, and exit strategy planning; and

(C) research and describe the challenges of managing distressed assets and non-performing loans such as valuation difficulties, legal and regulatory complexities, operational challenges, market and economic factors, and reputational risks.

(10) The student understands the principles and practices of commercial real estate development. The student is expected to:

(A) describe the stages of commercial real estate development from site selection to project completion;

(B) analyze the financial, legal, and regulatory considerations of commercial development projects; and

(C) analyze various impacts of development on communities, including benefits and challenges.

(11) The student identifies and understands ethical considerations in commercial lending and real estate transactions. The student is expected to:

(A) discuss ethical issues related to lending practices, including predatory lending, conflicts of interest, and transparency, and evaluate the impact of these issues on consumers and financial institutions; and

(B) propose strategies for promoting integrity and ethical behavior in the commercial lending and real estate professions, including transparency, accountability, and compliance with regulations.

(12) The student explores career opportunities in commercial lending and real estate. The student is expected to:

(A) identify various career paths in commercial lending and real estate, including loan officers, underwriters, real estate analysts, and developers, and describe the primary responsibilities and qualifications for each role;

(B) research and identify the education, skills, and certifications required for different roles in the industry, including loan officers, underwriters, real estate analysts, and developers; and

(C) develop a career plan that includes short- and long-term goals for entering and advancing in the commercial lending and real estate fields.

ATTACHMENT II
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter J. Health Science [~~Hospitality and Tourism~~]

§127.472. Introduction to Pharmacy Science (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 9 and 10. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

(3) The Introduction to Pharmacy Science course is designed to provide an overview of the history of the pharmacy profession, legal and ethical aspects of pharmacy, and the skills necessary to work in the field of pharmacy. The course addresses certifications/registration and state and federal regulations and rules pertaining to the field. Students acquire a foundational understanding of medical terminology and math, anatomy and physiology, pathophysiology, pharmacology, and wellness as they pertain to pharmacy sciences.

(A) To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, and communicate effectively. Students should recognize that quality healthcare depends on the ability to work well with others.

(B) Professional integrity in the health science industry is dependent on acceptance of ethical responsibilities. Students employ their ethical responsibilities, recognize limitations, and understand the implications of their actions.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches the history of medicine and pharmacy and how it differs from modern practices. The student is expected to:

(A) identify ancient beliefs associated with illness and medicine from 440 BC through AD 1600;

(B) describe treatments, including herbal remedies and supernatural explanations, that were commonly practiced prior to the Enlightenment period in Western Civilization; and

(C) describe eighteenth and nineteenth century medicine, including bloodletting, purging, blistering, inoculation, amputation, and surgery and how major wars influenced medicine.

(2) The student explains the ethical and legal responsibilities of pharmacists and pharmacy technicians. The student is expected to:

(A) describe basic laws and regulations that govern pharmacy at the state and federal level;

(B) describe legal terms, including medical malpractice, negligence, mislabeling, adverse drug event (ADE), and wrongful death, and consequences associated with medication errors, including civil lawsuits, professional disciplinary action, and criminal charges, related to dispensing and compounding medications;

(C) differentiate between negligence, product liability, contributory negligence, and regulatory law;

(D) differentiate between the roles and responsibilities of a pharmacist and a pharmacy technician;

(E) describe why maintaining confidentiality of patient information is vital and summarize the Health Insurance Portability and Accountability Act (HIPAA);

(F) identify tort law and explain how HIPPA relates to medical negligence cases; and

(G) define professional liability.

(3) The student demonstrates professionalism and effectively communicates with healthcare workers and patients. The student is expected to:

(A) define appropriate and professional attire required for laboratory work;

(B) describe appropriate hygiene expected of pharmaceutical professionals;

(C) discuss professional attitudes and behaviors expected of pharmacy employees;

(D) identify the key characteristics of effective and ineffective communication in pharmacy practice;

(E) accurately interpret, transcribe, and communicate medical vocabulary using appropriate technologies;

(F) identify ways to eliminate barriers to effective communication in a pharmacy setting; and

(G) identify communication skills needed to work with individuals who are terminally ill, intellectually disabled or hearing and vision impaired or have other impairments in a pharmacy setting.

(4) The student examines skills, training, and certifications necessary to work in the field of pharmacy. The student is expected to:

(A) explain how time management, stress management, and change management skills can support the ability to thrive in a continuously evolving pharmacy profession;

(B) analyze applicability of interpersonal skills, including negotiation skills, conflict resolution, customer service, and teamwork within a pharmacy setting;

(C) demonstrate problem-solving skills by developing and implementing effective solutions to pharmacy challenges within a specified time frame;

(D) explain methods to maintain competency in the pharmacy industry through continuing education and continuing professional development; and

(E) compare the various career paths in pharmacy, including pharmacist, pharmacy technician, sales representative, and pharmaceutical research.

(5) The student uses appropriate medical vocabulary to communicate effectively with other healthcare professionals. The student is expected to:

(A) identify the various routes of drug medication;

(B) differentiate between the various classes of drugs;

(C) define prefixes, roots, suffixes, and abbreviations common to the pharmacy profession;

(D) define common terms associated with pharmacology; and

(E) apply knowledge of word roots, prefixes, and suffixes to comprehend unfamiliar terms in pharmacy science.

(6) The student uses mathematical calculations and systems of measurement to solve problems in pharmacy. The student is expected to:

(A) perform medication calculations using different systems of measurement, including metric, apothecary, and household systems;

(B) convert units within and between the metric and imperial measurement systems;

(C) convert measurements between the metric, apothecary, and avoirdupois systems; and

(D) perform multistep ratio and proportion drug concentration problems.

(7) The student understands the fundamental principles of human anatomy, physiology, pathophysiology, and basic pharmacology. The student is expected to:

(A) describe the anatomy and physiology of the human body systems, including integumentary, musculoskeletal, nervous, immune, lymphatic, endocrine, cardiovascular, respiratory, gastrointestinal, renal, genitourinary, and hematological systems, and the senses;

(B) describe the pathophysiology of the main human body systems, including integumentary, musculoskeletal, nervous, immune, lymphatic, endocrine, cardiovascular, respiratory, gastrointestinal, renal, genitourinary, and hematological systems, and the senses; and

(C) identify the basic drug categories that affect each of the main human body systems, including integumentary, musculoskeletal, nervous, immune, lymphatic, endocrine, cardiovascular, respiratory, gastrointestinal, renal, genitourinary, and hematological systems, and the senses.

(8) The student explores the application of basic wellness concepts and disease prevention strategies. The student is expected to:

(A) describe the recommended vaccination schedule, including how to counsel on recommendations for patient populations with certain chronic illnesses;

(B) explain standard procedures for delivery and documentation of immunizations;

(C) analyze the effectiveness and safety of complementary and alternative medicines (CAM) such as acupuncture, acupressure, and coining and CAM's potential impact on traditional medical treatments;

(D) explain the role of health screenings in maintaining a healthy population;

(E) research and describe the impact of external factors such as alcohol, tobacco, vaping, and drug use on patient health; and

(F) explain the role of medication therapy management (MTM) in optimizing patient health and medication compliance.

(9) The student understands pharmaceutical regulations that are enforced by state and federal agencies. The student is expected to:

(A) define Occupational Safety and Health Administration (OSHA) requirements for prevention of exposure to hazardous substances, including risk assessment;

(B) define National Institute of Occupational Safety and Health (NIOSH) requirements for prevention of exposure to hazardous substances, including risk assessment;

(C) define United States Pharmacopeia (USP) requirements for prevention of exposure to hazardous substances, including risk assessment;

(D) identify, handle, dispense, and safely dispose of hazardous medications and materials using information from Safety Data Sheets (SDS), NIOSH Hazardous Drug List, and USP;

(E) describe requirements for prevention and response to blood-borne pathogen exposure, including accidental needle stick and post-exposure prophylaxis; and

(F) explain OSHA Hazard Communication Standards.

§127.512. Science of Nursing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10 and 11. Recommended prerequisite: Principles of Nursing Science or Principles of Health Science. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development.

(3) The Science of Nursing course introduces students to basic research-based concepts in nursing. Topics include the nursing process, regulatory agencies, professional organizations, and the importance of critical thinking in patient care. Instruction includes skills needed to pursue a nursing degree and training requirements for specialty nursing roles. Knowledge and skills include emergency care, patient assessment, basic interpretation of vital signs, identification of patients with physical and mental disabilities, patient positioning, use of assistive devices, and application of nursing theories in patient care plans.

(A) To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, and communicate effectively. Students should recognize that quality healthcare depends on the ability to work well with others.

(B) Professional integrity in the health science industry is dependent on acceptance of ethical responsibilities. Students employ their ethical responsibilities, recognize limitations, and understand the implications of their actions.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student understands tiers of nursing careers and the associated licensures. The student is expected to:

(A) identify and describe the educational and certification requirements for an entry-level patient care technician (PCT);

(B) identify and describe common work settings, including hospitals, doctors' offices, and healthcare agencies for PCTs;

(C) list qualifications to become a certified nursing assistant (CNA);

(D) identify and describe scope of practice for CNAs;

(E) describe the professional responsibilities of unlicensed assistive personnel (UAP) and explain how UAPs assist individuals with physical disabilities, mental disorders, and other healthcare needs;

(F) compare coursework required to obtain nursing credentials, including a licensed vocational nurse (LVN), Associate Degree Registered Nurse (ADN RN), and Bachelor of Science in Nursing Registered Nurse (BSN RN);

(G) analyze the requirements for advanced practice registered nurse (APRN) certification, including certified registered nurse anesthetist (CRNA), certified nurse midwife (CNM), certified nurse practitioner (CNP), and certified clinical nurse specialist (CNS); and

(H) compare nursing specialty options, including pediatric, critical care, emergency room, mental health, forensic, geriatric, and hospice nursing roles.

(2) The student examines how the nursing process is used to collect subjective and objective data in patient assessment. The student is expected to:

(A) describe the steps of a basic patient intake interview, including recording family history, biographical information, reason for seeking healthcare, present illness or health concerns, past health history, current medication list, and review of systems;

(B) explain the visual and physical head-to-toe assessment, including abnormal and normal structure and function of the body systems, used to evaluate patient condition;

(C) describe the importance of patient vital signs, including temperature, systolic and diastolic pressures, pulse, respiratory rate, pulse oximetry, and pain assessment using appropriate pain scales, in assessing a patient's overall health status;

(D) identify equipment, including a thermometer, sphygmomanometer, stethoscope, pulse oximeter, and time keeping device, used to measure and record patient vital signs;

(E) compare patient vital signs, including values outside of normal ranges, that establish baseline homeostasis; and

(F) explain how the steps in the nursing process are used to assist the patient to reach optimal physiological, social, mental, and emotional wellness.

(3) The student demonstrates knowledge of therapeutic care by reviewing patient activities of daily living (ADL). The student is expected to:

(A) define and differentiate between essential ADLs;

(B) explain the procedures for assessing patient independence, identifying functional limitations, and developing appropriate care plans;

(C) explain how a nurse promotes optimal patient function and quality of life;

(D) identify mental health disorders, including depression and anxiety, on patient ADLs;

(E) evaluate physical disabilities and limitations to recommend the correct assistive device for patient care; and

(F) identify and align therapeutic care to specific deficiencies in ADLs such as performing personal care, ambulating, and orienting to and using assistive devices to promote patient independence and optimize functional outcomes.

(4) The student understands the role of the nurse in providing first aid and emergency care. The student is expected to:

(A) identify and describe first aid and emergency care certifications such as Basic Life Support (BLS), Automated External Defibrillator (AED), First Aid, and Mental Health First Aid;

(B) discuss the advantages of obtaining first aid and emergency care certifications;

(C) identify and describe first aid and emergency care skills used by nurses; and

(D) explain the significance of the role of a nurse in an emergency setting such as an emergency room, intensive care unit, urgent care, or a life-saving event.

(5) The student applies nursing theory to simulate the implementation of patient care. The student is expected to:

(A) identify and explain the purpose of medical equipment that is used to assist patients with varied needs, including a Hoyer lift, hospital beds, foley catheter and drainage system, wheelchairs, gait belts, and bedside commodes;

(B) compare patient care needs throughout the lifespan using theories such as Maslow's Hierarchy of Needs, Erik Erikson's Stages of Psychosocial Development, Jean Piaget's Theory of Child Development, and Lev Vygotsky's Contemporary Theories on Development;

(C) identify proper patient positioning for patient needs, including Trendelenburg, Fowler's, supine, prone, lithotomy, and lateral recumbent;

(D) identify methods used to educate patients, family members, and caregivers in techniques for managing disabilities; and

(E) model the proper use of assistive medical equipment used in a variety of medical facilities, including long-term care, nursing and rehabilitation, home healthcare settings, and classroom environment.

(6) The student examines technology used in the practice of nursing. The student is expected to:

(A) identify and describe the technology, including electronic medical records, mobile computer workstations, scanning devices, and charting software, used to collect patient information;

(B) describe how to access laboratory values and normal ranges for diagnostic tests such as complete blood count, comprehensive metabolic panel, basic metabolic panel, and urinalysis to determine patient health status; and

(C) identify and describe advancements in technology, including remote patient monitoring systems, wearable monitoring systems, electronic intake patient interviews, interpreting services, deaf-link communication services, and patient safety alarms.

(7) The student understands the importance of using critical-thinking skills in the nursing process. The student is expected to:

(A) analyze the components of conducting a comprehensive patient assessment;

(B) identify and differentiate between subjective and objective data, including what the patient reports and what is observable and quantifiable;

(C) compare trends in health outcomes between various populations across the lifespan, including birth rates, life expectancy, mortality rates, and morbidity rates;

(D) analyze peer-reviewed medical research articles to evaluate the efficacy of specific treatments in improving patient care outcomes;

(E) create a patient care plan using procedures, including assess, diagnose, plan, implement and evaluate (ADPIE) and subjective, objective, assess, plan, implement, and evaluate (SOAPIE);

(F) analyze the impact of nursing interventions on patient condition in a simulated setting; and

(G) examine and describe clinical outcomes based upon patient assessment, care plan, and nursing interventions.

(8) The student understands pharmacology terminology associated with nursing practices. The student is expected to:

(A) identify and describe the eight rights of medication administration, including right patient, medication, dose, route, time, documentation, diagnosis, and response;

(B) identify and describe the principles of pharmacodynamics, including receptor binding, drug-receptor interactions, dose-response relationships, and therapeutic index;

(C) explain pharmacokinetics in the human body system, including the course of drug absorption, distribution, metabolism, and excretion;

(D) analyze the advantages of various routes of drug administration, including oral, injection, topical, buccal, suppository, mucosal, intravenous, interosseous, nebulization, and intrathecal; and

(E) analyze the disadvantages of various routes of drug administration, including oral, injection, topical, buccal, suppository, mucosal, intravenous, interosseous, nebulization, and intrathecal.

ATTACHMENT III
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter O. Manufacturing [~~Science, Technology, Engineering, and Mathematics~~]

§127.824. Blueprint Reading for Manufacturing Applications (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 9-12. Recommended prerequisites: Algebra I and Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

(3) In Blueprint Reading for Manufacturing Applications, students gain knowledge and skills in an introduction to reading and interpreting working drawings for basic machining processes, mechanical maintenance, basic electrical, basic fluid power, and basic facility prints. Students also use sketching techniques to create pictorial and multiple-view drawings.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student demonstrates an understanding of blueprint and technical drafting terminology and functions. The student is expected to:

(A) explain the function of various parts of a title block such as scale, materials, and print title;

(B) interpret and explain the function of multi-view drawings;

(C) describe fractional, decimal, and metric dimensions used in technical drawings;

(D) interpret and explain the function of section views;

(E) identify and describe projection methods, including isometric, oblique, and orthographic, used in engineering drawings;

(F) explain the function of auxiliary views;

(G) identify and explain types of dimensions, including linear, radial, angular, ordinate, and arc length;

(H) explain the function of pictorial drawings in manufacturing applications;

(I) explain the function of geometric dimensioning and tolerancing in manufacturing applications;

(J) explain tolerances with parts from a print;

(K) explain the function of scaling in a print;

(L) differentiate between a pictorial and a schematic drawing;

(M) explain the function of scaling in a print;

(N) explain the function of call outs in a print; and

(O) differentiate between electrical schematics, fluid power schematics, and piping and instrumentation diagram (P&ID) drawings.

(2) The student demonstrates an understanding of tools and symbols to produce technical schematics, facility prints, P&ID prints, and blueprints. The student is expected to:

(A) explain the function of and use a compass for drawing arcs in a print;

(B) explain the function of and use measuring devices such as scales, micrometers, and dial calipers;

(C) explain and demonstrate basic functions of computer-aided design and drafting (CADD) software;

(D) identify blueprint symbols, including surface profile, position, run out, countersink, and depth symbols;

(E) differentiate between driving and reference dimensions;

(F) identify basic electrical print symbols, including switch, lamp, relay, and contact symbols;

(G) identify basic fluid power print symbols, including power unit, actuator, directional control valve, and flow control symbols;

(H) identify various P&ID symbols, including valve, gauge, meter, and regulator symbols; and

(I) identify symbols for components, including threads, fasteners, and springs, used in the manufacturing process.

(3) The student interprets facility drawings related to manufacturing buildings. The student is expected to:

(A) interpret and explain floor plan drawings;

(B) interpret and explain elevation drawings;

(C) interpret and explain section views and details;

(D) locate electrical components, including distribution panels, lights, switches, and outlets, on facility drawings;

(E) identify plumbing components, including drains, water supply, and boilers, on facility drawings; and

(F) identify heating, ventilation, and air conditioning (HVAC) components, including condensers, evaporators, and plenum, in facility drawings.

(4) The student applies drafting principles to create sketch pictorials and construct multi-view drawings. The student is expected to:

(A) sketch auxiliary projected views, including inclined and oblique surfaces, in pictorial drawings;

(B) create a sketch using multi-views; and

(C) annotate a series of multi-view projections using proper dimensioning standards.

(5) The student demonstrates knowledge of tolerances as applied to technical drawings and prints. The student is expected to:

(A) illustrate and explain how bilateral and unilateral tolerances are expressed in drawings; and

(B) calculate tolerances for mating parts based on maximum material conditions, tolerance stacking, and allowance.

(6) The student demonstrates knowledge of revision information related to drawings. The student is expected to:

(A) describe standard drawing practices such as title blocks, revision history, and change orders for drawing revisions;

(B) apply standard drawing practices to revise technical drawings, ensuring accuracy and compliance with industry standards; and

(C) apply revision information, including date of revision, description of changes, and approval signatures, to mechanical and electrical industrial prints.

§127.828. Industrial Maintenance (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisite: Algebra I or Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

(3) Industrial Maintenance is designed to introduce students to knowledge and skills used in the proper application of industrial maintenance. The study of manufacturing technology allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of relevant maintenance tasks. Students gain an understanding of what employers require to gain and maintain employment in manufacturing careers.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student applies mechanical skills to maintain and repair industrial equipment using the appropriate tools and equipment while adhering to safety policies. The student is expected to:

(A) identify equipment malfunctions using visual, audible, and other sensory inspection skills to detect issues such as lack of lubrication, misalignment, excess wear, vibration, and over-temperature;

(B) differentiate between mechanical, hydraulic, pneumatic, and electrical systems;

(C) identify safety concerns with equipment maintenance such as dangers with rotating equipment, hot surfaces from operating equipment, potential for shock from electrical power cords and grounding, and sharp surfaces from equipment wear;

(D) create a safe plan of action to address safety concerns for an industrial training environment such as sparks, metal shavings, and electrical shock hazards;

(E) identify tools and describe procedures used in cutting, drilling, cleaning, and abrasive processes;

(F) explain safety practices for various types of manufacturing tools used for cutting, drilling, cleaning, and abrasive processes;

(G) identify and demonstrate proper use of precision measuring tools, including micrometers, dial calipers, and scales, to verify proper repair and alignment; and

(H) identify and explain the applications such as material and fastener strength for various types of fasteners such as bolts, screws, washers, and nuts.

(2) The student applies communication and documentation skills to manufacturing activities. The student is expected to:

(A) compose written and oral technical communication such as maintenance plans, equipment breakdowns, and repair part ordering in a clear, concise, and effective manner for a variety of purposes and audiences;

(B) identify documentation methods such as maintenance logbooks and checklists for maintenance tasks and plans; and

(C) develop and execute a plan for maintenance task completion such as equipment lubrication, filter changes, and equipment visual checks.

(3) The student maintains and repairs industrial equipment using the appropriate tools, equipment, machines, materials, and technical processes. The student is expected to:

(A) describe the processes needed to complete a project, including initiating, planning, executing, monitoring, controlling, and closing;

(B) use appropriate tools to complete maintenance repair processes, including drilling, tapping, layout, and tightening fasteners to spec; and

(C) use various wrenches such as open and box end wrenches, filter wrenches, and adjustable pliers to disassemble filter housings to change filters and fluids.

(4) The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations;

(C) explain and discuss how OSHA inspections are conducted;

(D) explain and discuss the role of national and state safety and health regulatory entities;

(E) explain types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic, and explain the role industrial hygiene plays in occupational safety;

(F) identify and explain the appropriate use of types of personal protective equipment (PPE) used in industry;

(G) discuss the importance of safe walking and working surfaces and best practices for preventing or reducing slips, trips, and falls in the workplace;

(H) describe types of electrical hazards in the workplace;

(I) describe control methods to prevent electrical hazards in the workplace;

(J) analyze the hazards of handling, storing, using, and transporting hazardous materials;

(K) discuss ways to reduce exposure to hazardous materials in the workplace;

(L) identify workplace health and safety resources, including emergency plans and Safety Data Sheets (SDS), and discuss how these resources are used to make decisions in the workplace;

(M) describe elements of a safety and health program, including management leadership, worker participation, and education and training;

(N) explain the purpose and importance of written emergency action and fire protection plans;

(O) describe key components of evacuation plans, emergency exit routes, and fire hazards lists;

(P) explain the role of emergency personnel within an organization;

(Q) explain components of a hazard communication program; and

(R) explain and provide examples of safety and health training requirements specified by standard setting organizations.

(5) The student examines safe work habits in an industrial maintenance setting. The student is expected to:

(A) identify and describe proper storage and disposal procedures for hazardous materials using Material Safety Data Sheets (MSDS);

(B) identify and demonstrate use of proper PPE and safety requirements in the manufacturing industry such as hearing protection, eye protection, and gloves;

(C) describe and demonstrate proper lockout/tagout procedures;

(D) describe and demonstrate safe operation of power tools, including drills, saws, grinders, and sanders; and

(E) identify and select appropriate PPE needed to operate various power tools, including drills, saws, grinders, and sanders.

(6) The student examines the importance of preventative maintenance in an industrial maintenance environment. The student is expected to:

(A) perform preventative maintenance (PM), including lubrication, cleaning of parts, and tightening of fasteners, on equipment such as motors, gearboxes, chain drives, and conveyors;

(B) determine a PM schedule based on data collected from machine breakdowns, including frequency of failures, types of malfunctions, and repair times; and

(C) differentiate between reactive maintenance such as breakdown repairs, preventative maintenance such as lubrication, and predictive maintenance such as planning repairs based on previous breakdown frequencies.

(7) The student examines career opportunities and educational requirements in manufacturing and technology. The student is expected to:

(A) identify special skill career pathways in manufacturing such as maintenance technician, engineer, designer, and automation technician;

(B) identify and explain the importance of industry networking opportunities such as career or job fairs; and

(C) describe the roles and functions of engineers, technologists, and technicians in an industrial maintenance setting.

§127.829. Mechanical Maintenance (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Manufacturing Career Cluster. Recommended prerequisite: Algebra I or Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

(3) Mechanical Maintenance is designed to introduce students to knowledge and skills used in the proper application of mechanical maintenance. The study of mechanical maintenance and hands-on application allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of relevant activities. Students gain an understanding of what employers require to gain and maintain employment in manufacturing careers and potential hazards faced by the maintenance technician in an industrial setting.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations;

(C) explain and discuss the importance of how OSHA inspections are conducted;

(D) explain and discuss the role of national and state regulatory entities;

(E) explain the role industrial hygiene plays in occupational safety and explain types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(F) identify and explain personal protective equipment (PPE) used in industry;

(G) discuss the importance of safe walking and working surfaces in the workplace;

(H) discuss best practices for preventing or reducing slips, trips, and falls in the workplace;

(I) describe types of electrical hazards in the workplace and the risks associated with these hazards;

(J) describe control methods to prevent electrical hazards in the workplace;

(K) analyze the hazards of handling, storing, using, and transporting hazardous materials;

(L) identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(M) identify workplace health and safety resources, including emergency plans and Safety Data Sheets (SDS), and discuss how these resources are used to make decisions in the workplace;

(N) describe elements of a safety and health program, including management leadership, worker participation, and education and training;

(O) explain the purpose and importance of written emergency action plans and fire protection plans;

(P) describe key components of evacuation plans, emergency exit routes, fire hazards lists;

(Q) explain the role of emergency personnel within an organization;

(R) explain components of a hazard communication program; and

(S) explain and provide examples of safety and health training requirements specified by standard setting organizations such as OSHA and industrial companies.

(2) The student demonstrates safe work habits while performing mechanical activities in a mechanical maintenance setting. The student is expected to:

(A) identify and describe proper storage and disposal procedures for hazardous materials using Material Safety Data Sheets (MSDS);

(B) identify and demonstrate use of proper PPE, including ear plugs, safety glasses, dust masks, and respirators, in the manufacturing industry;

(C) describe and demonstrate proper lockout/tagout procedures;

(D) describe and demonstrate safe operation of hand tools needed for disassembly and reassembly of mechanical parts; and

(E) identify and select appropriate PPE needed to operate various hand tools, including gloves for protection from pinch points, sharp edges, and hot surfaces.

(3) The student examines the operation of various pumps. The student is expected to:

(A) identify components of a centrifugal pump, including vane, internal seals, and bearings;

(B) identify components of a positive displacement piston pump, including rings, seals, pistons, and crankshaft;

(C) identify components of a positive displacement diaphragm pump, including diaphragm, check valves, and internal seals;

(D) explain the function of a pressure tank and effects on flow with a diaphragm pump;

(E) explain and demonstrate how to fill a suction line to prime a pump;

(F) identify components of a check valve in pumps; and

(G) explain the function of a check valve in maintaining pump priming by preventing back flow and ensuring fluid flow.

(4) The student examines the operation of various compressors. The student is expected to:

(A) identify components of compressors, including the piston, crankshaft, and cylinders, and explain how these components work together to compress air;

(B) explain the operation of a piston compressor and how the components work together to increase pressure;

(C) differentiate between a single-stage and two-stage piston compressor;

(D) identify and explain the function of intercoolers in two-stage piston compressors;

(E) identify and explain the function of after coolers in two-stage piston compressors;

(F) identify components of a rotary screw compressor, including screws, compression chamber, intake valves, and discharge valves;

(G) explain the operation of a rotary screw compressor and how the components work together to increase pressure; and

(H) explain the importance of dryers with industrial compressors, including how dryers prevent corrosion, improve efficiency, and extend equipment lifespan.

(5) The student analyzes test or performance data to assess equipment operation. The student is expected to:

(A) inspect equipment parts, including bearings, bolts, housing, and shafts, to identify typical defects such as breakage or excessive wear;

(B) observe equipment in operation to check for potential problems such as leaks, misalignment, and overheating; and

(C) test mechanical equipment to ensure proper functioning of equipment after replacement or repair of parts.

(6) The student uses prints, specifications, and diagrams to perform installation, disassembly, and assembly of mechanical systems. The student is expected to:

(A) identify components of pumps, compressors, and mechanical drives in mechanical drawings and diagrams;

(B) apply torque to fasteners as prescribed in equipment manuals during reassembly;

(C) identify input and output capability of pumps and compressors according to manufacturer specifications;

(D) identify input and output speed and torque capability of belt, chain, and gear driven mechanical drives systems according to manufacturer specifications;

(E) locate part numbers using a diagram; and

(F) use a logbook or computer to record information about parts, materials, and repair procedures.

(7) The student uses industrial maintenance skills to safely disassemble and assemble various types of pumps for the purpose of maintenance and repair. The student is expected to:

(A) identify safety hazards, including electrical, mechanical, and thermal risks, associated with assembly and disassembly of pumps;

(B) explain the purpose of lockout/tagout procedures for pumps to reduce electrical, mechanical, and thermal hazards;

(C) identify tools and describe procedures used in the disassembly and assembly of a centrifugal pump;

(D) identify tools and describe procedures used in the disassembly and assembly of a diaphragm pump;

(E) inspect pumps to locate damage, defects, and wear;

(F) operate pumps to ensure correct function such as rotation direction, prime, and flow;

(G) explain and demonstrate proper lubrication procedures for pumps; and

(H) use a logbook or computer to record information about parts, materials, and repair procedures.

(8) The student uses industrial maintenance skills to safely disassemble and assemble various types of compressors for the purpose of maintenance and repair. The student is expected to:

(A) identify safety hazards, including electrical, mechanical, and thermal risks, associated with assembly and disassembly of compressors;

(B) explain the purpose of lockout/tagout procedures for compressors to reduce electrical, mechanical, and thermal hazards;

(C) identify tools and describe procedures used in the disassembly and assembly of a reciprocating compressor;

(D) identify tools and describe procedures used in the disassembly and assembly of a rotary screw compressor;

(E) inspect compressors to locate damage, defects, and wear;

(F) operate newly reassembled compressor to ensure correct function such as direction of rotation;

(G) explain and demonstrate proper lubrication procedures for compressors; and

(H) use a logbook or computer to record information about parts, materials, and repair procedures.

(9) The student examines and recognizes internal components of various pumps and compressors. The student is expected to:

(A) identify internal seals and vanes in various compressors and pumps, including centrifugal, vane, and diaphragm pumps;

(B) inspect vanes in a centrifugal pump for wear and damage;

(C) inspect internal seals in pumps and compressors for wear and damage;

(D) inspect diaphragm for damage, defects, and wear;

(E) identify bearings on pumps and compressors; and

(F) inspect bearings on pumps and compressors for damage and wear.

(10) The student understands the purpose of specific internal components of various pumps and compressors. The student is expected to:

(A) explain the purpose of internal seals on compressors and pumps;

(B) explain the function and operation of bearings on compressors and pumps;

(C) identify and explain the function of check valves in a diaphragm pump; and

(D) explain lubrication requirements for pumps and compressors.

(11) The student understands the purpose of specific internal components of gear boxes. The student is expected to:

(A) identify and explain the function of spur gears in mechanical drive systems;

(B) identify and explain the function of helical gears in mechanical drive systems;

(C) identify and explain the function of miter and bevel gears in mechanical drive systems;

(D) differentiate between miter and bevel gears in mechanical drive systems; and

(E) identify and explain the function of slingers for lubrication distribution in mechanical drive systems.

(12) The student applies industrial maintenance skills to safely disassemble and assemble various types of mechanical drives. The student is expected to:

(A) identify tools and describe procedures used in the disassembly and assembly of belt, chain, and gear driven mechanical drives; and

(B) identify safety hazards associated with assembly and disassembly of belt, chain, and gear driven mechanical drives.

(13) The student understands the use of drive belts and chains for speed control. The student is expected to:

(A) identify belt style, size, and application on a mechanical drive system to meet speed and torque specifications;

(B) identify proper sheave for belt application on a mechanical drive system;

(C) differentiate between a drive and driven sheave in mechanical drive systems;

(D) calculate sheave ratios for speed adjustments on a mechanical drive system;

(E) inspect sheave and belt for wear and possible replacement on a mechanical drive system;

(F) identify drive chain size to match sprocket used on a mechanical drive system;

(G) calculate sprocket ratios for speed adjustments on a mechanical drive system;

(H) adjust chain length by breaking roller chain with special chain breaking tools;

(I) assemble a chain on a mechanical drive system according to length and tension requirements; and

(J) inspect sprocket and chain for wear and possible replacement on a mechanical drive system.

(14) The student examines career opportunities and educational requirements in manufacturing and technology. The student is expected to:

(A) identify special skill career pathways in manufacturing such as an industrial maintenance technician, mechanical installer, mechanical repair, and mechanical troubleshooter;

(B) identify and explain the importance of industry networking opportunities such as career or job fairs; and

(C) describe the roles and functions of an industrial maintenance technician in manufacturing.

§127.830. Basic Fluid Power (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2026-2027 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Manufacturing Career Cluster. Recommended prerequisites: Algebra I and Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

(3) In Basic Fluid Power, students gain knowledge and skills in hydraulic and pneumatic systems as applied to industrial manufacturing. Instruction includes terminology and fluid power theory, interpreting technical drawings, component identification, mathematical calculations as applied to fluid power systems, and component functions. Students gain basic knowledge of fluid power system design with basic system components, installing basic fluid power system components, and building maintenance schedules for preventative and reactive maintenance.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student examines career opportunities and safety concerns in the manufacturing industry. The student is expected to:

(A) research and describe trends of manufacturing careers in industry; and

(B) identify safety, health, environmental, and ergonomic issues in the manufacturing industry.

(2) The student examines terminology and fundamental concepts of fluid power in manufacturing. The student is expected to:

(A) explain the function of Pascal's Law in hydraulic systems;

(B) identify and explain the function of actuators in fluid power systems;

(C) identify and explain the function of valves in fluid power systems;

(D) describe the relationship between pressure, force, and cylinder volume in fluid power systems;

(E) analyze the application of Gay Lussac's Law, Charles's Law, and Boyle's Law in pneumatic systems;

(F) explain how the law of conservation of energy applies to specific fluid power systems, including hydraulic and pneumatic systems;

(G) explain how pressure is generated in a fluid power circuit;

(H) explain how different seal types and operating temperatures can impact fluid compatibility;

(I) explain the difference between flash point, fire point, and auto ignition regarding hydraulic fluid;

(J) explain displacement regarding hydraulic pumps; and

(K) identify specific hazards such as high-pressure injection injuries and equipment damage resulting from unrelieved pressure in the lines of a fluid power system.

(3) The student reads and interprets technical drawings in a fluid power system. The student is expected to:

(A) identify common fluid power symbols, including cylinders, motors, pumps, reservoirs, and directional control valves;

(B) differentiate between schematic and pictorial diagrams;

(C) match fluid power schematic symbols to physical components in a system;

(D) construct and operate a basic fluid power circuit given a schematic with a directional control valve and a double-acting cylinder; and

(E) draw a fluid power schematic from a given fluid power application.

(4) The student demonstrates understanding of the characteristics and applications of fluid power systems. The student is expected to:

(A) analyze pressure gauge readings to identify potential internal and external leakage issues in fluid power systems;

(B) analyze flow meters to detect proper and improper system flow in fluid power systems;

(C) analyze temperature gauges to detect heat issues within fluid power systems;

(D) explain the operational difference between hydraulic and pneumatic systems;

(E) explain the importance of dryers in pneumatic systems, including the prevention of moisture-related issues; and

(F) explain the importance of lubrication in a pneumatic system, including the reduction of friction, prevention of wear and tear, and enhancement of system efficiency.

(5) The student applies mathematical calculations to various operations of a fluid power system. The student is expected to:

(A) describe and analyze pressure, force, and volume in the context of fluid power systems;

(B) calculate output force and rod speed given cylinder size, flow rate, and pressure applied;

(C) describe and calculate how a change in pressure or volume results in change in force;

(D) describe and calculate how change in volume results in change of rod speed and force applied; and

(E) calculate the force output of an extending cylinder using Pascal's Law.

(6) The student understands the function of various components in fluid power systems. The student is expected to:

(A) differentiate between a pneumatic compressor and a hydraulic pump;

(B) describe the functions of a hydraulic reservoir such as fluid storage, fluid cooling, and contaminant separation;

(C) describe the function of various pumps, including piston, gear, and vane pumps;

(D) differentiate between a fixed and variable displacement pump;

(E) explain the purpose of an actuator in fluid power systems;

(F) explain the purpose of various gauges and meters in fluid power systems;

(G) explain the purpose of various pressure controlling devices in hydraulic systems, including pressure relief valves, pressure reducing valves, sequence valves, and counterbalance valves;

(H) explain the purpose of various pressure controlling devices in pneumatic systems, including regulators and pressure relief valves;

(I) explain the purpose of various flow controlling devices in fluid power systems, including check valves, directional control valves, needle valves, and flow controls;

(J) explain the purpose of various motors in fluid power systems, including unidirectional and bi-directional motors;

(K) describe the function of hydraulic and pneumatic actuators, including motor, cylinder, and rotary actuators;

(L) describe the function of various hydraulic and pneumatic cylinders, including single- and double-acting, single- and double-rod, and rodless cylinders;

(M) describe the function of a fluid power double-acting cylinder;

(N) describe and analyze the function of flow control valves in regulating actuator speed in a fluid power circuit;

(O) identify and explain the function of a check valve; and

(P) explain the function of an accumulator.

(7) The student designs basic fluid power circuits using various components in a fluid power system. The student is expected to:

(A) design a fluid power circuit with a unidirectional motor;

(B) design a fluid power circuit with a bi-directional motor;

(C) design a fluid power circuit with multiple cylinders;

(D) design a fluid power circuit with a flow control valve to regulate actuator speed;

(E) design a fluid power circuit incorporating a check valve;

(F) design a basic fluid power circuit incorporating various configurations of directional control valves to alter flow direction;

(G) design fluid power circuits using various operators for directional control, including lever, solenoid, pilot, and push button operator;

(H) design a hydraulic sequence valve to operate multiple actuators in sequence; and

(I) design a hydraulic pressure reducing valve to lower pressure in a branch circuit.

(8) The student installs various components in a fluid power system. The student is expected to:

(A) connect fluid power circuits using various connecting methods, including threaded, push-fit, and quick disconnect fittings;

(B) identify and demonstrate proper safety procedures required for system installation such as lockout/tagout to control hazardous energy;

(C) install a fluid power circuit with a unidirectional motor;

(D) install a fluid power circuit with a bi-directional motor;

(E) install a fluid power circuit with multiple cylinders;

(F) install a fluid power circuit with a flow control valve to regulate actuator speed;

(G) install a fluid power circuit using a check valve;

(H) install a basic fluid power circuit using various configurations of directional control valves to change flow direction;

(I) install fluid power circuits using various operators for the directional control valve, including lever, solenoid, pilot, and push button operator;

(J) install and adjust a pneumatic system regulator to match a defined system pressure setting;

(K) install and adjust a hydraulic power unit relief valve to match a defined system pressure setting;

(L) install a hydraulic sequence valve to operate multiple actuators in sequence; and

(M) install a hydraulic pressure reducing valve to lower pressure in a branch circuit.

(9) The student uses industry standard practices to maintain functional capacity in fluid power systems. The student is expected to:

(A) analyze service data to develop and implement preventive maintenance schedules;

(B) analyze and document repair data to develop and implement predictive maintenance schedules;

(C) inspect components in a fluid power system to identify signs of malfunction, including discoloration, vibration, and loud sounds;

(D) inspect hydraulic fluid to identify contaminants and signs of viscosity breakdown;

(E) explain and demonstrate procedures to change filters in a fluid power system; and

(F) explain and demonstrate procedures to drain and replace hydraulic fluid.

(10) The student understands the function of a basic vacuum system. The student is expected to:

(A) identify and explain the function of a venturi vacuum application;

(B) connect and read a vacuum gauge;

(C) connect and read a manometer;

(D) connect and operate a vacuum generator;

(E) identify and explain the function of a vacuum generator; and

(F) connect a venturi to a pneumatic system.

Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025
(Second Reading and Final Adoption)

June 27, 2025

COMMITTEE OF THE FULL BOARD: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item presents for second reading and final adoption proposed new 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025. The proposed new section would establish Texas Essential Knowledge and Skills (TEKS) in employability skills for effective performance in the workplace. The employability skills standards would be required to be taught as a part of each career and technical education (CTE) course. No changes are recommended since approved for first reading.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§7.102(c)(4); 28.002(a) and (c); and 28.025(a).

TEC, §7.102(c)(4), requires the State Board of Education (SBOE) to establish curriculum and graduation requirements.

TEC, §28.002(a), identifies the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

TEC, §28.025(a), requires the SBOE to determine by rule the curriculum requirements for the foundation high school graduation program that are consistent with the required curriculum under TEC, §28.002.

EFFECTIVE DATE: The proposed effective date of the proposed new section is 20 days after filing as adopted with the Texas Register. Under TEC, §7.102(f), the SBOE must approve the rule action at second reading and final adoption by a vote of two-thirds of its members to specify an effective date earlier than the beginning of the 2026-2027 school year. The earlier effective date will allow districts to implement new TEKS for employability skills beginning with the 2025-2026 school year.

PREVIOUS BOARD ACTION: The SBOE adopted the TEKS for all subjects effective September 1, 1998. The CTE TEKS were amended effective August 23, 2010. The CTE TEKS were again amended effective August 28, 2017. CTE TEKS for courses in education and training; health science; and science, technology, and mathematics (STEM) were amended effective April 26, 2022; June 14, 2022; and August 7, 2022. In June 2023, the SBOE adopted new CTE TEKS in occupational safety and health effective September 10, 2023. In November 2023, the SBOE adopted new TEKS for CTE career preparation and entrepreneurship courses to be implemented in the 2024-2025 school year. The SBOE adopted new CTE TEKS for courses in the agribusiness, animal science, plant science, and aviation maintenance programs of study as well as two STEM courses effective August 1, 2025. The SBOE approved TEKS for 18 state-approved CTE innovative courses and 20 engineering courses for second reading and final adoption at the

April 2025 SBOE meeting. Additionally at the April 2025 meeting, the SBOE approved for first reading and filing authorization proposed new 19 TAC §127.15, Career and Technical Education Employability Skills, Adopted 2025.

BACKGROUND INFORMATION AND JUSTIFICATION: In accordance with statutory requirements that the SBOE identify by rule the essential knowledge and skills of each subject in the required curriculum, the SBOE follows a board-approved cycle to review and revise the essential knowledge and skills for each subject. A full revision of the CTE TEKS was conducted in 2009 and 2014. As part of the 2014 review, the educator review committees recommended the inclusion in the TEKS for all CTE courses a strand in employability skills for effective performance in the workplace. The SBOE approved CTE TEKS with the employability skills strand for courses in the 16 career clusters that existed at that time to be effective August 28, 2017.

Since the 2014 CTE TEKS review, any revisions to the TEKS for CTE courses have included an employability skills strand; however, the employability skills vary across the current 14 CTE career clusters and in some instances vary among courses within the same career cluster. At the January 2025 SBOE meeting, the board discussed the option to develop a universal set of CTE TEKS in employability skills that would be required to be taught as part of each CTE course. The discussion included establishing one set of employability skills standards for courses identified as Level 1 and 2 in a CTE program of study and a second universal set of advanced employability skills standards for courses identified as Level 3 and 4 in a CTE program of study. Proposed new employability skills were approved for first reading and filing authorization at the April 2025 SBOE meeting.

Proposed new §127.15, Career and Technical Education Employability Skills, Adopted 2025, would identify standards to be taught as part of each CTE course. The attachment to this item reflects the text of the proposed new employability skills standards.

There are two additional CTE-related items presented as separate items in this agenda:

- Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education; and
- Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter E, Arts, Audio Visual Technology, and Communications; Subchapter F, Business, Marketing, and Finance; Subchapter J, Health Science; Subchapter N, Law and Public Service; Subchapter O, Manufacturing; and Subchapter P, Transportation, Distribution, and Logistics.

This item presents an opportunity for the SBOE to approve new employability skills standards for second reading and final adoption to be embedded with the TEKS for new and existing CTE courses included in these items.

FISCAL IMPACT: No changes have been made to this section since published as proposed.

The Texas Education Agency (TEA) has determined that there are no additional costs to state government.

During the first five years the proposal is in effect, there may be fiscal implications for school districts and charter schools to implement the proposed new employability skills standards, which may include the need for professional development and revisions to district-developed databases, curriculum, and scope

and sequence documents. Since curriculum and instruction decisions are made at the local district level, it is difficult to estimate the fiscal impact on any given district.

LOCAL EMPLOYMENT IMPACT: No changes have been made to this section since published as proposed.

The proposal has no effect on local economy; therefore, no local employment impact statement is required under Texas Government Code, §2001.022.

SMALL BUSINESS, MICROBUSINESS, AND RURAL COMMUNITY IMPACT: No changes have been made to this section since published as proposed.

The proposal has no direct adverse economic impact for small businesses, microbusinesses, or rural communities; therefore, no regulatory flexibility analysis specified in Texas Government Code, §2006.002, is required.

COST INCREASE TO REGULATED PERSONS: No changes have been made to this section since published as proposed.

The proposal does not impose a cost on regulated persons, another state agency, a special district, or a local government and, therefore, is not subject to Texas Government Code, §2001.0045.

TAKINGS IMPACT ASSESSMENT: No changes have been made to this section since published as proposed.

The proposal does not impose a burden on private real property and, therefore, does not constitute a taking under Texas Government Code, §2007.043.

GOVERNMENT GROWTH IMPACT: No changes have been made to this section since published as proposed.

TEA staff prepared a Government Growth Impact Statement assessment for this proposed rulemaking. During the first five years the proposed rulemaking would be in effect, it would create a new regulation by requiring school districts to include new employability skills into instruction provided for CTE courses.

The proposed rulemaking would not create or eliminate a government program; would not require the creation of new employee positions or elimination of existing employee positions; would not require an increase or decrease in future legislative appropriations to the agency; would not require an increase or decrease in fees paid to the agency; would not expand, limit, or repeal an existing regulation; would not increase or decrease the number of individuals subject to its applicability; and would not positively or adversely affect the state's economy.

PUBLIC BENEFIT AND COST TO PERSONS: No changes have been made to this section since published as proposed.

The proposed new TEKS would support student learning in skills that are needed for effective performance in the workplace. There is no anticipated economic cost to persons who are required to comply with the proposal.

DATA AND REPORTING IMPACT: No changes have been made to this section since published as proposed.

The proposal would have no data or reporting impact.

PRINCIPAL AND CLASSROOM TEACHER PAPERWORK REQUIREMENTS: No changes have been made to this section since published as proposed.

TEA has determined that the proposal would not require a written report or other paperwork to be completed by a principal or classroom teacher.

PUBLIC COMMENTS: Following the April 2025 SBOE meeting, notice of proposed new §127.15 was filed with the Texas Register, initiating the public comment period. The public comment period on the proposal began May 16, 2025, and ended at 5:00 p.m. on June 16, 2025. No comments had been received at the time this item was prepared. A summary of public comments received will be provided to the SBOE prior to and during the June 2025 meeting. The SBOE will take registered oral and written comments on the proposal at the appropriate committee meeting in June 2025 in accordance with the SBOE board operating policies and procedures.

MOTION TO BE CONSIDERED: The State Board of Education:

> Approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025; and
>
> Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025, is necessary and shall have an effective date of 20 days after filing with the Texas Register. *(Per TEC, §7.102(f), a vote of two-thirds of the members of the board is necessary for an earlier effective date.)*

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment:
Text of Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025

ATTACHMENT
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter B. High School

§127.15. Career and Technical Education Employability Skills, Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. These standards may not be offered as a standalone course. These standards shall be offered together with the essential knowledge and skills for career and technical education (CTE) courses in this chapter.

(c) Introduction.

(1) CTE instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The goal of the employability skills standards is to ensure that students develop essential skills for effective performance in the workplace, regardless of the occupation.

(3) These standards are required to be addressed in their entirety as part of each CTE course based on the level of the course in a CTE program of study.

(A) CTE courses identified as Level 1 or Level 2 courses in a CTE program of study must address the employability skills standards identified in subsection (d)(1) of this section.

(B) CTE courses identified as Level 3 or Level 4 courses in a CTE program of study must address the employability skills standards identified in subsection (d)(2) of this section.

(4) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) Employability skills--Levels 1 and 2. In a CTE course identified as a Level 1 or Level 2 course in a CTE program of study, the student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:

(A) explain the importance of dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;

(B) describe teamwork, group dynamics, and conflict resolution and how they can impact the collective outcome;

(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences;

(D) identify time-management skills such as prioritizing tasks, following schedules, and tending to goal-relevant activities and how these practices optimize efficiency and results;

(E) define work ethic and discuss the characteristics of a positive work ethic, including punctuality, dependability, reliability, and responsibility for reporting for duty and performing assigned tasks;

(F) demonstrate respect for differences in the workplace;

(G) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;

(H) identify consequences relating to discrimination and harassment;

(I) demonstrate knowledge of personal and occupational health and safety practices, including first aid, in the workplace;

(J) describe the roles and responsibilities of managers;

(K) identify career development and entrepreneurship opportunities in the field;

(L) identify appropriate training, education, or certification in the field; and

(M) identify legal and ethical responsibilities in relation to the field.

(2) Employability skills--Levels 3 and 4. In a CTE course identified as a Level 3 or Level 4 course in a CTE program of study, the student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:

(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;

(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;

(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions;

(D) use time-management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;

(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;

(F) demonstrate respect for differences in the workplace;

(G) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;

(H) identify consequences relating to discrimination and harassment;

(I) demonstrate knowledge of personal and occupational health and safety, applicable regulations, and first aid in the workplace and discuss why it is critical for employees and employers to maintain a safe work environment;

(J) compare skills and characteristics of managers and leaders in the workplace; and

(K) identify career development opportunities in the field:

(i) education and training;

(ii) credentialing;

(iii) internships and apprenticeships; and

(iv) entrepreneurship opportunities; and

(L) demonstrate an understanding of legal and ethical responsibilities in relation to the field.

Discussion of Draft Quality Rubrics for Instructional Materials Review and Approval Cycle 2026

June 24, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for staff to present drafts of the Instructional Materials Review and Approval (IMRA) quality rubrics for full-subject, tier-one and supplemental K–12 positive character traits and personal skills and supplemental K–12 language arts and reading.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§31.003(a), 31.022, and 31.023 as amended by HB 1605, 88th Texas Legislature, Regular Session, 2023.

TEC, §31.003(a), permits the SBOE to adopt rules for the adoption, requisition, distribution, care, use, and disposal of instructional materials.

TEC, §31.022, as amended by HB 1605, 88th Texas Legislature, Regular Session, 2023, requires the SBOE to review instructional materials that have been provided to the board by the Texas Education Agency (TEA) under TEC, §31.023.

TEC, §31.023, as amended by HB 1605, 88th Texas Legislature, Regular Session, 2023, requires the commissioner of education to establish, in consultation with and with the approval of the SBOE, a process for the annual review of instructional materials by TEA. In conducting a review under this section, TEA must use a rubric developed by TEA in consultation with and approved by the SBOE.

PREVIOUS BOARD ACTION: At the August–September 2023 meeting, the Committee of the Full Board discussed the IMRA process and discussed the approach to developing the quality rubric criteria and process.

At the February 2024 meeting, the board approved IMRA Quality Rubrics aligned to K–3 and 4–8 English language arts and reading, K–3 and 4–6 Spanish language arts and reading, and K–12 mathematics.

At the June 2024 meeting, the Committee of the Full Board discussed a multi-year timeline for IMRA cycles including the development of quality rubrics.

At the September 2024 meeting, the Committee of the Full Board had the opportunity to review and provide feedback on the draft IMRA rubrics for supplemental math materials that, if approved, will be used in IMRA Cycle 2025.

At the November 2024 meeting, the Committee of the Full Board had the opportunity to review proposed changes to the draft rubrics for the IMRA Cycle 2025.

At the April 2025 meeting, the Committee of the Full Board discussed the IMRA Cycle 2026 draft quality rubrics for full-subject, tier-one instructional materials for high school career and technical education
(CTE) and K–12 fine arts.

BACKGROUND INFORMATION AND JUSTIFICATION: TEC, Chapter 31, addresses instructional materials in public education and permits the SBOE to adopt rules for the adoption, requisition, distribution, care, use, and disposal of instructional materials. HB 1605, 88th Texas Legislature, Regular Session, 2023, significantly revises TEC, Chapter 31, including several provisions under SBOE authority. HB 1605 also added a new provision to TEC, Chapter 48, to provide additional funding to school districts and charter schools that adopt and implement SBOE approved materials.

TEC, 31.002 as amended by HB 1605, 88th Texas Legislature, Regular Session, 2023, expanded the definition of instructional materials to include full-subject, tier-one; partial-subject, tier-one; and supplemental instructional materials.

Staff Member Responsible:
Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports

Separate Exhibits:
I: Draft Quality Rubric(s), Full-Subject, Tier-One, and Supplemental K–12 Positive Character Traits

II: Draft Quality Rubric(s), Supplemental, Instructional Materials for Reading Language Arts for grades K-12

III: Draft Quality Rubrics for IMRA Cycle 2026 Overview Presentation

(all separate exhibits to be provided in advance of the June 2025 SBOE meeting)

Texas Permanent School Fund Corporation Report/Update

June 24, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the Permanent School Fund (PSF) Corporation's management to present a report on the Fund to members of the Committee of the Full Board (COFB) and to take questions from the COFB.

STATUTORY AUTHORITY: Texas Constitution, Article VII, §2 and §5, Texas Education Code (TEC) Chapter 43; and 19 Texas Administrative Code (TAC) Chapter 33, Subchapters A and B.

The Texas Constitution, Article VII, §2 and §5 establish the permanent school fund, the assets that comprise the permanent school fund, the bond guarantee program, the available school fund, and authorize the State Board of Education (SBOE) to manage and invest the permanent school fund in accordance with the prudent person standard.

19 TAC Chapter 33 codifies administrative rules that provide a statement of investment objectives, policies, and guidelines of the Texas Permanent School Fund and Bond Guarantee Program as adopted by the SBOE.

Staff Members Responsible:
Robert Borden, Chief Executive Officer and Chief Investment Officer, Texas Permanent School Fund Corporation
John McGeady, Director of External Relations, Texas Permanent School Fund Corporation

Discussion of Pending Litigation

June 24, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: The State Board of Education (SBOE) may enter into executive session in accordance with the Texas Government Code, §551.071(1)(A), to discuss pending and contemplated litigation with the general counsel, legal staff, and, if necessary, attorney(s) from the Attorney General's Office. The Committee of the Full Board will meet in a room (to be determined) to discuss this item.

Cases to be discussed may include:

> *Book People, INC. VBK, INC d/b/a Blue Willow Bookshop, American Booksellers Association, Association of American Publishers, Authors Guild, INC., Comic Book Legal Defense Fund v. Martha Wong in her official capacity as chair of the Texas State Library and Archives Commission, Keven Ellis in his official capacity as chair of the Texas Board of Education, Mike Morath in his official capacity as Commissioner of Education;* in the United States District Court for the Western District of Texas, Austin Division, Case No. 1:23-cv-858; and
>
> any litigation arising after the date of posting or reasonably contemplated as of the date of the board meeting.

BOARD RESPONSE: Board may advise and comment.

BACKGROUND INFORMATION AND JUSTIFICATION: At every regularly scheduled meeting, the SBOE has the opportunity to be apprised of pending litigation as the need arises. The SBOE may also receive continued briefing on procedural developments.

Staff Member Responsible:
Von Byer, General Counsel, Legal Services

Commissioner's Comments

June 25, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the board to be briefed on current agenda items, agency operations, policy implementation, and public education-related legislation.

BOARD RESPONSE: Review and comment.

BACKGROUND INFORMATION AND JUSTIFICATION: On an as needed basis, the board will be briefed on significant public education issues and events.

Staff Member Responsible:
Cari Christman, Deputy Associate Commissioner, Department of State Board of Education

Adoption of Review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option (Adoption of Review)

June 27, 2025

COMMITTEE OF THE FULL BOARD: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: Texas Government Code, §2001.039, establishes a four-year rule review cycle for all state agency rules, including State Board of Education (SBOE) rules. This item presents the adoption of the review of 19 Texas Administrative Code (TAC) Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option. The rules being reviewed address the development and administration of tests, voluntary assessment of private school students, the schedule for the release of tests, and administration and reporting of group-administered achievement tests.

STATUTORY AUTHORITY: The statutory authority for the rule review is Texas Government Code, §2001.039. The statutory authority for 19 TAC Chapter 101, Subchapters A-C, is Texas Education Code (TEC), §§39.021, 39.022, 39.023, 39.025, 39.032, and 39.033.

Texas Government Code, §2001.039, requires all state agencies to review their rules at least once every four years.

TEC, §39.021, requires that the SBOE by rule establish the Texas Essential Knowledge and Skills (TEKS) that all students should learn.

TEC, §39.022, requires that the SBOE by rule create and implement a statewide assessment program that is knowledge- and skills-based to ensure school accountability for student achievement.

TEC, §39.023, requires school districts to administer the Grades 3-8 state-developed assessments and the end-of-course assessments to all eligible students.

TEC, §39.025, requires a student to pass each end-of-course assessment listed in TEC, §39.023(c), only for a course in which the student is enrolled and for which an end-of-course assessment is administered to receive a Texas diploma.

TEC, §39.032, requires the SBOE to adopt rules to implement assessment instrument standards for group-administered achievement tests.

TEC, §39.033, allows for the voluntary assessment of private school students and requires the SBOE to determine the cost of administering the assessment instruments.

PREVIOUS BOARD ACTION: The review of 19 TAC Chapter 101, Subchapters A-C, was presented to the Committee of the Full Board for discussion at the January 2025 SBOE meeting. At the April 2025 SBOE meeting, the Committee of the Full Board postponed the adoption of the review for further consideration at the June 2025 SBOE meeting.

BACKGROUND INFORMATION AND JUSTIFICATION: The goal of the Texas Assessment Program is to measure and support student progress toward achieving academic success. The primary

purpose of the state student assessment program is to provide an accurate measure of student achievement in the areas of mathematics, reading language arts, science, and social studies. Based on the requirements of the TEC, the assessment program evaluates the degree to which students have mastered the state-mandated curriculum, the TEKS.

According to the TEC, the SBOE is responsible for adopting rules related to the general establishment of the assessment program for purposes of accountability. This SBOE requirement is met through the following rules in 19 TAC Chapter 101.

In Subchapter A, §101.1, Scope of Rules; §101.3, Policy; and §101.5, Student Testing Requirements, establish the assessment program and require all students receiving instruction in the TEKS to be assessed.

In Subchapter B, §101.25, Schedule, and §101.27, Administrative Procedures, specify that the commissioner will adopt a schedule for administering the assessments and require uniform administrative procedures. Section 101.31, Private Schools, establishes provisions for the voluntary assessment of private school students. As provided by TEC, §39.033(c), the SBOE approves the per-student costs for private schools that administer state assessments. Section 101.33, Release of Tests, establishes a release test schedule in accordance with TEC, §39.023(e).

In Subchapter C, §101.101, Group-Administered Tests, governs the administration of local option group-administered assessments as authorized under TEC, §39.032.

PUBLIC COMMENTS: TEA filed the notice of proposed review of 19 TAC Chapter 101, Subchapters A-C, with the *Texas Register* following the January 2025 SBOE meeting. The public comment period on the proposed review began February 28, 2025, and ended at 5:00 p.m. on March 31, 2025. No comments were received regarding this review. The SBOE will take registered oral and written comments on the proposed review at the appropriate committee meeting in June 2025 in accordance with the SBOE board policies and procedures.

MOTION TO BE CONSIDERED: The State Board of Education:

> Adopt the review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option.

Staff Members Responsible:
José Ríos, Associate Commissioner of Assessment and Reporting
Julie Cole, Director of Policy and Publications, Student Assessment
Greg Reck, Policy Analyst, Student Assessment

Attachment:
Text of 19 Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option

ATTACHMENT
Text of 19 TAC

Chapter 101. Assessment

Subchapter A. General Provisions

§101.1. Scope of Rules.

(a) The State Board of Education (SBOE) shall:

(1) create and implement the statewide assessment program to ensure the program supports the goals of education as specified in the Texas Education Code (TEC); and

(2) establish goals for the statewide assessment program.

(b) When adopting rules, the SBOE shall maintain the stability of the statewide assessment program to the greatest extent possible in accordance with the TEC, Chapter 39, Subchapter B.

(c) The statewide assessment program consists of the following criterion-referenced tests:

(1) the assessments of academic readiness in English and Spanish for the grades and subjects as specified in the TEC, Chapter 39, Subchapter B;

(2) the alternative assessments of academic readiness for eligible students receiving special education services as specified in the TEC, Chapter 39, Subchapter B;

(3) the assessments required for graduation as specified in the TEC, Chapter 39, Subchapter B; and

(4) the reading proficiency tests in English for eligible limited English proficient students as specified in the TEC, Chapter 39, Subchapter B.

§101.3. Policy.

(a) The goal of the statewide assessment program is to provide all eligible Texas students an appropriate statewide assessment that measures and supports their achievement of the essential knowledge and skills of the state-mandated curriculum.

(b) To maximize its effectiveness for educators and students, the statewide assessment program shall be based on the following quality standards.

(1) Tests shall be aligned to the essential knowledge and skills of the state-mandated curriculum in all subject areas tested.

(2) Tests shall be reliable and valid measures of the essential knowledge and skills and shall be administered in a standardized manner.

(3) Test results at the student, campus, district, regional, and state levels shall be reported in a timely and accurate manner.

§101.5. Student Testing Requirements.

Every student receiving instruction in the essential knowledge and skills shall take the appropriate criterion-referenced assessments, as required by the Texas Education Code (TEC), Chapter 39, Subchapter B.

Subchapter B. Implementation of Assessments

§101.25. Schedule.

(a) The commissioner of education shall specify the schedule for testing and field testing that is in compliance with the Texas Education Code (TEC), §39.023(c-3)(1) and (2), and supports reliable and valid assessments.

(b) The superintendent of each school district or chief administrative officer of each charter school and any private school administering the tests as allowed under the TEC, §39.033, shall be responsible for administering tests.

(c) The commissioner of education may provide alternate dates for the administration of tests required for a high school diploma to students who are migratory children, as defined in the TEC, §39.029, and who are out of the state.

(d) Participation in University Interscholastic League area, regional, or state competitions is prohibited on any days on which testing is scheduled between Monday and Thursday of the school week in which the primary administration of assessment instruments under the TEC, §39.023(a), (c), or (l), occurs.

Subchapter C. Local Option

§101.101. Group-Administered Tests.

(a) An assessment instrument to which this section is applicable under the Texas Education Code (TEC), §39.032, is defined as any district-commissioned achievement test, either nationally normed or criterion-referenced, that is group administered and reported publicly (e.g., to the local board of trustees) in the aggregate. A test given for a special purpose such as program placement or individual evaluation (e.g., a spelling test, a diagnostic test such as a reading inventory or interim benchmark assessment, or a released statewide assessment instrument) is not included in this definition. The commissioner of education shall provide annually to school districts and charter schools a list of state-approved, norm-referenced group-administered achievement tests that test publishers certify meet the requirements of the TEC, §39.032.

(b) A company or organization scoring a test defined in subsection (a) of this section shall send test results to the school district for verification. The school district shall have 90 days to verify the accuracy of the data and report the results to the school district board of trustees.

(c) State and national averages for an assessment instrument under this section must be computed using data that are not more than eight years old at the time the assessment instrument is administered and that are representative of the group of students to whom the assessment instrument is administered. This eight-year limitation does not apply if only data older than eight years are available for an assessment instrument.

(d) To maintain the security and confidentiality of group-administered achievement tests, school districts and charter schools shall follow the applicable procedures for test security and confidentiality delineated in §101.3031 of this title (relating to Required Test Administration Procedures and Training Activities to Ensure Validity, Reliability, and Security of Assessments).

§101.27. Administrative Procedures.

A school district, charter school, or private school administering the tests required by the Texas Education Code (TEC), Chapter 39, Subchapter B, shall follow procedures specified in the applicable test administration materials.

§101.31. Private Schools.

(a) A private school administering the assessments under the Texas Education Code (TEC), Chapter 39, Subchapter B, shall follow procedures specified in the applicable test administration materials. Each private school shall maintain test security and confidentiality as delineated in the TEC, §39.030.

(b) A private school administering the assessments under the TEC, Chapter 39, Subchapter B, shall reimburse the Texas Education Agency for each assessment administered. The per-student cost may not exceed the cost of administering the same assessment to a student enrolled in a school district.

(c) A private school administering the assessments under the TEC, Chapter 39, Subchapter B, shall provide to the commissioner of education, as required by law and determined appropriate by the commissioner, academic excellence indicator information described in the TEC, §39.053(c) and §39.301(c). For indicator information defined and collected through the Public Education Information Management System (PEIMS), private schools shall follow the PEIMS Data Standards.

§101.33. Release of Tests.

Beginning in 2009 with the 2008-2009 school year and each subsequent third school year, the Texas Education Agency shall release all test items and answer keys only for primary administration assessment instruments administered under the Texas Education Code, §39.023(a), (b), (c), (d), and (l), and field test items that are at least four years old and that are no longer eligible for inclusion on a subsequent test form.

Consideration of the Commissioner of Education's Generation 30 Open-Enrollment Charter School Proposals

June 27, 2025

COMMITTEE OF THE FULL BOARD: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item provides the committee and board an opportunity to review and take action or no action on the commissioner's list of proposed Subchapter D Open-Enrollment Charter Schools scheduled to open in the 2026-2027 school year. If awarded, the charters will have an initial five-year term.

STATUTORY AUTHORITY: Texas Education Code (TEC), §12.101.

TEC, §12.101 requires the commissioner to notify the State Board of Education (SBOE) of each charter the commissioner proposes to grant. Unless, before the 90th day after the date on which the board receives the notice from the commissioner, a majority of the members of the board present and voting, vote against the grant of that charter, the commissioner's proposal to grant the charter takes effect.

PREVIOUS BOARD ACTION: Annually, within 90 days of the commissioner's notification of his intent to grant open-enrollment charter school(s), the SBOE has an opportunity to formally consider the commissioner's proposals and to take action or take no action. At the June 2024 State Board of Education meeting, the SBOE took into consideration the five (5) applicants recommended by the Commissioner of Education for charter award. The SBOE motioned and voted to take no action on the following three (3) charter applicants: Pathway Academy (Big Spring), The Texas Girls School (Austin), and Unparalleled Preparatory Academy (Manor). A motion was made and carried to veto one (1) of the charter applicants: Visionary STEM Academy (Terrell). The SBOE took no action on the application from Infinite Minds (Arlington).

BACKGROUND INFORMATION AND JUSTIFICATION: Texas Education Code, §12.101 grants the commissioner the authority to award up to 305 open-enrollment charters to eligible entities that: are considered capable of carrying out the responsibilities of the charter, are likely to operate a school of high quality, have been proposed by the commissioner, and are not vetoed by a majority of the SBOE members present and voting. Prior to the charter school award cycle, the commissioner adopted the Generation 30 Open-Enrollment Charter Instructions and Guidance and Request for Application document, establishing the timeline and procedures for the application cycle, the contents of the application, and the criteria by which charter schools would be awarded to eligible entities. Generation 30 applications must have earned a minimum cut score of 85% to be granted an interview.

Twenty-five (25) applications were submitted by the December 20, 2024 deadline, and after eligibility, completion, and plagiarism checks by Texas Education Agency staff, twenty-one (21) applications advanced to external review. The external reviewers, designated through a Request for Qualifications (RFQ) process, scored twenty-one (21) applications for a charter school. Eight (8) of the applications met the minimum cut score of 85% to advance to capacity interviews. The commissioner's designee and TEA staff conducted interviews on May 7-8, 2025 and May 14-15, 2025. Members of the SBOE were invited to attend the interviews.

MOTION TO BE CONSIDERED: The State Board of Education:

> Review and take no action on the commissioner's list of proposed Generation 30 Subchapter D Open-Enrollment Charter Schools scheduled to open in the 2026-2027 school year.

Staff Members Responsible:
Kelvey Oeser, Deputy Commissioner, Educator and System Support
Marian Schutte, Deputy Associate Commissioner, Authorizing and Policy

Separate Exhibit:
Commissioner of Education's Generation 30 Open-Enrollment Charter School Proposals
(to be provided at the June 2025 SBOE meeting)

Math Ad Hoc Committee Update

June 26, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the committee to provide the Committee of the Full Board with updates on the status and progress of committee charges.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§7.102(c)(4); 28.002(a)(1)(B); and 28.002(c).

TEC, §7.102(c)(4), requires the State Board of Education (SBOE) to establish curriculum and graduation requirements.

TEC, §28.002(a)(1)(B), identifies math as one of the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

BACKGROUND INFORMATION AND JUSTIFICATION: From the SBOE Operating Rules, Chapter 1, §1.2 (g), ad hoc committees (i.e., task forces) may be constituted from time to time as directed by a vote of the board or by the chair to perform such duties as the board or chair may assign. The personnel and length of service of ad hoc committees shall be designated by the chair unless otherwise directed by a vote of the board. No action taken by any ad hoc committee shall be final or binding upon the board unless otherwise directed by a vote of the board. An ad hoc committee shall ensure all meeting materials and reports of the committee are provided to every member of the board and made available to the public immediately following each meeting. An ad hoc committee shall schedule at least one public meeting to receive input and public testimony.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Social Studies Ad Hoc Committee Update

June 26, 2025

COMMITTEE OF THE FULL BOARD: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the committee to provide the Committee of the Full Board with updates on the status and progress of committee charges.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§7.102(c)(4), 28.002(a)(1)(D), and 28.002(c).

TEC, §7.102(c)(4), requires the SBOE to establish curriculum and graduation requirements.

TEC, §28.002(a)(1)(D), identifies social studies as one of the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

BACKGROUND INFORMATION AND JUSTIFICATION: From the SBOE Operating Rules, Chapter 1, §1.2 (g), ad hoc committees (i.e., task forces) may be constituted from time to time as directed by a vote of the board or by the chair to perform such duties as the board or chair may assign. The personnel and length of service of ad hoc committees shall be designated by the chair unless otherwise directed by a vote of the board. No action taken by any ad hoc committee shall be final or binding upon the board unless otherwise directed by a vote of the board. An ad hoc committee shall ensure all meeting materials and reports of the committee are provided to every member of the board and made available to the public immediately following each meeting. An ad hoc committee shall schedule at least one public meeting to receive input and public testimony.

Staff Member Responsible:
Shannon Trejo, Deputy Commissioner, Office of School Programs

COMMITTEE ON INSTRUCTION

Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education (Second Reading and Final Adoption)

June 27, 2025

COMMITTEE ON INSTRUCTION: ACTION
STATE BOARD OF EDUCATION: CONSENT

SUMMARY: This item presents for second reading and final adoption the proposed repeal of 19 Texas Administrative Code (TAC) Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and proposed revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education. The proposed rule action would repeal career and technical education (CTE) Texas Essential Knowledge and Skills (TEKS) in 19 TAC Chapter 130 and move the TEKS to 19 TAC Chapter 127 in order to ensure that all CTE TEKS are in the same chapter in administrative rule. The proposed rule action would also move some existing courses within 19 TAC Chapter 127 to reorganize the chapter. Changes are recommended since approved for first reading.

STATUTORY AUTHORITY: Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

TEC, §7.102(c)(4), requires the State Board of Education (SBOE) to establish curriculum and graduation requirements.

TEC, §28.002(a), identifies the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

EFFECTIVE DATE: The proposed effective date of the proposed repeal and revisions is August 1, 2025. Under TEC, §7.102(f), the SBOE must approve the rule action at second reading and final adoption by a vote of two-thirds of its members to specify an effective date earlier than the beginning of the 2025-2026 school year. The earlier effective date will ensure the TEKS are available in their new location in time for districts of innovation with an earlier school start date to implement at the beginning of the school year districts.

PREVIOUS BOARD ACTION: The SBOE adopted the TEKS for CTE effective September 1, 1998. The SBOE approved revisions to the CTE TEKS in Chapter 127 and new Chapter 130, Subchapters A-P, effective August 23, 2010. In 2015, the CTE TEKS were amended effective August 28, 2017. In 2018, the SBOE adopted revisions to 19 TAC Chapter 130, Subchapters B, H, M, and O, effective March 27, 2018. In 2020, the SBOE approved revisions to the CTE TEKS in 19 TAC Chapter 130, Subchapters A, C, K, O, and Q, effective August 1, 2020.

At the November 2021 meeting, the board approved new CTE TEKS in 19 TAC Chapter 127, Subchapters G, I, J, M, and O, effective April 26, 2022. At the January 2022 SBOE meeting, the board approved the repeal of CTE TEKS in 19 TAC Chapter 130, Subchapters E, G, H, I, L, and O, and new CTE TEKS in 19 TAC Chapter 127, Subchapters G, I, J, M, and O, effective April 7, 2022. The board approved new CTE TEKS in 19 TAC Chapter 127, Subchapters G and O, at the April 2022 meeting, effective June 14, 2022. At the June 2022 meeting, the board approved the repeal of CTE TEKS in 19

TAC Chapter 127, Subchapters G, I, and O, and Chapter 130, Subchapter J, effective August 1, 2022, and approved new CTE TEKS in 19 TAC Chapter 127, Subchapter O, effective August 7, 2022. At the June 2023 meeting, the board approved the repeal of CTE TEKS in 19 TAC Chapter 127, Subchapters I, M, and O, effective August 1, 2023. The board approved new CTE TEKS in 19 TAC Chapter 127, Subchapters B and F, at the November 2023 meeting, effective February 13, 2024. At the April 2024 meeting, the board approved for second reading and final adoption new CTE TEKS in 19 TAC Chapter 127, Subchapters C, O, and P. The board approved the repeal of CTE TEKS in 19 TAC Chapter 127, Subchapters B, G, I, J, and O, and Chapter 130, Subchapters J and N, at the June 2024 meeting, effective August 1, 2024. At the September 2024 meeting, the board discussed the proposed repeal of remaining CTE TEKS in 19 TAC Chapter 130, and proposed revisions to 19 TAC Chapter 127 to relocate and reorganize all CTE TEKS within Chapter 127. The board approved for first reading and filing authorization the proposed repeal of remaining CTE TEKS in 19 TAC Chapter 130, and proposed revisions to 19 TAC Chapter 127 at the January 2025 SBOE meeting. At the April 2025 SBOE meeting, the board postponed second reading and final adoption of the proposed repeal of remaining CTE TEKS in 19 TAC Chapter 130 and proposed revisions to 19 TAC Chapter 127.

BACKGROUND INFORMATION AND JUSTIFICATION: In accordance with statutory requirements that the SBOE identify by rule the essential knowledge and skills of each subject in the required curriculum, the SBOE follows a board-approved cycle to review and revise the essential knowledge and skills for each subject.

The TEKS for courses associated with 14 CTE career clusters are codified by subchapter in 19 TAC Chapters 127 and 130. In December 2020, the SBOE began initial steps to prepare for the review and revision of CTE courses in programs of study for the education and training; health science; and science, technology, engineering, and mathematics career clusters. Two additional courses eligible to satisfy a graduation requirement in science were also part of the review. The board approved for second reading and final adoption new TEKS for these courses in November 2021 and January, April, and June 2022.

At the November 2023 SBOE meeting, the board approved new CTE TEKS in 19 TAC Chapter 127 for courses in career preparation and entrepreneurship, which became effective February 13, 2024, and were implemented beginning in the 2024-2025 school year. At the April 2024 meeting, the board approved new CTE TEKS in 19 TAC Chapter 127 for courses in agribusiness, animal science, plant science, aviation maintenance, and engineering that will be implemented beginning in the 2025-2026 school year.

Due to the current structure of 19 TAC Chapter 130, there are not enough sections to add new CTE courses under consideration in their assigned subchapters. To accommodate the addition of new and future courses, the board began the process of moving the CTE TEKS from Chapter 130 to Chapter 127 in order to keep all the TEKS together in administrative rule and avoid confusion. In addition, current subchapters in 19 TAC Chapter 127 will be assigned new subchapters within the same chapter. The related implementation sections will be repealed and will not be re-proposed. Instead, implementation information will be added to each individual course.

The proposed repeal of CTE courses in 19 TAC Chapter 130 and proposed revisions to courses in 19 TAC Chapter 127 were approved for first reading and filing authorization at the January 2025 meeting. At the January 2025 SBOE meeting, the SBOE approved adding to the introductions the level of each course identified in a CTE program of study. At the April 2025 SBOE meeting, the board postponed second reading and final adoption of the proposed repeal of remaining CTE TEKS in 19 TAC Chapter 130 and proposed revisions to 19 TAC Chapter 127.

At the January 2025 SBOE meeting, the board discussed an option to develop a new, universal set of CTE TEKS in employability skills that would replace current employability skills and be required to be taught

as part of each CTE course. The SBOE approved for first reading and filing authorization proposed new 19 TAC §127.15, Career and Technical Education Employability Skills, Adopted 2025, at the April 2025 meeting. This item provides an opportunity to replace the current employability skills in each course included in the item with a reference to the proposed new employability skills in proposed new 19 TAC §127.15.

Also at the April 2025 meeting, the SBOE determined that the level of a course in a CTE program of study should not be included in the TEKS for the course. This item also provides an opportunity to remove program of study levels from courses included in this item to align with the SBOE's decision.

The attachment to this item provides a crosswalk between the current TEKS in Chapters 127 and 130 that would be repealed and the new location of those TEKS in Chapter 127. The text of sections in Chapters 127 and 130 that will be repealed and moved to Chapter 127 is not included as an attachment to this item due to the volume of rules; however, the rules are viewable on the Texas Education Agency (TEA) website at https://tea.texas.gov/about-tea/laws-and-rules/texas-administrative-code/19-tac-chapter-127 and https://tea.texas.gov/about-tea/laws-and-rules/texas-administrative-code/19-tac-chapter-130.

FISCAL IMPACT: No changes have been made to this section since published as proposed.

TEA has determined that there are no additional costs to state or local government, including school districts and open-enrollment charter schools, required to comply with the proposal.

LOCAL EMPLOYMENT IMPACT: No changes have been made to this section since published as proposed.

The proposal has no effect on local economy; therefore, no local employment impact statement is required under Texas Government Code, §2001.022.

SMALL BUSINESS, MICROBUSINESS, AND RURAL COMMUNITY IMPACT: No changes have been made to this section since published as proposed.

The proposal has no direct adverse economic impact for small businesses, microbusinesses, or rural communities; therefore, no regulatory flexibility analysis specified in Texas Government Code, §2006.002, is required.

COST INCREASE TO REGULATED PERSONS: No changes have been made to this section since published as proposed.

The proposal does not impose a cost on regulated persons, another state agency, a special district, or a local government and, therefore, is not subject to Texas Government Code, §2001.0045.

TAKINGS IMPACT ASSESSMENT: No changes have been made to this section since published as proposed.

The proposal does not impose a burden on private real property and, therefore, does not constitute a taking under Texas Government Code, §2007.043.

GOVERNMENT GROWTH IMPACT: No changes have been made to this section since published as proposed.
TEA staff prepared a Government Growth Impact Statement assessment for this proposed rulemaking. During the first five years the proposed rulemaking would be in effect, it would repeal existing

regulations and create new regulations by transferring existing CTE TEKS from Chapters 127 and 130 to new locations in Chapter 127.

The proposed rulemaking would not create or eliminate a government program; would not require the creation of new employee positions or elimination of existing employee positions; would not require an increase or decrease in future legislative appropriations to the agency; would not require an increase or decrease in fees paid to the agency; would not expand or limit an existing regulation; would not increase or decrease the number of individuals subject to its applicability; and would not positively or adversely affect the state's economy.

PUBLIC BENEFIT AND COST TO PERSONS: No changes have been made to this section since published as proposed.

The proposal would improve access to and organization of the CTE TEKS and avoid confusion regarding the revised TEKS. There is no anticipated economic cost to persons who are required to comply with the proposal.

DATA AND REPORTING IMPACT: No changes have been made to this section since published as proposed.

The proposal would have no data or reporting impact.

PRINCIPAL AND CLASSROOM TEACHER PAPERWORK REQUIREMENTS: No changes have been made to this section since published as proposed.

TEA has determined that the proposal would not require a written report or other paperwork to be completed by a principal or classroom teacher.

PUBLIC COMMENTS: Following the January 2025 SBOE meeting, notices of the proposed repeal of 19 TAC Chapter 130 and proposed revisions to 19 TAC Chapter 127 were filed with the Texas Register, initiating the public comment period. The public comment period on the proposal began February 28, 2025, and ended at 5:00 p.m. on March 31, 2025. A summary of public comments received was provided to the SBOE prior to and during the April 2025 meeting. The SBOE will take registered oral and written comments on the proposal at the appropriate committee meeting in June 2025 in accordance with the SBOE board operating policies and procedures.

MOTION TO BE CONSIDERED: The State Board of Education:

> Approve for second reading and final adoption proposed repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and proposed revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education; and
>
> Make an affirmative finding that immediate adoption of the proposed repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and proposed revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, is necessary and shall have an effective date of August 1, 2025. *(Per TEC, §7.102(f), a vote of two-thirds of the members of the board is necessary for an earlier effective date.)*

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment:
Crosswalk of Current Section Numbers of CTE TEKS in 19 TAC Chapter 130 and New Section Numbers in Chapter 127 Relating to Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

ATTACHMENT

Crosswalk of Current Section Numbers of CTE TEKS in 19 TAC Chapter 130 and New Section Numbers in Chapter 127 Relating to Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Current Subchapter/Section Number	New Section Number
Ch. 127. Subchapter O. STEM	**Ch 127. Subchapter B. High School**
§127.758. Scientific Research and Design, (One Credit), Adopted 2015	No new course required. Replaced by new §127.796. Scientific Research and Design, (One Credit), Adopted 2024, effective September 9, 2024, implementation August 1, 2025
§127.796. Scientific Research and Design, (One Credit), Adopted 2024	127.18
Ch 130. Subchapter A. Agriculture, Food, and Natural Resources	**Ch 127. Subchapter C. Agriculture, Food, and Natural Resources**
§130.1. Implementation of Texas Essential Knowledge and Skills for Agriculture, Food, and Natural Resources, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
§130.2. Principles of Agriculture, Food, and Natural Resources (One Credit), Adopted 2015.	No new course required. §127.30. Principles of Agriculture, Food, and Natural Resources (One Credit), Adopted 2024, effective September 9, 2024
§130.3. Professional Standards in Agribusiness (One-Half Credit), Adopted 2015.	No new course required. §127.45. Professional Standards and Communication in Agribusiness (One Credit), Adopted 2024, effective September 9, 2024
§130.4. Agribusiness Management and Marketing (One Credit), Adopted 2015.	No new course required. §127.46. Agribusiness Management and Marketing (One Credit), Adopted 2024, effective September 9, 2024
§130.5. Mathematical Applications in Agriculture, Food, and Natural Resources (One Credit), Adopted 2015.	§127.31
§130.6. Equine Science (One-Half Credit), Adopted 2015.	No new course required. §127.48. Equine Science (One-Half Credit), Adopted 2024, effective September 9, 2024
§130.7. Livestock Production (One Credit), Adopted 2015.	No new course required. §127.49. Livestock & Poultry Production (One Credit), Adopted 2024, effective September 9, 2024
§130.8. Small Animal Management (One-Half Credit), Adopted 2015.	No new course required. §127.50. Small Animal Management (One-Half Credit), Adopted 2024, effective September 9, 2024
§130.9. Veterinary Medical Applications (One Credit), Adopted 2015.	No new course required. §127.51. Veterinary Science (One Credit), Adopted 2024, effective September 9, 2024
§130.10. Advanced Animal Science (One Credit), Adopted 2015.	No new course required. §127.52. Advanced Animal Science (One Credit), Adopted 2024, effective September 9, 2024

Current Subchapter/Section Number	New Section Number
§130.11. Energy and Natural Resource Technology (One Credit), Adopted 2015.	§127.32
§130.12. Advanced Energy and Natural Resource Technology (One Credit), Adopted 2015.	§127.33
§130.15. Food Technology and Safety (One Credit), Adopted 2015.	§127.34
§130.16. Food Processing (One Credit), Adopted 2015.	§127.35
§130.17. Wildlife, Fisheries, and Ecology Management (One Credit), Adopted 2015.	§127.36
§130.18. Forestry and Woodland Ecosystems (One Credit), Adopted 2015.	§127.37
§130.19. Range Ecology and Management (One Credit), Adopted 2015.	§127.38
§130.20. Floral Design (One Credit), Adopted 2015.	No new course required. §127.53. Floral Design (One Credit), Adopted 2024, effective September 9, 2024
§130.21. Landscape Design and Management (One-Half Credit), Adopted 2015.	§127.39
§130.22. Turf Grass Management (One-Half Credit), Adopted 2015.	§127.40
§130.23. Horticultural Science (One Credit), Adopted 2015.	No new course required. §127.54. Horticultural Science (One Credit), Adopted2024, effective September 9, 2024
§130.24. Greenhouse Operation and Production (One Credit), Adopted 2015.	No new course required. §127.55. Greenhouse Operation and Production (One Credit), Adopted2024, effective September 9, 2024
§130.25. Advanced Plant and Soil Science (One Credit), Adopted 2015.	No new course required. §127.58. Advanced Plant and Soil Science (One Credit), Adopted2024, effective September 9, 2024
§130.26. Agricultural Mechanics and Metal Technologies (One Credit), Adopted 2015.	§127.41
§130.27. Agricultural Structures Design and Fabrication (One Credit), Adopted 2015.	§127.42
§130.28. Agricultural Equipment Design and Fabrication (One Credit), Adopted 2015.	§127.43
§130.29. Agricultural Power Systems (Two Credits), Adopted 2015.	§127.44
§130.30. Agricultural Laboratory and Field Experience (One Credit), Adopted 2015.	§127.85
§130.31. Practicum in Agriculture, Food, and Natural Resources (Two Credits), Adopted 2015.	No new course required. §127.86. Practicum in Agriculture, Food, and Natural Resources (Two Credits), Adopted 2024, effective September 9, 2024
§130.32. Extended Practicum in Agriculture, Food, and Natural Resources (One Credit), Adopted 2015.	No new course required. §127.87. Extended Practicum in Agriculture, Food, and Natural Resources (One Credit), Adopted 2024, effective September 9, 2024

Current Subchapter/Section Number	New Section Number
Ch 130. Subchapter B. Architecture and Construction	**Ch 127. Subchapter D. Architecture and Construction**
§130.41. Implementation of Texas Essential Knowledge and Skills for Architecture and Construction, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
§130.42. Principles of Architecture (One Credit), Adopted 2015.	§127.94
§130.43. Principles of Construction (One Credit), Adopted 2015.	§127.95
§130.44. Building Maintenance Technology I (Two Credits), Adopted 2015.	§127.96
§130.45. Building Maintenance Technology II (Two Credits), Adopted 2015.	§127.97
§130.46. Construction Management I (Two Credits), Adopted 2015.	§127.98
§130.47. Construction Management II (Two Credits), Adopted 2015.	§127.99
§130.48. Construction Technology I (Two Credits), Adopted 2015.	§127.100
§130.49. Construction Technology II (Two Credits), Adopted 2015.	§127.101
§130.50. Mill and Cabinetmaking Technology (Two Credits), Adopted 2015.	§127.102
§130.51. Masonry Technology I (Two Credits), Adopted 2015.	§127.103
§130.52. Masonry Technology II (Two Credits), Adopted 2015.	§127.104
§130.53. Architectural Design I (One Credit), Adopted 2015.	§127.105
§130.54. Architectural Design II (Two Credits), Adopted 2015.	§127.106
§130.55. Interior Design I (One Credit), Adopted 2015.	§127.107
§130.56. Interior Design II (Two Credits), Adopted 2015.	§127.108
§130.57. Electrical Technology I (One Credit), Adopted 2015.	§127.109
§130.58. Electrical Technology II (Two Credits), Adopted 2015.	§127.110
§130.59. Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I (One Credit), Adopted 2015.	§127.111
§130.60. Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II (Two Credits), Adopted 2015.	§127.112
§130.61. Plumbing Technology I (One Credit), Adopted 2015.	§127.113
§130.62. Plumbing Technology II (Two Credits), Adopted 2015.	§127.114
§130.63. Practicum in Construction Management (Two Credits), Adopted 2015.	§127.145
§130.68. Extended Practicum in Construction Management (One Credit), Adopted 2015.	§127.146
§130.64. Practicum in Construction Technology (Two Credits), Adopted 2015.	§127.147
§130.69. Extended Practicum in Construction Technology (One Credit), Adopted 2015.	§127.148
§130.65. Practicum in Masonry Technology (Two Credits), Adopted 2015.	§127.149
§130.70. Extended Practicum in Masonry Technology (One Credit), Adopted 2015.	§127.150

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§130.66. Practicum in Architectural Design (Two Credits), Adopted 2015.	§127.151
§130.71. Extended Practicum in Architectural Design (One Credit), Adopted 2015.	§127.152
§130.67. Practicum in Interior Design (Two Credits), Adopted 2015.	§127.153
§130.72. Extended Practicum in Interior Design (One Credit), Adopted 2015.	§127.154
Ch 130. Subchapter C. Arts, Audio/Video Technology, and Communications	**Ch 127. Subchapter E. Arts, Audio <u>Visual</u> Technology, and Communications**
§130.81. Implementation of Texas Essential Knowledge and Skills for Arts, Audio/Video Technology, and Communications, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
130.82. Principles of Arts, Audio/Video Technology, and Communications (One Credit), Adopted 2015.	§127.160
130.83. Animation I (One Credit), Adopted 2015.	§127.161
130.84. Animation I Lab (One Credit), Adopted 2015.	§127.162
130.85. Animation II (One Credit), Adopted 2015.	§127.163
130.86. Animation II Lab (One Credit), Adopted 2015.	§127.164
130.87. Audio/Video Production I (One Credit), Adopted 2015.	§127.165
130.88. Audio/Video Production I Lab (One Credit), Adopted 2015.	§127.166
130.89. Audio/Video Production II (One Credit), Adopted 2015.	§127.167
130.90. Audio/Video Production II Lab (One Credit), Adopted 2015.	§127.168
130.91. Digital Audio Technology I (One Credit), Adopted 2015.	§127.169
130.92. Digital Audio Technology II (One Credit), Adopted 2015.	§127.170
130.93. Video Game Design (One Credit), Adopted 2015.	§127.171
130.94. Printing and Imaging Technology I (One Credit), Adopted 2015.	§127.172
130.95. Printing and Imaging Technology I Lab (One Credit), Adopted 2015.	§127.173
130.96. Printing and Imaging Technology II (One Credit), Adopted 2015.	§127.174
130.97. Printing and Imaging Technology II Lab (One Credit), Adopted 2015.	§127.175
130.98. Commercial Photography I (One Credit), Adopted 2015.	§127.176
130.99. Commercial Photography I Lab (One Credit), Adopted 2015.	§127.177
130.100. Commercial Photography II (One Credit), Adopted 2015.	§127.178
130.101. Commercial Photography II Lab (One Credit), Adopted 2015.	§127.179
130.102. Fashion Design I (One Credit), Adopted 2015.	§127.180
130.103. Fashion Design I Lab (One Credit), Adopted 2015.	§127.181
130.104. Fashion Design II (One Credit), Adopted 2015.	§127.182
130.105. Fashion Design II Lab (One Credit), Adopted 2015.	§127.183

Current Subchapter/Section Number	New Section Number
130.106. Graphic Design and Illustration I (One Credit), Adopted 2015.	§127.184
130.107. Graphic Design and Illustration I Lab (One Credit), Adopted 2015.	§127.185
130.108. Graphic Design and Illustration II (One Credit), Adopted 2015.	§127.186
130.109. Graphic Design and Illustration II Lab (One Credit), Adopted 2015.	§127.187
130.110. Professional Communications (One-Half Credit), Adopted 2015.	§127.188
130.123. Digital Design and Media Production (One Credit).	§127.189
130.124. Digital Art and Animation (One Credit).	§127.190
130.125. 3-D Modeling and Animation (One Credit)	§127.191
130.126. Digital Communications in the 21st Century (One Credit).	§127.192
130.127. Web Game Development (One Credit).	§127.193
§130.111. Practicum in Animation (Two Credits), Adopted 2015.	§127.224
§130.117. Extended Practicum in Animation (One Credit), Adopted 2015.	§127.225
§130.112. Practicum in Audio/Video Production (Two Credits), Adopted 2015.	§127.226
§130.118. Extended Practicum in Audio/Video Production (One Credit), Adopted 2015.	§127.227
§130.113. Practicum in Printing and Imaging Technology (Two Credits), Adopted 2015.	§127.228
§130.119. Extended Practicum in Printing and Imaging Technology (One Credit), Adopted 2015.	§127.229
§130.114. Practicum in Commercial Photography (Two Credits), Adopted 2015.	§127.230
§130.120. Extended Practicum in Commercial Photography (One Credit), Adopted 2015.	§127.231
§130.115. Practicum in Fashion Design (Two Credits), Adopted 2015.	§127.232
§130.121. Extended Practicum in Fashion Design (One Credit), Adopted 2015.	§127.233
§130.116. Practicum in Graphic Design and Illustration (Two Credits), Adopted 2015.	§127.234
§130.122. Extended Practicum in Graphic Design and Illustration (One Credit), Adopted 2015.	§127.235
Ch 130. Subchapter D. Business Management and Administration	**Ch 127. Subchapter F. Business, Marketing, and Finance**
§130.131. Implementation of Texas Essential Knowledge and Skills for Business Management and Administration, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
§130.132. Principles of Business, Marketing, and Finance (One Credit), Adopted 2015.	§127.241
§130.133. Touch System Data Entry (One-Half Credit), Adopted 2015.	§127.242

Current Subchapter/Section Number	New Section Number
§130.134. Business Law (One Credit), Adopted 2015.	§127.243
§130.135. Business English (One Credit), Adopted 2015.	§127.244
§130.136: Foundations of Business Communication and Technologies (One Credit), Adopted 2015. *New course title to take effect 2/2/25	§127.245
§130.137. Business Communication and Technologies Adopted 2015. *New course title to take effect 2/2/25	§127.246
§130.138. Business Lab (One Credit), Adopted 2015.	§127.294
§130.139. Business Management (One Credit), Adopted 2015.	§127.247
§130.140. Global Business (One-Half Credit), Adopted 2015.	§127.248
§130.141. Virtual Business (One-Half Credit), Adopted 2015.	§127.249
§130.142. Human Resources Management (One-Half Credit), Adopted 2015.	§127.250
§130.143. Practicum in Business Management (Two Credits), Adopted 2015.	§127.295
§130.144. Extended Practicum in Business Management (One Credit), Adopted 2015.	§127.296
Ch 130. Subchapter F. Finance	**Ch 127. Subchapter F. Business, Marketing, and Finance**
§130.180. Financial Mathematics (One Credit), Adopted 2015.	§127.251
§130.181. Implementation of Texas Essential Knowledge and Skills for Finance, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
§130.182. Money Matters (One Credit), Adopted 2015.	§127.252
§130.184. Securities and Investments (One Credit), Adopted 2015.	§127.253
§130.185. Insurance Operations (One Credit), Adopted 2015.	§127.254
§130.186. Banking and Financial Services (One-Half Credit), Adopted 2015.	§127.255
§130.187. Accounting I (One Credit), Adopted 2015.	§127.256
§130.188. Accounting II (One Credit), Adopted 2015.	§127.257
§130.189. Financial Analysis (One Credit), Adopted 2015.	§127.258
§130.190. Statistics and Business Decision Making (One Credit), Adopted 2015.	§127.259
Ch 130. Subchapter N. Marketing	**Ch 127. Subchapter F. Business, Marketing, and Finance**
§130.381. Implementation of Texas Essential Knowledge and Skills for Marketing, Adopted 2015.	Repeal only. No new section required. Implementation language is included in subsection (a) for each course.
§130.382. Advertising (One-Half Credit), Adopted 2015.	§127.260
§130.383. Fashion Marketing (One-Half Credit), Adopted 2015.	§127.264
§130.385. Social Media Marketing (One-Half Credit), Adopted 2015.	§127.265
§130.386. Sports and Entertainment Marketing (One-Half Credit), Adopted 2015.	§127.266
§130.387. Practicum in Marketing (Two Credits), Adopted 2015.	§127.297

Current Subchapter/Section Number	New Section Number
§130.388. Extended Practicum in Marketing (One Credit), Adopted 2015.	§127.298
§130.389. Advanced Marketing (Two Credits), Adopted 2015.	§127.268
§127.277 Practicum in Entrepreneurship, Adopted 2023	§127.299
§127.278 Extended Practicum in Entrepreneurship, Adopted 2023	§127.300
Ch 127. Subchapter G. Education and Training	**Ch 127. Subchapter G. Education and Training**
§127.316 Principles of Education and Training (One Credit), Adopted 2021.	§127.309
§127.323 Human Growth and Development (One Credit), Adopted 2021.	§127.310
§127.317 Child Development (One Credit), Adopted 2021.	§127.311
§127.318 Child Guidance (Two Credits), Adopted 2021.	§127.312
§127.319 Child Development Associate Foundations (One Credit), Adopted 2021.	§127.313
§127.324 Communication and Technology in Education (One Credit), Adopted 2021.	§127.314
§127.325 Instructional Practices (Two Credits), Adopted 2021.	§127.315
127.320 Practicum in Early Learning (Two Credits), Adopted 2021.	§127.343
127.321 Extended Practicum in Early Learning (One Credit), Adopted 2021.	§127.344
127.326 Practicum in Education and Training (Two Credits), Adopted 2021.	§127.345
127.314 Extended Practicum in Education and Training (One Credit), Adopted 2015.	§127.346
Ch 130. Subchapter Q. Energy	**Ch 127. Subchapter H. Energy**
§130.490. Foundations of Energy (One Credit).	§127.351
§130.485. Oil and Gas Production I (One Credit).	§127.352
§130.486. Oil and Gas Production II (One Credit).	§127.353
§130.487. Oil and Gas Production III (One Credit).	§127.354
§130.488. Oil and Gas Production IV (One Credit).	§127.355
§130.489. Introduction to Process Technology (One Credit).	§127.356
§130.491. Petrochemical Safety, Health, and Environment (One Credit).	§127.357
Ch. 127. Subchapter O. STEM	**Ch 127. Subchapter I. Engineering**
§127.745. Principles of Technology (One Credit), Adopted 2015	Repeal only. No new section/course required. Revised and adopted as new §127.795. Physics For Engineering (One Credit), Adopted 2024, effective September 9, 2024 and implementing August 1, 2025.
127.781 Principles of Applied Engineering, Adopted 2021	§127.391
127.746. AC/DC Electronics (One Credit), Adopted 2015.	§127.392
127.747. Solid State Electronics (One Credit), Adopted 2015.	§127.393
127.748. Digital Electronics (One Credit), Adopted 2015.	§127.394

Current Subchapter/Section Number	New Section Number
127.749. Robotics I (One Credit), Adopted 2015. (STEM)	§127.395
127.750. Robotics II (One Credit), Adopted 2015. (STEM)	§127.396
127.782. Engineering Science, Adopted 2021	§127.397
127.754. Engineering Mathematics, Adopted 2021	§127.398
127. 786. Introduction to Computer-Aided Design and Drafting, Adopted 2021	§127.399
127.787 Intermediate Computer-Aided Design and Drafting, Adopted 2021	§127.400
§127.795. Physics for Engineering (One Credit), Adopted 2024	§127.401
127.783. Engineering Design and Presentation I, Adopted 2022	Repeal only. No new section/course required. Scheduled to be replaced by proposed new §127.404. Engineering Design and Presentation I, Adopted 2025, to be effective August 1, 2025.
127.784. Engineering Design and Presentation II, Adopted 2022	Repeal only. No new section/course required. Scheduled to be replaced by proposed new §127.405. Engineering Design and Presentation II, Adopted 2025, to be effective August 1, 2025.
127.785. Engineering Design and Problem Solving, Adopted 2021	Repeal only. No new section/course required. Scheduled to be replaced by proposed new §127.406. Engineering Design and Problem Solving, Adopted 2025, to be effective August 1, 2025.
127.759. Practicum in Science, Technology, Engineering, and Mathematics, Adopted 2015	Repeal only. No new section required. The SBOE is scheduled to consider proposed new Practicum in Engineering.
127.760. Extended Practicum in Science, Technology, Engineering, and Mathematics, Adopted 2015	Repeal only. No new section required. The SBOE is scheduled to consider proposed new Extended Practicum in Engineering.
Ch 127. Subchapter I. Health Science	**Ch 127. Subchapter J. Health Science**
127.403. Principles of Health Science (One Credit), Adopted 2015.	§127.461
127.778. Principles of Bioscience (One Credit), Adopted 2021	§127.462
127.410. Mathematics for Medical Professionals (One Credit), Adopted 2015.	§127.474
127.779. Biotechnology I (One Credit), Adopted 2021	§127.475
127.780. Biotechnology II (One Credit), Adopted 2021	§127.476
127.417. Medical Terminology (One Credit), Adopted 2021	§127.477
127.422. Health Science Theory (One Credit), Adopted 2021	§127.478
127.413. Health Science Clinical (One Credit), Adopted 2015.	§127.479
127.420. World Health and Emerging Technologies (One Credit), Adopted 2021.	§127.480
127.423. Anatomy and Physiology, (One Credit), Adopted 2021	§127.481
127.424. Pathophysiology (One Credit), Adopted 2021.	§127.482
127.425. Pharmacy I (One Credit), Adopted 2021.	§127.483
127.426. Pharmacy II (Two Credit), Adopted 2021.	§127.484
127.428. Pharmacology (One Credit), Adopted 2021.	§127.485

Current Subchapter/Section Number	New Section Number
127.433. Medical Microbiology (One Credit), Adopted 2021.	§127.486
127.418. Health Informatics (One Credit), Adopted 2021.	§127.487
127.421. Medical Billing and Coding (One Credit), Adopted 2021.	§127.488
127.427. Medical Assistant (One Credit), Adopted 2021.	§127.489
127.429. Respiratory Therapy I (One Credit), Adopted 2021.	§127.490
127.430. Respiratory Therapy II (One Credit), Adopted 2021.	§127.491
127.419. Healthcare Administration and Management (One Credit), Adopted 2021.	§127.492
127.431. Leadership and Management in Nursing (One Credit), Adopted 2021.	§127.493
127.414. Practicum in Health Science (Two Credits), Adopted 2015.	§127.553
127.415. Extended Practicum in Health Science (One Credit), Adopted 2015.	§127.554
127.432. Practicum in Nursing (two Credit), Adopted 2021.	§127.555
Ch 127. Subchapter J. Hospitality and Tourism	**Ch 127. Subchapter K. Hospitality and Tourism**
§127.469. Principles of Hospitality and Tourism (One Credit), Adopted 2015.	§127.561
127.470. Introduction to Culinary Arts (One Credit), Adopted 2015.	§127.562
§127.471. Culinary Arts (Two Credits), Adopted 2015.	§127.563
§127.472. Advanced Culinary Arts (Two Credits), Adopted 2015.	§127.564
§127.482. Food Science (One Credit), Adopted 2021.	§127.565
§127.475. Travel and Tourism Management (One Credit), Adopted 2015.	§127.566
§127.476. Hotel Management (One Credit), Adopted 2015.	§127.567
§127.477. Hospitality Services (Two Credits), Adopted 2015.	§127.568
127.474. Practicum in Culinary Arts (Two Credits), Adopted 2015.	§127.600
§127.479. Extended Practicum in Culinary Arts (One Credit), Adopted 2015.	§127.601
§127.478. Practicum in Hospitality Services (Two Credits), Adopted 2015.	§127.602
§127.480. Extended Practicum in Hospitality Services (One Credit), Adopted 2015.	§127.603
Ch 130. Subchapter J. Human Services	**Ch 127. Subchapter L. Human Services**
§130.271. Implementation of Texas Essential Knowledge and Skills for Human Services, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§130.272. Principles of Human Services (One Credit), Adopted 2015.	§127.611
§130.281. Principles of Cosmetology Design and Color Theory (One Credit), Adopted 2015.	§127.612
§130.273. Dollars and Sense (One-Half Credit), Adopted 2015.	§127.613
§130.274. Lifetime Nutrition and Wellness (One-Half Credit), Adopted 2015.	§127.614

Current Subchapter/Section Number	New Section Number
§130.275. Interpersonal Studies (One-Half Credit), Adopted 2015.	§127.615
§130.276. Counseling and Mental Health (One Credit), Adopted 2015.	§127.616
§130.279. Family and Community Services (One Credit), Adopted 2015.	§127.617
§130.282. Introduction to Cosmetology (One Credit), Adopted 2015.	§127.618
§130.283. Cosmetology I (Two Credits), Adopted 2015.	§127.619
§130.286. Cosmetology I Lab (One Credit), Adopted 2018.	§127.620
§130.284. Cosmetology II (Two Credits), Adopted 2015.	§127.621
§130.287. Cosmetology II Lab (One Credit), Adopted 2018.	§127.622
§130.280. Practicum in Human Services (Two Credits), Adopted 2015.	§127.665
§130.285. Extended Practicum in Human Services (One Credit), Adopted 2015.	§127.666
Ch 130. Subchapter K. Information Technology	**Ch 127. Subchapter M. Information Technology**
§130.301. Implementation of Texas Essential Knowledge and Skills for Information Technology, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§130.302. Principles of Information Technology (One Credit), Adopted 2015.	§127.671
127.788. Fundamentals of Computer Science (STEM), Adopted 2022.	§127.672
127.789. Computer Science I (One Credit), Adopted 2022.	§127.673
127.790. Computer Science II (One Credit), Adopted 2022.	§127.674
127.791. Computer Science III, (One Credit), Adopted 2022.	§127.675
127.792. Foundations of Cybersecurity, (One Credit), Adopted 2022.	§127.676
127.793. Digital Forensics (One Credit), Adopted 2022.	§127.677
127.794. Cybersecurity Capstone (One Credit), Adopted 2022.	§127.678
§130.303. Computer Maintenance (One Credit), Adopted 2015.	§127.679
§130.304. Computer Maintenance Lab (One Credit), Adopted 2015.	§127.680
§130.305. Networking (One Credit), Adopted 2015.	§127.681
§130.306. Networking Lab (One Credit), Adopted 2015.	§127.682
§130.307. Digital Media (One Credit), Adopted 2015.	§127.683
§130.315. Web Communications (One-Half Credit).	§127.684
§130.316. Web Design (One Credit).	§127.685
127.766. Discrete Mathematics for Computer Science (One Credit), Beginning with School Year 2012-2013.	§127.686
127.767. Game Programming and Design (One Credit)	§127.687
127.768. Mobile Application Development (One Credit)	§127.688
§130.317. Independent Study in Technology Applications (One Credit), Beginning with School Year 2012-2013.	§127.720

Current Subchapter/Section Number	New Section Number
§130.318. Independent Study in Evolving/Emerging Technologies (One Credit).	§127.721
127.771. Advanced Placement (AP) Computer Science A (Two Credits)	§127.722
127.772. Advanced Placement (AP) Computer Science Principles (One Credit)	§127.723
127.773. International Baccalaureate (IB) Computer Science Standard Level (Two Credits)	§127.724
127.774. International Baccalaureate (IB) Computer Science Higher Level (Two Credits)	§127.725
127.775. International Baccalaureate (IB) Information Technology in a Global Society Standard Level (Two Credits)	§127.726. International Baccalaureate (IB) Digital Society Standard Level (Two Credits)
127.776. International Baccalaureate (IB) Information Technology in a Global Society Higher Level (Two Credits)	§127.727. International Baccalaureate (IB) Digital Society Higher Level (Two Credits)
§130.312. Practicum in Information Technology (Two Credits), Adopted 2015.	§127.735
§130.314. Extended Practicum in Information Technology (One Credit), Adopted 2015.	§127.736
§130.311. Computer Technician Practicum (Two Credits), Adopted 2015.	§127.737
§130.313. Extended Computer Technician Practicum (One Credit), Adopted 2015.	§127.738
Ch 127. Subchapter M. Law and Public Service	**Ch 127. Subchapter N. Law and Public Service**
§127.625. Implementation of Texas Essential Knowledge and Skills for Law, Public Safety, Corrections, and Security, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§127.626. Principles of Law, Public Safety, Corrections, and Security (One Credit), Adopted 2015.	§127.746
§127.627. Correctional Services (One Credit), Adopted 2015.	§127.747
§127.628. Firefighter I (Two Credits), Adopted 2015.	§127.748
§127.629. Firefighter II (Three Credits), Adopted 2015.	§127.749
§127.630. Law Enforcement I (One Credit), Adopted 2015.	§127.750
§127.631. Law Enforcement II (One Credit), Adopted 2015.	§127.751
§127.632. Criminal Investigation (One Credit), Adopted 2015.	§127.758
§127.634. Court Systems and Practices (One Credit), Adopted 2015.	§127.759
§127.635. Federal Law Enforcement and Protective Services (One Credit), Adopted 2015.	§127.760
§127.638. Implementation of Texas Essential Knowledge and Skills for Government and Public Administration, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§127.639. Principles of Government and Public Administration (One Credit), Adopted 2015.	§127.761
§127.640. Political Science I (One Credit), Adopted 2015.	§127.762
§127.641. Political Science II (One Credit), Adopted 2015.	§127.763

Current Subchapter/Section Number	New Section Number
§127.642. Foreign Service and Diplomacy (One Credit), Adopted 2015.	§127.764
§127.643. Planning and Governance (One Credit), Adopted 2015.	§127.765
§127.644. National Security (One Credit), Adopted 2015.	§127.766
§127.645. Public Management and Administration (One Credit), Adopted 2015.	§127.767
§127.646. Revenue, Taxation, and Regulation (One Credit), Adopted 2015.	§127.768
§127.652. Forensic Science (One Credit), Adopted 2021.	§127.769
§127.636. Practicum in Law, Public Safety, Corrections, and Security (Two Credits), Adopted 2015.	§127.800
§127.637. Extended Practicum in Law, Public Safety, Corrections, and Security (One Credit), Adopted 2015.	§127.801
§127.647. Practicum in Local, State, and Federal Government (Two Credits), Adopted 2015.	§127.802
§127.648. Extended Practicum in Local, State, and Federal Government (One Credit), Adopted 2015.	§127.803
Ch 130. Subchapter M. Manufacturing	**Ch 127. Subchapter O. Manufacturing**
§130.351. Implementation of Texas Essential Knowledge and Skills for Manufacturing, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§130.352. Principles of Manufacturing (One Credit), Adopted 2015.	§127.810
§130.353. Diversified Manufacturing I (One Credit), Adopted 2015.	§127.811
§130.354. Diversified Manufacturing II (One Credit), Adopted 2015.	§127.812
§130.355. Manufacturing Engineering Technology I (One Credit), Adopted 2015.	§127.813
§130.356. Manufacturing Engineering Technology II (One Credit), Adopted 2015.	§127.814
§130.357. Metal Fabrication and Machining I (Two Credits), Adopted 2015.	§127.815
§130.358. Metal Fabrication and Machining II (Two Credits), Adopted 2015.	§127.816
§130.359. Precision Metal Manufacturing I (Two Credits), Adopted 2015.	§127.817
§130.360. Precision Metal Manufacturing II (Two Credits), Adopted 2015.	§127.818
§130.361. Precision Metal Manufacturing II Lab (One Credit), Adopted 2015.	§127.819
§130.362. Introduction to Welding (One Credit), Adopted 2015.	§127.820
§130.363. Welding I (Two Credits), Adopted 2015.	§127.821
§130.364. Welding II (Two Credits), Adopted 2015.	§127.822
§130.365. Welding II Lab (One Credit), Adopted 2015.	§127.823

Current Subchapter/Section Number	New Section Number
§130.366. Practicum in Manufacturing (Two Credits), Adopted 2015.	§127.865
§130.367. Extended Practicum in Manufacturing (One Credit), Adopted 2015.	§127.866
Ch 130. Subchapter P. Transportation, Distribution, and Logistics	**Ch 127. Subchapter P. Transportation, Distribution, and Logistics**
§130.441. Implementation of Texas Essential Knowledge and Skills for Transportation, Distribution, and Logistics, Adopted 2015.	No new section required. Implementation language is included in subsection (a) for each course.
§130.442. Principles of Transportation Systems (One Credit), Adopted 2015.	§127.871
§130.443. Principles of Distribution and Logistics (One Credit), Adopted 2015.	§127.872
§130.444. Introduction to Transportation Technology (One-Half Credit), Adopted 2015.	§127.873
§130.445. Introduction to Small Engine Technology (One Credit), Adopted 2015 *New course title to take effect 2/2/25	§127.874
§130.446. Small Engine Technology (Two Credits), Adopted 2015 *New course title to take effect 2/2/25	§127.875
§130.447. Automotive Basics (One Credit), Adopted 2015.	§127.876
§130.449. Automotive Technology I: Maintenance and Light Repair (Two Credits), Adopted 2015.	§127.877
§130.450. Automotive Technology II: Automotive Service (Two Credits), Adopted 2015.	§127.878
§130.451. Advanced Transportation Systems Laboratory (One Credit), Adopted 2015	No new course required. §127.920. Advanced Transportation Systems Laboratory (One Credit), Adopted 2024, effective September 9, 2024
§130.452. Introduction to Aircraft Technology (One Credit), Adopted 2015	No new course required. §127.887. Introduction to Aircraft Technology (One Credit), Adopted 2024, effective September 9, 2024
§130.453. Aircraft Airframe Technology (Two Credits), Adopted 2015.	No new course required. §127.888. Aircraft Airframe Technology (Two Credits), Adopted 2024, effective September 9, 2024
§130.454. Aircraft Powerplant Technology (Two Credits), Adopted 2015.	No new course required. §127.889, Aircraft Powerplant Technology (Two Credits), Adopted 2024, effective September 9, 2024
§130.455. Basic Collision Repair and Refinishing (One Credit), Adopted 2015.	§127.879
§130.456. Collision Repair (Two Credits), Adopted 2015.	§127.880
§130.457. Paint and Refinishing (Two Credits), Adopted 2015.	§127.881
§130.458. Diesel Equipment Technology I (Two Credits), Adopted 2015.	§127.882
§130.459. Diesel Equipment Technology II (Two Credits), Adopted 2015.	§127.883

Current Subchapter/Section Number	New Section Number
§130.460. Energy and Power of Transportation Systems (One Credit), Adopted 2015.	§127.884
§130.461. Management of Transportation Systems (One Credit), Adopted 2015.	§127.885
§130.462. Distribution and Logistics (One Credit), Adopted 2015.	§127.886
§130.463. Practicum in Transportation Systems (Two Credits), Adopted 2015.	§127.921
§130.465. Extended Practicum in Transportation Systems (One Credit), Adopted 2015.	§127.922
§130.464. Practicum in Distribution and Logistics (Two Credits), Adopted 2015.	§127.923
§130.466. Extended Practicum in Distribution and Logistics (One Credit), Adopted 2015.	§127.924

Proposed Amendments to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52
(First Reading and Filing Authorization)

June 27, 2025

COMMITTEE ON INSTRUCTION: ACTION
STATE BOARD OF EDUCATION: CONSENT

SUMMARY: This item presents for first reading and filing authorization proposed amendments to 19 Texas Administrative Code (TAC) Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52. The proposal would make a technical adjustment to the prerequisites for §127.49, Livestock and Poultry Production, to align with the career and technical education (CTE) programs of study; update cross references; and update language relating to employability skills to reference new 19 TAC §127.15.

STATUTORY AUTHORITY: Texas Education Code (TEC), §7.102(c)(4) and §28.002(a) and (c).

TEC, §7.102(c)(4), requires the State Board of Education (SBOE) to establish curriculum and graduation requirements.

TEC, §28.002(a), identifies the subjects of the required curriculum.

TEC, §28.002(c), requires the SBOE to identify by rule the essential knowledge and skills of each subject in the required curriculum that all students should be able to demonstrate and that will be used in evaluating instructional materials and addressed on the state assessment instruments.

EFFECTIVE DATE: The proposed effective date of the proposed amendments is 20 days after filing as adopted with the Texas Register. Under TEC, §7.102(f), the SBOE must approve the rule action at second reading and final adoption by a vote of two-thirds of its members to specify an effective date earlier than the beginning of the 2026-2027 school year. The earlier effective date will allow for technical adjustments to be made to course prerequisites for implementation in the 2025-2026 school year.

PREVIOUS BOARD ACTION: The SBOE adopted §§127.49, 127.51, and 127.52 to be effective September 9, 2024.

BACKGROUND INFORMATION AND JUSTIFICATION: The federal *Strengthening Career and Technical Education for the 21st Century Act*, commonly referred to as Perkins V, requires states that receive federal CTE funds to align CTE programs of study to high-wage, in-demand, and high-skill occupations. In fall 2023, the Texas Education Agency (TEA) engaged members of the workforce, secondary education, and higher education to advise on the development and refresh of programs of study, which include coherent course sequences, industry-based certifications, and work-based learning opportunities to ensure students are prepared for high-wage, in-demand, and high-skill careers in Texas.

The proposed amendments would update language related to prerequisites and references to a course title to ensure alignment with refreshed programs of study. In addition, employability skills would be removed from the rules, and a reference to the universal employability skills in new §127.15 would be added.

The proposed amendments were not presented as a discussion item. The SBOE, however, may wish to consider this item for first reading and filing authorization as authorized under its operating procedures. Therefore, this item is presented for first reading and filing authorization consideration at this meeting. It is recommended that the SBOE amend the prerequisites in the Texas Essential Knowledge and Skills for the three courses to ensure alignment with the refreshed programs of study and eliminate confusion.

FISCAL IMPACT: TEA has determined that there are no additional costs to state or local government, including school districts and open-enrollment charter schools, required to comply with the proposal.

LOCAL EMPLOYMENT IMPACT: The proposal has no effect on local economy; therefore, no local employment impact statement is required under Texas Government Code, §2001.022.

SMALL BUSINESS, MICROBUSINESS, AND RURAL COMMUNITY IMPACT: The proposal has no direct adverse economic impact for small businesses, microbusinesses, or rural communities; therefore, no regulatory flexibility analysis specified in Texas Government Code, §2006.002, is required.

COST INCREASE TO REGULATED PERSONS: The proposal does not impose a cost on regulated persons, another state agency, a special district, or a local government and, therefore, is not subject to Texas Government Code, §2001.0045.

TAKINGS IMPACT ASSESSMENT: The proposal does not impose a burden on private real property and, therefore, does not constitute a taking under Texas Government Code, §2007.043.

GOVERNMENT GROWTH IMPACT: TEA staff prepared a Government Growth Impact Statement assessment for this proposed rulemaking. During the first five years the proposed rulemaking would be in effect, it would expand and limit existing regulations by adjusting the options for prerequisites for some courses.

The proposed rulemaking would not create or eliminate a government program; would not require the creation of new employee positions or elimination of existing employee positions; would not require an increase or decrease in future legislative appropriations to the agency; would not require an increase or decrease in fees paid to the agency; would not create a new regulation; would not repeal an existing regulation; would not increase or decrease the number of individuals subject to its applicability; and would not positively or adversely affect the state's economy.

PUBLIC BENEFIT AND COST TO PERSONS: The proposal would ensure language related to prerequisites is accurate and aligned with the refreshed CTE programs of study. There is no anticipated economic cost to persons who are required to comply with the proposal.

DATA AND REPORTING IMPACT: The proposal would have no data or reporting impact.

PRINCIPAL AND CLASSROOM TEACHER PAPERWORK REQUIREMENTS: TEA has determined that the proposal would not require a written report or other paperwork to be completed by a principal or classroom teacher.

PUBLIC COMMENTS: The public comment period on the proposal begins August 1, 2025, and ends at 5:00 p.m. on September 2, 2025. The SBOE will take registered oral and written comments on the proposal at the appropriate committee meeting in September 2025 in accordance with the SBOE board operating policies and procedures. A request for a public hearing on the proposal submitted under the

Administrative Procedure Act must be received by the commissioner of education not more than 14 calendar days after notice of the proposal has been published in the *Texas Register* on August 1, 2025.

MOTION TO BE CONSIDERED: The State Board of Education:

> Suspend the board operating procedures in accordance with §5.2(a) to allow consideration at first reading and filing authorization; and
>
> Approve for first reading and filing authorization proposed amendments to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment:
Text of Proposed Amendments to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §§127.49, 127.51, and 127.52

ATTACHMENT
Text of Proposed Amendments to 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter C. Agriculture, Food, and Natural Resources

§127.49. Livestock and Poultry Production (One Credit), Adopted 2024.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: [~~a minimum of two credits with~~] at least one course [~~in a Level 2 or higher course~~] from the Agriculture, Food, and Natural Resources Career Cluster. Recommended prerequisite: Principles of Agriculture, Food, and Natural Resources. Students shall be awarded one credit for successful completion of this course.

(c) (No change.)

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) identify career development, education, and entrepreneurship opportunities in the field of livestock and poultry production;~~]

[~~(B) identify and demonstrate interpersonal, problem-solving, and critical-thinking skills used in livestock and poultry production;~~]

[~~(C) describe and demonstrate appropriate personal and occupational safety and health practices for the workplace;~~]

[~~(D) identify employers' legal responsibilities and expectations, including appropriate work habits and ethical conduct;~~]

[~~(E) describe and demonstrate characteristics of good citizenship in the agricultural workplace, including promoting stewardship, community leadership, civic engagement, and agricultural awareness and literacy; and~~]

[~~(F) identify training, education, and certification requirements for occupational choices.~~]

(1) [~~(2)~~] The student develops a supervised agricultural experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agricultural experience program as an experiential learning activity; and

(B) use appropriate record-keeping skills as they relate to the supervised agricultural experience program.

(2) [~~(3)~~] The student develops leadership skills through participation in an agricultural youth organization. The student is expected to:

(A) participate in youth agricultural leadership opportunities;

(B) review and participate in a local program of activities; and

(C) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(3) [~~(4)~~] The student analyzes the history, domestication, and selection of livestock and poultry. The student is expected to:

(A) research and describe the history, domestication, and evolution of livestock and poultry species;

(B) describe the impacts other industries such as entertainment, recreation and leisure, and exhibition of animals have on the livestock and poultry industry; and

(C) evaluate and select livestock and poultry breeds based on purpose and conformation.

(4) [~~(5)~~] The student explains the anatomy and physiology of livestock and poultry species. The student is expected to:

(A) identify and explain the skeletal, muscular, respiratory, and circulatory systems of livestock and poultry;

(B) identify and interpret ranges for healthy livestock and poultry vital signs; and

(C) compare normal and abnormal behavior of livestock and poultry.

(5) [~~(6)~~] The student determines nutritional requirements of livestock and poultry. The student is expected to:

(A) describe and compare the digestive systems of ruminant and non-ruminant animals;

(B) identify sources of nutrients and classes of feed for livestock and poultry;

(C) identify vitamins, minerals, and feed additives for livestock and poultry;

(D) formulate feed rations based on nutritional needs and economic factors for livestock and poultry;

(E) research and discuss feeding practices and feed quality issues for livestock and poultry;

(F) identify forage plants used for livestock grazing; and

(G) research and explain livestock and poultry grazing practices such as rotational grazing and deferred grazing.

(6) [~~(7)~~] The student explains livestock and poultry genetics and reproduction. The student is expected to:

(A) describe and compare the reproductive systems of various livestock and poultry;

(B) identify and explain livestock and poultry breeding systems such as grading up, crossbreeding, linebreeding, and inbreeding;

(C) use Expected Progeny Differences (EPDs) to evaluate livestock production;

(D) research and explain current and emerging technologies in livestock and poultry reproduction such as cloning, embryo transfer, in vitro fertilization, and artificial insemination;

(E) use Punnett squares to predict phenotypes and genotypes of livestock offspring; and

(F) explain the relationship between body condition scores and reproductive efficiency for livestock and poultry.

(7) [~~(8)~~] The student understands how livestock and poultry are affected by pests and diseases. The student is expected to:

(A) identify and describe how bacteria, fungi, viruses, genetics, and nutrition affect livestock and poultry health;

(B) identify signs, symptoms, and prevention of livestock and poultry diseases;

(C) identify parasites and explain the signs, symptoms, treatment, and prevention of livestock and poultry parasites; and

(D) calculate dosage and identify administration methods of livestock and poultry medications.

(8) [~~(9)~~] The student analyzes the management skills needed for livestock and poultry production. The student is expected to:

(A) identify tools and equipment for safe handling and restraining of livestock and poultry and select the appropriate tools or equipment for such tasks and purposes;

(B) identify types and essential features of facilities for livestock and poultry such as housing, veterinary, and reproduction facilities;

(C) evaluate and describe industry practices such as dehorning, castrating, docking, and vaccinating and sire, dam, and newborn care to maximize the efficiency of livestock and poultry;

(D) explain and demonstrate methods of identifying ownership of livestock and poultry such as branding, ear tagging, ear notching, wing bands, and tattooing; and

(E) explain the use of technology such as aircraft, robotics, and smart irrigation in modern livestock and poultry production.

(9) [~~(10)~~] The student examines the interrelationship of the factors impacting livestock and poultry production operations. The student is expected to:

(A) research and explain livestock and poultry biosecurity and waste management practices;

(B) create an effective financial management plan for a livestock and poultry production operation;

(C) analyze and discuss environmental regulations, governmental regulations, and animal welfare policies related to livestock and poultry production;

(D) analyze the United States Department of Agriculture (USDA) standards and guidelines for organic livestock and poultry production;

(E) analyze and describe the interrelationship between grain markets and the livestock and poultry industry;

(F) assess the impact of the United States livestock and poultry industry on world commodity markets;

(G) use charts, tables, data, or graphs to evaluate the efficiency of livestock and poultry production; and

(H) develop and present a livestock or poultry operation plan that includes health, reproduction, nutrition, and management practices necessary for maximum efficiency.

§127.51. Veterinary Science (One Credit), Adopted 2024.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: Equine Science, Small Animal Management, or Livestock and Poultry Production. Students shall be awarded one credit for successful completion of this course.

(c) (No change.)

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) identify career, education, and entrepreneurship opportunities for a chosen occupation in the field of veterinary science and develop a plan for obtaining the education, training, and certifications required;~~]

[~~(B) model professionalism by continuously exhibiting appropriate work habits, solving problems, taking initiative, communicating effectively, listening actively, and thinking critically;~~]

[~~(C) model appropriate personal and occupational safety and health practices and explain the importance of established safety and health protocols for the workplace;~~]

[~~(D) analyze and interpret the rights and responsibilities, including ethical conduct and legal responsibilities, of employers and employees; and~~]

[~~(E) describe and demonstrate characteristics of good citizenship in the agricultural workplace, including promoting stewardship, community leadership, civic engagement, and agricultural awareness and literacy.~~]

(1) [~~(2)~~] The student develops a supervised agricultural experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agricultural experience program as an experiential learning activity; and

(B) use appropriate record-keeping skills as they relate to the supervised agricultural experience program.

(2) [~~(3)~~] The student develops leadership skills through participation in an agricultural youth organization. The student is expected to:

(A) participate in youth agricultural leadership opportunities;

(B) review and participate in a local program of activities; and

(C) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(3) [~~(4)~~] The student understands safety and health practices associated with working in veterinary medicine. The student is expected to:

(A) explain the importance of safe practices such as handling, restraint, and proper use of tools and equipment when working with animals;

(B) identify and discuss transmission and prevention of zoonotic diseases in large and small animal species;

(C) describe sanitation methods to prevent the spread of pathogens and maintain asepsis in sterile environments;

(D) locate, interpret, and implement safety data sheets (SDS) for handling chemicals;

(E) demonstrate and explain safe usage of clinical tools and equipment; and

(F) perform proper disposal of sharps and biohazards.

(4) [~~(5)~~] The student understands current topics, professional ethics, and laws that relate to veterinary medicine. The student is expected to:

(A) research and discuss historical events, trends, and issues that have impacted veterinary medicine;

(B) analyze topics related to veterinary medical ethics, including animal rights and animal welfare; and

(C) explain policies and procedures in veterinary medicine that reflect local, state, and federal laws.

(5) [~~(6)~~] The student evaluates effective management approaches and marketing strategies to determine their importance to the success of veterinary practices such as clinics and hospitals. The student is expected to:

(A) describe how the human-animal bond impacts veterinary practices when working with clients and their animals;

(B) identify and demonstrate skills needed to communicate effectively with clients and veterinary professionals;

(C) identify marketing strategies and explain how marketing affects the success of a veterinary practice; and

(D) research and discuss how electronic technology such as computer programs, medical records, hospital-to-hospital communication, and tablets is used in a veterinary practice.

(6) [~~(7)~~] The student communicates the importance of medical terminology, evaluates veterinary terms to discover their meanings, and demonstrates the ability to use terms correctly. The student is expected to:

(A) analyze Greek and Latin prefixes, suffixes, and roots to determine the meaning of veterinary terms;

(B) identify, pronounce, and spell veterinary terms appropriately; and

(C) use directional anatomy terms appropriately for large and small animal species.

(7) [~~(8)~~] The student understands proper animal handling as it relates to characteristics and behavior. The student is expected to:

(A) identify animal breeds according to characteristics;

(B) identify and compare normal and abnormal behavior within and among various animal species; and

(C) identify and discuss correct handling and restraint protocols for large and small animal species such as muzzling, lateral recumbency, sternal recumbency, jugular venipuncture, and haltering.

(8) [~~(9)~~] The student explains anatomy and physiology of animals. The student is expected to:

(A) identify the parts and functions of the skeletal, muscular, respiratory, circulatory, digestive, endocrine, and nervous systems for large and small animal species; and

(B) describe the interrelationships among animal body systems.

(9) [~~(10)~~] The student determines the importance of animal nutrition in maintaining a healthy animal. The student is expected to:

(A) identify sources of nutrients and classes of feeds for large and small animal species;

(B) identify feed additives for large and small animal species and describe how additives affect the food supply;

(C) analyze dietary needs and feed-quality issues for large and small animal species and their effect on feeding practices; and

(D) research and compare the nutritional value of feeds such as prescription, commercial, homemade, fad, and raw diets for large and small animal species.

(10) [~~(11)~~] The student evaluates an animal's health during a clinical examination. The student is expected to:

(A) describe the characteristics and signs of a healthy and an unhealthy animal;

(B) identify ranges for healthy vital signs for large and small animal species such as temperature, pulse, respiration, hydration, and capillary refill time;

(C) demonstrate the proper procedures for obtaining vital signs for large and small animal species and interpret vital sign measurements to determine the health of the animal;

(D) describe effects of age, stress, and environmental factors on vital signs of animals;

(E) explain procedures for physical examinations for large and small animal species;

(F) explain the anatomical regional approach to assess an animal's health;

(G) apply mathematical skills to calculate weight and linear body measurement for large and small animal species and to convert between measurement systems; and

(H) analyze tables, charts, and graphs to interpret large and small animal patient and clinical data.

(11) [~~(12)~~] The student analyzes how diseases and parasites affect animal health. The student is expected to:

(A) describe the process of immunity and disease transmission for large and small animal species;

(B) identify and describe pathogens for large and small animal species and the diseases they cause;

(C) describe the effects that diseases have on various body systems for large and small animal species;

(D) identify parasites for large and small animal species using common and scientific names;

(E) describe life cycles of parasites found in large and small animal species;

(F) explain how parasites found in large and small animal species are transmitted and explain the effects on the host;

(G) describe parasitic diagnostic procedures for large and small animal species; and

(H) describe treatment protocols for parasites found in large and small animal species.

(12) [~~(13)~~] The student examines various aspects of veterinary laboratory procedures. The student is expected to:

(A) explain the procedures used in collecting, handling, and preparing fecal, blood, and urine specimens for large and small animal species;

(B) explain veterinary procedures used in examining fecal, blood, and urine specimens; and

(C) analyze and compare normal and abnormal results obtained in veterinary laboratory procedures.

(13) [~~(14)~~] The student analyzes technical veterinary procedures and skills. The student is expected to:

(A) explain the care, maintenance, and use of equipment and instruments found in veterinary practices;

(B) interpret and prepare a veterinary medical record, adhering to client and patient confidentiality;

(C) explain and demonstrate routine animal care skills such as administering medications, nail trimming, bathing, dipping, grooming, ear cleaning, expressing anal sacs, dental care, placing a tail tie, and ownership identification methods;

(D) explain and demonstrate therapeutic care for large and small animal species such as patient observation, maintaining and administering fluids, applying and removing bandages, removing sutures, caring for open wounds, and providing hydrotherapy physical therapy;

(E) describe emergency protocols and first aid procedures for large and small animal species, including cardiopulmonary resuscitation, control of bleeding, and signs of shock; and

(F) research and compare veterinary care of specialty patients, including newborns, orphans, geriatric animals, recumbent animals, and animals with disabilities.

(14) [~~(15)~~] The student identifies and discusses surgical-assisting procedures and skills. The student is expected to:

(A) explain the veterinary protocol for pre-surgical and post-surgical care of a patient;

(B) identify tools and equipment used in veterinary surgical procedures;

(C) describe methods used in the preparation, sterilization, and opening of surgery packs; and

(D) describe veterinary surgical procedures such as spaying, castration, dehorning, docking, dental prophylaxis, and tooth extraction.

(15) [~~(16)~~] The student identifies imaging equipment and understands how to safely operate and maintain equipment. The student is expected to:

(A) research and explain the parts and function of imaging equipment such as an ultrasonograph, endoscope, electrocardiograph, and radiograph;

(B) explain safety, maintenance, and operation procedures of imaging equipment;

(C) demonstrate patient restraint and positioning methods used for imaging purposes of large and small animal species; and

(D) differentiate between the images from various imaging equipment.

(16) [~~(17)~~] The student identifies veterinary pharmacology procedures and skills. The student is expected to:

(A) identify veterinary medications according to their classification, schedule, form, routes of administration, and methods of administration;

(B) explain handling, storage, distribution, protocols, and laws for veterinary medications, including controlled substances;

(C) calculate dosage for large and small animal species using factors such as concentration of drug, weight of animal, and prescribed dosage;

(D) prepare a veterinary prescription label with identifiers that are required by the United States Food and Drug Administration;

(E) identify and explain the equipment and instruments used to safely administer medications for large and small animal species; and

(F) research and present emerging trends in veterinary pharmacology such as internet pharmacies, herbal supplements, organic labeling, and extra-label and off-label use of medications.

§127.52. Advanced Animal Science (One Credit), Adopted 2024.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: Biology and Chemistry or Integrated Physics and Chemistry (IPC); Algebra I and Geometry; and either Small Animal Management, Equine Science, or Livestock and Poultry Production. Recommended prerequisite: Veterinary Science. Students must meet the 40% laboratory and fieldwork requirement. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course.

(c) (No change.)

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) identify career and entrepreneurship opportunities for a chosen occupation in the field of animal science and develop a plan for obtaining the education, training, and certifications required;~~]

[~~(B) model professionalism by continuously exhibiting appropriate work habits, solving problems, taking initiative, communicating effectively, listening actively, and thinking critically;~~]

[~~(C) model appropriate personal and occupational safety and health practices and explain the importance of established safety and health protocols for the workplace;~~]

[~~(D) analyze and interpret the rights and responsibilities, including ethical conduct and legal responsibilities of employers and employees; and~~]

[~~(E) describe and demonstrate characteristics of good citizenship in the agricultural workplace, including promoting stewardship, community leadership, civic engagement, and agricultural awareness and literacy.~~]

(1) [~~(2)~~] Scientific and engineering practices. The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;

(B) apply scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;

(C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;

(D) use appropriate tools such as dissection equipment, standard laboratory glassware, microscopes, various prepared slides, measuring devices, micropipettors, hand lenses, thermometers, hot plates, laboratory notebook, timing devices, cameras, Petri dishes, laboratory incubators, models, diagrams, and samples of biological specimens, syringes, needles, scalpels, microscopes slides, cover slips, artificial insemination equipment, and drench gun;

(E) collect quantitative data using the International System of Units (SI) and qualitative data as evidence;

(F) organize quantitative and qualitative data using calculators, computers, software, laboratory notebook, recordkeeping system, and reliable sources;

(G) develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and

(H) distinguish between scientific hypotheses, theories, and laws.

(2) [~~(3)~~] Scientific and engineering practices. The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:

(A) identify advantages and limitations of models such as their size, scale, properties, and materials;

(B) analyze data by identifying significant statistical features, patterns, sources of error, and limitations;

(C) use mathematical calculations to assess quantitative relationships in data; and

(D) evaluate experimental and engineering designs.

(3) [~~(4)~~] Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(A) develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and

(C) engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.

(4) [~~(5)~~] Scientific and engineering practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation on society. The student is expected to:

(A) analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing so as to encourage critical thinking by the student;

(B) relate the impact of past and current research on scientific thought and society, including research methodology, cost-benefit analysis, and contributions of diverse scientists as related to the content; and

(C) research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field in order to investigate STEM careers.

(5) [~~(6)~~] The student develops a supervised agricultural experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agricultural experience program as an experiential learning activity; and

(B) use appropriate record-keeping skills in a supervised agricultural experience program.

(6) [~~(7)~~] The student develops leadership skills through participation in an agricultural youth organization. The student is expected to:

(A) participate in youth agricultural leadership opportunities;

(B) review and participate in a local program of activities; and

(C) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(7) [~~(8)~~] The student analyzes the history, domestication, and evaluation of animals, including canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs. The student is expected to:

(A) research and describe the history, including evolution, domestication, and introduction of species to countries, of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(B) analyze and describe how changes in the global food market impact the animal production industry; and

(C) evaluate breeds of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorph based on purpose and conformation.

(8) [~~(9)~~] The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:

(A) compare cells to show specialization of structure and function;

(B) explain cell division, including mitosis and meiosis;

(C) explain cell differentiation in the development of tissues and organs; and

(D) identify and explain the biological levels of organization in animals.

(9) [~~(10)~~] The student examines and compares anatomy and physiology in animals. The student is expected to:

(A) compare the external anatomy of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(B) identify the anatomical structures and physiological functions of the skeletal, muscular, circulatory, genitourinary, respiratory, nervous, immune, and endocrine systems of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs; and

(C) investigate and describe the interrelationship among animal body systems.

(10) [~~(11)~~] The student understands the anatomical structures and physiological functions of the digestive system to determine nutritional requirements of ruminant and non-ruminant animals. The student is expected to:

(A) describe the structures and functions of the digestive systems of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(B) identify and describe sources of nutrients and classes of feeds for canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(C) identify and describe the feed additives and supplements used to meet the nutritional requirements of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(D) formulate rations based on different nutritional requirements, including age, gestation, lactation, sex, and purpose, for canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(E) analyze feeding practices in relation to nutritional requirements, including age, gestation, lactation, sex, and purpose, for canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(F) analyze feed quality issues and determine their effect on the health of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(G) research and compare the nutritional value of feeds for all species discussed;

(H) identify forage plants used for livestock grazing and analyze the protein levels of each; and

(I) research grazing practices such as rotational grazing and deferred grazing and explain the advantages and disadvantages of each using the scientific and engineering design process.

(11) [~~(12)~~] The student understands the principles of molecular genetics and heredity. The student is expected to:

(A) explain Mendel's laws of inheritance and predict genotypes and phenotypes of offspring using a Punnett square;

(B) use a Punnett square and assign alleles to justify genotype and phenotype predictions;

(C) identify the parts of the nucleotide and differentiate between the nucleotides found in deoxyribonucleic acid (DNA) and ribonucleic acid (RNA); and

(D) explain the functions of DNA and RNA.

(12) [~~(13)~~] The student applies the principles of reproduction and breeding to animal improvement. The student is expected to:

(A) describe and compare reproductive anatomy of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(B) analyze and compare reproductive cycles and phases of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(C) correlate the reproductive cycles and phases to animal behavior;

(D) research breeding systems, including grading up, crossbreeding, linebreeding, and inbreeding, and explain the advantages and disadvantages of each using the scientific and engineering design process; and

(E) research breeding methods, including embryo transfer, artificial insemination, and natural mating, and explain the advantages and disadvantages of each using the scientific and engineering design process.

(13) [~~(14)~~] The student analyzes how diseases and parasites affect animal health. The student is expected to:

(A) examine how factors such as geographic location, age, genetic composition, and inherited diseases influence the health of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(B) describe the process of immunity and disease transmission of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(C) identify and describe pathogens and the diseases they cause in canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(D) describe the effects that diseases have on various body systems of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(E) research and explain the methods of prevention and control for diseases of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(F) identify parasites of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs using common and scientific names;

(G) describe the life cycles of various parasites and relate them to animal health issues;

(H) explain how parasites are transmitted and the effect they have on canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs;

(I) conduct or simulate parasite diagnostic tests; and

(J) explain the methods of prevention, control, and treatment of parasites of canine, feline, bovine, equine, caprine, porcine, ovine, poultry, and lagomorphs.

(14) [~~(15)~~] The student discusses livestock market readiness and harvesting methods. The student is expected to:

(A) explain the stages of animal growth and development and how they relate to market readiness;

(B) evaluate market class and grades of livestock;

(C) compare harvesting methods for various species using the scientific and engineering design process;

(D) research and describe federal and state meat inspection standards such as safety, hygiene, and quality control standards;

(E) identify wholesale and retail cuts of meat and correlate to major muscle groups; and

(F) research animal by-products and explain their impact on society.

(15) [~~(16)~~] The student explores methods of marketing animals and animal products. The student is expected to:

(A) compare various methods of animal marketing such as auction, contract sales, private treaty, internet sales, value-based, and exhibition of various animals;

(B) describe methods of marketing animal products such as farmers market, direct sales, wholesale, and retail;

(C) research and evaluate the effectiveness of various strategies and campaigns to market animal products based on consumption patterns and consumer preferences; and

(D) research and evaluate the effectiveness of various labeling options to market animal products such as organic, farm-raised, hormone-free, cage-free, grass-fed, antibiotic-free, and non-GMO labels based on consumption patterns and consumer preferences.

(16) [~~(17)~~] The student demonstrates an understanding of policies and current issues in animal science. The student is expected to:

(A) investigate and discuss the use of biotechnology and biosecurity in the animal science industry;

(B) identify governmental regulations and policies such as environmental and animal welfare and research the impacts on animal production; and

(C) identify and research a current issue in scientific animal agriculture and design a protocol to address the issue using the scientific and engineering design process.

Discussion of Annual Audit Reports for Credit by Examination from Texas Tech University and The University of Texas at Austin

June 26, 2025

COMMITTEE ON INSTRUCTION: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides the opportunity for the committee to discuss the annual audit reports submitted by Texas Tech University and The University of Texas at Austin regarding examinations used for credit by examination.

STATUTORY AUTHORITY: Texas Education Code (TEC), §28.023.

TEC, §28.023 requires districts to develop or select for review examinations for acceleration for each primary school grade level and for credit for secondary school academic subjects based on guidelines established by the State Board of Education (SBOE).

BACKGROUND INFORMATION AND JUSTIFICATION: General provisions in 19 TAC §74.24, Credit by Examination, include the option for school districts to administer examinations developed by Texas Tech University or The University of Texas at Austin for credit for secondary school academic subjects.

During the February 2007 meeting of the Committee on Instruction, the committee chair instructed Texas Education Agency (TEA) staff to request that the two institutions provide the information necessary for review of each of their examinations used for credit by examination. Correspondence was sent to the institutions requesting the review. Staff members from both universities responded that the process for aligning the examinations with the Texas Essential Knowledge and Skills (TEKS) was underway for some examinations and completed for others.

During the July 2007 committee meeting, public testimony raised additional concerns regarding the examinations. The committee chair asked staff to investigate the possibility of a third-party review of the updated examinations. During the September 2007 meeting, the committee instructed staff to draft proposed changes to the rule for action at the November 2007 meeting that would require an annual report by an outside auditor to confirm TEKS alignment of the examinations developed by Texas Tech University and The University of Texas at Austin.

The SBOE established a process for the regular review and audit of examinations provided by Texas Tech University and The University of Texas at Austin for credit by examination and acceleration by examination. During the January 2008 meeting, the SBOE adopted a proposed amendment to 19 TAC §74.24 that added language in subsection (a)(2) specifying that these two entities must ensure that their assessments are aligned with the TEKS, arrange for a third-party audit of 20% of their assessments annually, and report the results of each audit to the TEA by May 31 of each year. In July 2009, TEA staff presented the first audit results. Audit results have been presented to the SBOE for discussion annually since 2009. This item presents the annual audit results that were due to the agency by May 31, 2025.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs

Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment:
Text of Current 19 TAC §74.24, Credit by Examination

Separate Exhibits:
I: Audit Summary from Texas Tech University

II: Audit Summary from The University of Texas at Austin

(to be provided in advance of the June 2025 SBOE meeting)

ATTACHMENT
Text of 19 TAC

Chapter 74. Curriculum Requirements

Subchapter C. Other Provisions

§74.24. Credit by Examination.

(a) General provisions.

(1) A school district must provide at least one window to test between January 1 and March 31, one window to test between April 1 and June 30, one window to test between July 1 and September 30, and one window to test between October 1 and December 31 annually when each examination for acceleration for each primary school grade level and for credit for secondary school academic subjects required under Texas Education Code, §28.023, shall be administered in Grades 1-12 unless the examination has an administration date that is established by an entity other than the school district. A student may take a specific examination only once during each window. The testing window must be designed to meet the needs of all students. The dates must be publicized in the community.

(2) A school district shall provide opportunities for a student who is homeless or in substitute care who transfers to the district after the start of the school year to be administered credit by examination at any point during the school year.

(3) A school district shall not charge for an examination for acceleration for each primary school grade level or for credit for secondary school academic subjects. If a parent requests an alternative examination, the district may administer and recognize results of a test purchased by the parent or student from Texas Tech University or The University of Texas at Austin.

(A) For each grade level or course, Texas Tech University and The University of Texas at Austin shall ensure that the assessments they provide for the purposes of this section are aligned to and address all assessable Texas Essential Knowledge and Skills (TEKS) at the appropriate level of rigor.

(B) Texas Tech University and The University of Texas at Austin shall arrange for a third party to conduct an audit, on a rotating basis, of at least 20% of the assessments they provide for the purposes of this section. The audit shall be conducted annually.

(C) The results of each audit shall be provided to the Texas Education Agency in the form of a report to be delivered no later than May 31 of each year.

(4) A school district must have the approval of the school district board of trustees to develop its own tests or to purchase examinations that thoroughly test the essential knowledge and skills in the applicable grade level or subject area.

(5) A school district may allow a student to accelerate at a time other than one required in paragraph (1) of this subsection by developing a cost-free option approved by the school district board of trustees that allows students to demonstrate academic achievement or proficiency in a subject or grade level.

(b) Assessment for acceleration in kindergarten through Grade 5.

(1) A school district must develop procedures for kindergarten acceleration that are approved by the school district board of trustees. The board of trustees shall approve an audit process to be completed for assessments for acceleration.

(2) A student in any of Grades 1-5 must be accelerated one grade if he or she meets the following requirements:

(A) the student scores 80% on a criterion-referenced test for the grade level he or she wants to skip in each of the following areas: language arts, mathematics, science, and social studies;

(B) a school district representative recommends that the student be accelerated; and

(C) the student's parent or guardian gives written approval for the acceleration.

(c) Assessment for course credit in Grades 6-12.

(1) A school district board of trustees shall approve for each high school course, to the extent available, at least four examinations. The board of trustees shall approve an audit process to be completed for examinations under subparagraph (B)(iii) of this paragraph.

(A) The examinations shall include the following, which are not subject to the requirements in paragraphs (2)-(7) of this subsection:

(i) College Board advanced placement examinations; and

(ii) examinations administered through the College-Level Examination Program.

(B) The examinations may include examinations developed by:

(i) Texas Tech University;

(ii) The University of Texas at Austin;

(iii) the school district; and

(iv) another entity if the assessment meets all of the requirements in paragraph (2) of this subsection.

(2) In order for a school district to administer an examination for credit, prior to the first administration, the school district or the provider of the assessment must certify that the examination:

(A) is aligned to all assessable TEKS for the course;

(B) has not been published and is not publicly available;

(C) will only be administered in a secure environment under standardized conditions by a school district or institution of higher education; and

(D) has been evaluated to ensure:

(i) test scores can be interpreted as indicators of what the test is intended to measure;

(ii) consistency of test results across testing conditions.

(3) A school district or the provider of the assessment must make public an annual report, including:

(A) the test development process;

(B) a statement certifying that the examination meets the criteria in paragraph (2)(D) of this subsection;

(C) the number of students who took each examination;

(D) the number of students who scored 70% or above on each examination;

(E) the number of students who scored 80% or above on each examination; and

(F) the average score for all students who took the examination for each examination.

(4) In order for a school district to administer an examination for credit for a course that has a state end-of-course assessment instrument, the school district or the provider of the assessment must certify, prior to the first administration, that the examination:

(A) meets the requirements of paragraph (2) of this subsection;

(B) has been externally validated and determined to:

(i) align to and appropriately address all assessable TEKS for the course;

(ii) assess the appropriate level of rigor for each student expectation; and

(iii) yield comparable distribution of results across tested subgroups.

(5) If the number of students who take an examination in a given year is not sufficient to determine comparable results among subgroups, the provider may obtain approval from the State Board of Education to demonstrate comparable results over a specified number of years.

(6) For an examination that is validated in accordance with paragraph (4) of this subsection, a school district or the provider of the assessment must make public:

(A) the annual report required by paragraph (3) of this subsection;

(B) all relevant test development specifications;

(C) a statement certifying that the examination meets the criteria in paragraph (4)(B) of this subsection; and

(D) results for all tested subgroups disaggregated by students who receive prior instruction and students with no prior instruction and including descriptive data for small subgroups.

(7) Examinations for courses that do not have a state end-of-course assessment shall meet all requirements in paragraph (2) of this subsection no later than the 2019-2020 school year.

(8) A student in any of Grades 6-12 must be given credit for an academic subject in which he or she has had no prior instruction if the student scores:

(A) a three or higher on a College Board advanced placement examination that has been approved by the school district board of trustees for the applicable course;

(B) a scaled score of 50 or higher on an examination administered through the College-Level Examination Program and approved by the school district board of trustees for the applicable course; or

(C) 80% on any other criterion-referenced test approved by the school district board of trustees for the applicable course.

(9) A student may not attempt to earn credit by examination for a specific high school course more than two times.

(10) If a student fails to earn credit by examination for a specific high school course before the beginning of the school year in which the student would ordinarily be required to enroll in that course in accordance with the school district's prescribed course sequence, the student must satisfactorily complete the course to receive credit.

(11) If a student is given credit in accordance with paragraph (8) of this subsection in a subject on the basis of an examination on which the student scored 80% or higher, the school district must enter the examination score on the student's transcript, and the student is not required to take an applicable end-of-course assessment instrument for the course.

(12) In accordance with local school district policy, a student in any of Grades 6-12 may be given credit for an academic subject in which he or she had some prior instruction if the student scores 70% on a criterion-referenced test approved by the school district board of trustees for the applicable course.

Approval of Updates and Substitutions to Adopted or Approved Instructional Materials

June 27, 2025

COMMITTEE ON INSTRUCTION: ACTION
STATE BOARD OF EDUCATION: CONSENT

SUMMARY: This item provides an opportunity for the committee and board to approve update and/or substitution requests received for State Board of Education (SBOE)-adopted or approved products. The updated content has been reviewed by subject-area specialists and determined to address the pertinent student expectations in a manner equal to the content initially reviewed and approved by the state review panel or Instructional Materials Review and Approval (IMRA) reviewers, as applicable.

STATUTORY AUTHORITY: Texas Education Code (TEC), §31.003 and §31.022.

TEC, §31.003, permits the State Board of Education (SBOE) to adopt rules for the adoption, requisition, distribution, care, use, and disposal of instructional materials.

TEC, §31.022(b), requires the SBOE to adopt rules to provide for a full and complete investigation of instructional materials for each subject in the foundation curriculum and for each subject in the enrichment curriculum.

PREVIOUS BOARD ACTION: In 2015 the SBOE approved update and/or substitution requests for three products. In 2016 the SBOE approved update and/or substitution requests for two products. In 2019 the SBOE approved update and/or substitution requests for seven products. In 2020 the SBOE approved update and/or substitution requests for 21 products. In 2021 the SBOE approved update and/or substitution requests for 16 products. In 2022 the SBOE approved update and/or substitution requests for 25 products. In 2023 the SBOE approved update and/or substitution requests for 10 products. In 2024 the SBOE approved update and/or substitution requests for 16 products.

In January 2025 the SBOE approved requests from Studies Weekly to update content in its social studies grades K–5 products.

Instructional materials products were approved by the SBOE through the Instructional Materials Review and Approval (IMRA) process at the November 2024 meeting.

At the January 2025 meeting, the SBOE adopted rules related to updates to instructional materials that have previously been reviewed and approved in the IMRA process.

In April 2025, the SBOE approved a request from *Texas Education Agency* to update content in its Bluebonnet Learning ELAR Grades K, 2, 4, and 5.

BACKGROUND INFORMATION AND JUSTIFICATION: Administrative rules in 19 TAC §66.75, pertaining to updates to adopted instructional materials from a past proclamation, require that all requests for updates involving content used in determining the product's eligibility for adoption must be approved by the State Board of Education (SBOE) prior to their introduction into state-adopted instructional materials. Requests must be submitted in a format designated by the commissioner and must include correlations to applicable student expectations. This requirement includes electronic instructional materials and Internet products for which all users receive the same updates. Proposed changes shall be

posted on the TEA website for a minimum of seven calendar days prior to approval. The SBOE may assess penalties as allowed by law against publishers that fail to obtain approval for updates to such content in state-adopted instructional materials prior to delivery of the materials to school districts.

The SBOE shall either accept or reject each updated TEKS or TPG coverage percentage and errors report in accordance with 19 TAC §66.66.

Rules in 19 TAC §66.76 permit a publisher to submit a request for approval to substitute a new edition of state-adopted instructional materials. The rule also requires that all requests for updates involving content used in determining the product's eligibility for adoption must be approved by the SBOE prior to their introduction into state-adopted instructional materials.

Rules in 19 TAC §67.39 permit a publisher to submit a request for approval to update content in SBOE-approved instructional materials.

MOTION TO BE CONSIDERED: The State Board of Education:

Approve requests from Decker & Associates, Inc to update content in its *Personal Financial Literacy & Economics for Real Life* products, adopted under *Proclamation 2024.*

Approve requests from Accelerate Learning Inc. to update content in its *STEMscopes Texas Math grades K–8 and Algebra I* products approved as part of IMRA Cycle 2024.

Staff Member Responsible:
Amie Phillips, Director, Instructional Materials Review and Approval, District Operations, Technology & Sustainability Supports

Attachment I:
Decker & Associates, Inc (D&A), Personal Financial Literacy & Economics for Real Life Update Requests

Attachment II:
Accelerate Learning Inc., STEMscopes Texas Math grades K–8 and Algebra I Update Requests

ATTACHMENT
Text of 19 TAC

Chapter 74. Curriculum Requirements

Subchapter C. Other Provisions

§74.24. Credit by Examination.

(a) General provisions.

(1) A school district must provide at least one window to test between January 1 and March 31, one window to test between April 1 and June 30, one window to test between July 1 and September 30, and one window to test between October 1 and December 31 annually when each examination for acceleration for each primary school grade level and for credit for secondary school academic subjects required under Texas Education Code, §28.023, shall be administered in Grades 1-12 unless the examination has an administration date that is established by an entity other than the school district. A student may take a specific examination only once during each window. The testing window must be designed to meet the needs of all students. The dates must be publicized in the community.

(2) A school district shall provide opportunities for a student who is homeless or in substitute care who transfers to the district after the start of the school year to be administered credit by examination at any point during the school year.

(3) A school district shall not charge for an examination for acceleration for each primary school grade level or for credit for secondary school academic subjects. If a parent requests an alternative examination, the district may administer and recognize results of a test purchased by the parent or student from Texas Tech University or The University of Texas at Austin.

(A) For each grade level or course, Texas Tech University and The University of Texas at Austin shall ensure that the assessments they provide for the purposes of this section are aligned to and address all assessable Texas Essential Knowledge and Skills (TEKS) at the appropriate level of rigor.

(B) Texas Tech University and The University of Texas at Austin shall arrange for a third party to conduct an audit, on a rotating basis, of at least 20% of the assessments they provide for the purposes of this section. The audit shall be conducted annually.

(C) The results of each audit shall be provided to the Texas Education Agency in the form of a report to be delivered no later than May 31 of each year.

(4) A school district must have the approval of the school district board of trustees to develop its own tests or to purchase examinations that thoroughly test the essential knowledge and skills in the applicable grade level or subject area.

(5) A school district may allow a student to accelerate at a time other than one required in paragraph (1) of this subsection by developing a cost-free option approved by the school district board of trustees that allows students to demonstrate academic achievement or proficiency in a subject or grade level.

(b) Assessment for acceleration in kindergarten through Grade 5.

(1) A school district must develop procedures for kindergarten acceleration that are approved by the school district board of trustees. The board of trustees shall approve an audit process to be completed for assessments for acceleration.

(2) A student in any of Grades 1-5 must be accelerated one grade if he or she meets the following requirements:

(A) the student scores 80% on a criterion-referenced test for the grade level he or she wants to skip in each of the following areas: language arts, mathematics, science, and social studies;

(B) a school district representative recommends that the student be accelerated; and

(C) the student's parent or guardian gives written approval for the acceleration.

(c) Assessment for course credit in Grades 6-12.

(1) A school district board of trustees shall approve for each high school course, to the extent available, at least four examinations. The board of trustees shall approve an audit process to be completed for examinations under subparagraph (B)(iii) of this paragraph.

(A) The examinations shall include the following, which are not subject to the requirements in paragraphs (2)-(7) of this subsection:

(i) College Board advanced placement examinations; and

(ii) examinations administered through the College-Level Examination Program.

(B) The examinations may include examinations developed by:

(i) Texas Tech University;

(ii) The University of Texas at Austin;

(iii) the school district; and

(iv) another entity if the assessment meets all of the requirements in paragraph (2) of this subsection.

(2) In order for a school district to administer an examination for credit, prior to the first administration, the school district or the provider of the assessment must certify that the examination:

(A) is aligned to all assessable TEKS for the course;

(B) has not been published and is not publicly available;

(C) will only be administered in a secure environment under standardized conditions by a school district or institution of higher education; and

(D) has been evaluated to ensure:

(i) test scores can be interpreted as indicators of what the test is intended to measure;

(ii) consistency of test results across testing conditions.

(3) A school district or the provider of the assessment must make public an annual report, including:

(A) the test development process;

(B) a statement certifying that the examination meets the criteria in paragraph (2)(D) of this subsection;

(C) the number of students who took each examination;

(D) the number of students who scored 70% or above on each examination;

(E) the number of students who scored 80% or above on each examination; and

(F) the average score for all students who took the examination for each examination.

(4) In order for a school district to administer an examination for credit for a course that has a state end-of-course assessment instrument, the school district or the provider of the assessment must certify, prior to the first administration, that the examination:

(A) meets the requirements of paragraph (2) of this subsection;

(B) has been externally validated and determined to:

(i) align to and appropriately address all assessable TEKS for the course;

(ii) assess the appropriate level of rigor for each student expectation; and

(iii) yield comparable distribution of results across tested subgroups.

(5) If the number of students who take an examination in a given year is not sufficient to determine comparable results among subgroups, the provider may obtain approval from the State Board of Education to demonstrate comparable results over a specified number of years.

(6) For an examination that is validated in accordance with paragraph (4) of this subsection, a school district or the provider of the assessment must make public:

(A) the annual report required by paragraph (3) of this subsection;

(B) all relevant test development specifications;

(C) a statement certifying that the examination meets the criteria in paragraph (4)(B) of this subsection; and

(D) results for all tested subgroups disaggregated by students who receive prior instruction and students with no prior instruction and including descriptive data for small subgroups.

(7) Examinations for courses that do not have a state end-of-course assessment shall meet all requirements in paragraph (2) of this subsection no later than the 2019-2020 school year.

(8) A student in any of Grades 6-12 must be given credit for an academic subject in which he or she has had no prior instruction if the student scores:

(A) a three or higher on a College Board advanced placement examination that has been approved by the school district board of trustees for the applicable course;

(B) a scaled score of 50 or higher on an examination administered through the College-Level Examination Program and approved by the school district board of trustees for the applicable course; or

(C) 80% on any other criterion-referenced test approved by the school district board of trustees for the applicable course.

(9) A student may not attempt to earn credit by examination for a specific high school course more than two times.

(10) If a student fails to earn credit by examination for a specific high school course before the beginning of the school year in which the student would ordinarily be required to enroll in that course in accordance with the school district's prescribed course sequence, the student must satisfactorily complete the course to receive credit.

(11) If a student is given credit in accordance with paragraph (8) of this subsection in a subject on the basis of an examination on which the student scored 80% or higher, the school district must enter the examination score on the student's transcript, and the student is not required to take an applicable end-of-course assessment instrument for the course.

(12) In accordance with local school district policy, a student in any of Grades 6-12 may be given credit for an academic subject in which he or she had some prior instruction if the student scores 70% on a criterion-referenced test approved by the school district board of trustees for the applicable course.

Discussion of the Rule and/or Proposed Amendments to 19 TAC Chapter 89, Adaptations for Special Populations, Subchapter A, Gifted/Talented Education, §89.1, Student Identification

June 26, 2025

COMMITTEE ON INSTRUCTION: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item presents the opportunity for the board to discuss the rule and/or proposed amendments to 19 Texas Administrative Code (TAC) Chapter 89, Adaptations for Special Populations, Subchapter A, Gifted/Talented Education, §89.1, Student Identification. The proposed amendments would ensure that a district's identification of gifted and talented students complies with all legal requirements and federal and state law.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§29.121, 29.122, 29.123, 39.236, and 48.109.

TEC, §29.121, establishes the definition of a gifted and talented student.

TEC, §29.122, establishes that each school district shall adopt a process for identifying and serving gifted and talented students.

TEC, §29.123, establishes that the State Board of Education (SBOE) shall develop and update a state plan for the education of gifted and talented students to guide school districts.

TEC, §39.236, establishes criteria for the commissioner to adopt standards to evaluate school district programs for gifted and talented students.

TEC, §48.109, establishes criteria for utilizing the gifted and talented student allotment funds.

FUTURE ACTION EXPECTED: The proposed amendment(s) to 19 TAC §89.1 will be presented for first reading and filing authorization at the September 2025 SBOE meeting.

BACKGROUND INFORMATION AND JUSTIFICATION: Section 89.1 establishes requirements for the identification of gifted and talented students. The proposed amendment would modify paragraph (3) to require multiple sources of data and procedures to be used to ensure that students from all populations in the district have access to assessment and, if identified, services for the gifted/talented program. New paragraph (4) would be added to prohibit a scoring value based on race, ethnicity, sex, socioeconomic status, or disability. Paragraph (5) would be amended to require that the selection committee be trained in the identification of gifted students.

Staff Members Responsible:
Kristin McGuire, Deputy Associate Commissioner, Special Populations Policy, Integration, and Technical Assistance
Laura Briones, Director, Special Populations Policy, Integration, and Technical Assistance
Monica Brewer, Coordinator, Gifted and Talented

Attachment:
Text of Proposed Amendment(s) to 19 TAC Chapter 89, Adaptations for Special Populations, Subchapter A, Gifted/Talented Education, §89.1, Student Identification

ATTACHMENT
Text of 19 TAC

Chapter 89. Adaptations for Special Populations

Subchapter A. Gifted/Talented Education

§89.1. Student Identification.

School districts shall develop written policies on student identification that are approved by the local board of trustees and disseminated to parents. The policies must:

(1) include provisions for ongoing screening and selection of students who perform or show potential for performing at remarkably high levels of accomplishment in the areas defined in the Texas Education Code, §29.121;

(2) include assessment measures collected from multiple sources according to each area defined in the Texas State Plan for the Education of Gifted/Talented Students;

(3) include multiple sources of data and procedures designed to ensure that students from all populations in the district have access to assessment and, if identified, services for the gifted/talented program;

(4) prohibit a scoring value based on race, ethnicity, sex, socioeconomic status, or disability if the selection process utilizes a matrix or threshold system;

(5) [~~(4)~~] provide for final selection of students to be made by a committee comprised of at least three local district educators who have received training in the nature and needs and the identification of gifted students;

(6) [~~(5)~~] include provisions regarding furloughs, reassessment, exiting of students from program services, transfer students, and appeals of district decisions regarding program placement; and

(7) [~~(6)~~] not limit the number of students the district may identify as gifted/talented or served under the district's program for gifted/talented students.

Consideration of Renewal of Currently Approved Innovative Courses

June 27, 2025

COMMITTEE ON INSTRUCTION: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item presents for consideration the renewal of currently approved innovative courses that are scheduled to expire.

STATUTORY AUTHORITY: Texas Education Code (TEC), §28.002(f).

TEC, §28.002(f), authorizes local school districts to offer courses in addition to those in the required curriculum for local credit and requires the State Board of Education (SBOE) to be flexible in approving a course for credit for high school graduation.

PREVIOUS BOARD ACTION: The SBOE adopted 19 TAC §74.27, Innovative Courses and Programs, to be effective September 1, 1996, with amendments to be effective September 1, 1998, and December 25, 2007. In November 2019, the SBOE adopted additional amendments to 19 TAC §74.27 to be effective December 25, 2019. In November 2022, the SBOE again adopted amendments to 19 TAC §74.27 to be effective February 26, 2023. In November 2023, the SBOE adopted amendments effective February 18, 2024.

From May 1998 through July 2003, the SBOE approved a total of 45 new innovative courses that do not fall within any of the subject areas of the foundation or enrichment curriculum through the annual approval process. In May 2004, July 2007, July 2009, January 2011, January 2012, January 2013, and July 2014 the SBOE approved the renewal of innovative courses in addition to approving new courses. In April 2005, April 2006, May 2008, May 2010, and April 2014 the SBOE approved renewal of innovative courses. In July 2010, the SBOE approved one new course. In April 2015, the SBOE approved for a period of five years three expiring course series submitted for renewal. In April 2016, the SBOE approved one new course for a period of three years and one new course for a one-year period. The SBOE approved for a period of five years each the renewal of three expiring innovative courses in November 2016. At the January-February 2017 meeting, the SBOE approved for renewal two expiring innovative courses for a period of five years, and at the April 2017 SBOE meeting, the SBOE approved for renewal three additional courses for a period of five years each. At the June 2017 SBOE meeting, the SBOE approved two new courses for a period of five years each. At the April 2018 SBOE meeting, the SBOE approved one new course for a period of five years. At the January-February 2019 SBOE meeting, the SBOE renewed one course for a period of three years and granted one course a one-year extension. At the April 2019 SBOE meeting, the board approved for renewal two courses for a period of three years and one course for a period of five years. At the June 2019 SBOE meeting, the board approved renewal of one course for a period of three years and one new course for a period of two years. The board approved renewal of eight innovative courses for a period of five years at the January 2020 SBOE meeting. At the June-July 2020 SBOE meeting, the SBOE renewed ten courses for a period of five years and granted one new course a two-year approval. In January 2021, the SBOE renewed one course for a period of five years. At the January 2022 SBOE meeting, the board approved renewal of one course for a period of three years and five courses for a period of five years. At the April 2022 SBOE meeting, the board approved renewal of six courses for a period of five years. At the June 2023 meeting, the SBOE approved one new innovative course for a period of two years. At the June 2024 meeting, the SBOE extended the of

approvals for 24 innovative courses that were part of career and technical education (CTE) programs of study. At the November 2024 meeting, the SBOE approved the renewal of six innovative courses for a period of five years. At the January 2025 meeting, the SBOE approved the renewal of 14 innovative courses for a period of five years.

BACKGROUND INFORMATION AND JUSTIFICATION: After the board adopted new rules concerning graduation requirements, the previously approved experimental courses were phased out as of August 31, 1998. Since the adoption of the Texas Essential Knowledge and Skills (TEKS), school districts and other entities have submitted new requests for approval of innovative courses that do not have TEKS and meet a demonstrated student need. The process originally outlined in §74.27 provided authority for the commissioner of education to approve discipline-based courses but reserved for SBOE review and approval those courses that did not fall within any of the subject areas of the foundation or enrichment curriculum. In November 2023, the SBOE amended §74.27 to shift from the commissioner of education to the SBOE the authority to approve all innovative courses that fall under the foundation or enrichment curriculum. The amendments also specified the number of years for initial approval and renewal of innovative courses and provided an exemption from the pilot requirement for career and technical education courses that support an approved program of study.

A brief description of the courses submitted for SBOE review and consideration will be provided to SBOE members prior to the June 2025 meeting. If approved, the recommended effective date for the courses would be August 1, 2025. With the approval of the local board of trustees, the courses would be available for school districts' use beginning with the 2025-2026 school year.

PUBLIC BENEFIT AND COST TO PERSONS: Students would continue to have access to courses that meet local district needs.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

Attachment:
Text of 19 TAC §74.27, Innovative Courses and Programs

Separate Exhibit:
Innovative Courses Submitted for Approval
(to be provided at the June 2025 SBOE meeting)

ATTACHMENT

Chapter 74. Curriculum Requirements

Subchapter C. Other Provisions

§74.27. Innovative Courses and Programs.

(a) A school district may offer innovative courses to enable students to master knowledge, skills, and competencies not included in the essential knowledge and skills of the required curriculum.

(1) The State Board of Education (SBOE) may approve discipline-based courses in the foundation or enrichment curriculum and courses that do not fall within any of the subject areas listed in the foundation and enrichment curricula when the applying school district or organization demonstrates that the proposed course is academically rigorous and addresses documented student needs.

(2) Applications shall not be approved if the proposed course significantly duplicates the content of a Texas Essential Knowledge and Skills (TEKS)-based course or can reasonably be taught within an existing TEKS-based course.

(3) To request approval from the SBOE, the applying school district or organization must submit a request for approval at least six months before planned implementation that includes:

(A) a description of the course and its essential knowledge and skills;

(B) the rationale and justification for the request in terms of student need;

(C) data that demonstrates successful piloting of the course in Texas;

(D) a description of activities, major resources, and materials to be used;

(E) the methods of evaluating student outcomes;

(F) the qualifications of the teacher;

(G) any training required in order to teach the course and any associated costs;

(H) the amount of credit requested; and

(I) a copy of or electronic access to any recommended instructional resources for the course.

(4) To request approval for a career and technical education innovative course, the applying school district or organization must submit with its request for approval evidence that the course is aligned with state and/or regional labor market data.

(5) To request approval of a new innovative course, the applying school district or organization must submit with its request for approval evidence that the course has been successfully piloted in its entirety in at least one school in the state of Texas.

(6) The requirements of paragraphs (3)(C) and (5) of this subsection do not apply to the consideration of a course developed to support a program of study in career and technical education.

(7) Newly approved innovative courses shall be approved for a period of three years, and courses approved for renewal shall be approved for a period of five years.

(8) With the approval of the local board of trustees, a school district may offer, without changes or deletions to content, any state-approved innovative course.

(9) Texas Education Agency shall review all approved innovative courses once every two years and provide for consideration for sunset a list of innovative courses that have been approved as an innovative course for at least three years and meet the following criteria:

(A) zero enrollment for the previous two years;

(B) average enrollment of less than 100 students statewide for the previous three years;

(C) student enrollment at an average of fewer than 20 districts or charter schools statewide for the previous three years;

(D) duplicative of another innovative or TEKS-based course; or

(E) approved for implementation as a TEKS-based course.

(b) An ethnic studies course that has been approved by the SBOE as an innovative course shall be considered by the SBOE at a subsequent meeting for inclusion in the TEKS.

(1) Only comprehensive ethnic studies courses in Native American studies, Latino studies, African American studies, and/or Asian Pacific Islander studies, inclusive of history, government, economics, civic engagement, culture, and science and technology, shall be considered by the SBOE.

(2) The chair of the Committee on Instruction, in accordance with SBOE Operating Rule 2.5(b), shall collaborate with the board chair to place the item on the next available Committee on Instruction agenda following SBOE approval of the innovative course.

Discussion of Proposed Amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter C. Other Provisions, §74.27 Innovative Courses and Programs

June 26, 2025

COMMITTEE ON INSTRUCTION: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item presents the opportunity for the committee to discuss proposed amendments to 19 Texas Administrative Code (TAC) Chapter 74, Curriculum Requirements, Subchapter C, Other Provisions, §74.27 Innovative Courses and Programs. Discussion of proposed amendments would ensure course curriculum complies with state and federal law.

STATUTORY AUTHORITY: Texas Education Code (TEC), §28.002.

Staff Members Responsible:
Monica Martinez, Associate Commissioner, Standards and Programs
Jessica Snyder, Senior Director, Curriculum Standards and Student Support

COMMITTEE ON SCHOOL FINANCE/ PERMANENT SCHOOL FUND

Per Capita Apportionment Rate for the 2024-2025 School Year

June 26, 2025

COMMITTEE ON SCHOOL FINANCE/PERMANENT SCHOOL FUND: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: A per capita apportionment rate for each school year is set by the commissioner of education based on an estimate of the amount available for expenditure from the Available School Fund (ASF). A preliminary 2024–2025 per capita apportionment rate of $622.196 was set in September 2024. A final per capita apportionment rate is set by the commissioner of education based on actual funds available for expenditure. Agency staff will present the final rate for the 2024–2025 school year at the June 2025 meeting of the Committee on School Finance/Permanent School Fund.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§48.004, 48.251(c), and 43.001(b).

TEC, §48.004, requires the commissioner of education to implement and administer the Foundation School Program (FSP).

TEC, §48.251(c), requires the FSP to be financed with state available school funds distributed in accordance with the law.

TEC, §43.001(b), describes the appropriations that make up the ASF.

PREVIOUS BOARD ACTION: A preliminary 2024–2025 per capita apportionment rate of $622.196 was established in September 2024.

BACKGROUND INFORMATION AND SIGNIFICANT ISSUES: House Bill 1, the General Appropriations Bill enacted by the 88th Texas Legislature, 2023, contains an estimate of the amount that will be available for expenditures from the ASF for the 2024-2025 school year. The per capita apportionment will include distributions from the Permanent School Fund and funds from state occupation taxes and from the Motor Fuels Tax. The preliminary per capita apportionment rate set by the commissioner of education is based on an estimate of the funds available for expenditure. A final rate is established later in the school year by the commissioner of education based on actual funds available for expenditure.

FISCAL IMPACT: The per capita apportionment rate finances part of the cost of the FSP. State aid comes from the ASF and the Foundation School Fund (FSF). The per capita apportionment rate determines how much of each district's total state aid is paid from the ASF. The part that is not financed by the ASF must be paid from the FSF.

PUBLIC BENEFIT AND COST TO PERSONS: State aid for the Foundation School Program is partially funded by the Available School Fund per capita apportionment. If this source of funds were not available, the shortfall would have to be made up from the General Revenue Fund.

Staff Members Responsible:
Carla Steffen, Deputy Commissioner for Finance
Amy Copeland, Associate Commissioner for School Finance
Sara Kohn, Director of State Funding, Forecasting and Fiscal Analysis

Attachment:
Per Capita Rate for 2024-2025 (as of 6/10/2025)

ATTACHMENT
2024–2025 Final Per Capita Rate

TEXAS EDUCATION AGENCY
Final Per Capita Rate
2024–2025

Final Rate as of June 10, 2025

Total Available for Expenditures per Projection		**3,109,928,000**
Divided by Final (DPE ADA from Run ID 45481; 2023–2024 Refined ADA		**5,017,080.327**
Final Per Capita Rate*	$	619.868

*The final per capita rate may be marginally adjusted when final distributions are known

Selection of State Board Member Nominees for Statewide Board Positions

June 27, 2025

COMMITTEE ON SCHOOL FINANCE/PERMANENT SCHOOL FUND: ACTION
STATE BOARD OF EDUCATION: CONSENT

SUMMARY: This item provides an opportunity for the committee and board to select state board member nominees for statewide board positions.

STATUTORY AUTHORITY: Texas Constitution, Article VII, §2 and §5, and 19 Texas Administrative Code (TAC) Chapter 33.

The Texas Constitution, Article VII, §2 and §5 establish the permanent school fund, the assets that comprise the permanent school fund, the bond guarantee program, the available school fund, and authorize the State Board of Education (SBOE) to manage and invest the permanent school fund in accordance with the prudent person standard.

19 TAC Chapter 33 codifies administrative rules that provide a statement of investment objectives, policies, and guidelines of the Texas Permanent School Fund and Bond Guarantee Program as adopted by the SBOE.

Staff Member Responsible:
John McGeady, Director of External Relations, Texas Permanent School Fund Corp.

COMMITTEE ON SCHOOL INITIATIVES

Proposed Revisions to the Framework for School Board Development

June 27, 2025

COMMITTEE OF THE FULL BOARD: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item provides the board an opportunity to consider revisions to the SBOE's Framework for School Board Development.

STATUTORY AUTHORITY: Texas Education Code (TEC), §11.159.

Texas Education Code §11.159, titled "Member Training and Orientation," requires the SBOE to provide a training course for independent school district trustees to be offered by the regional education service centers.

19 Tex. Admin. Code §61.1(a) implements section 11.159 and requires the SBOE to adopt a framework for governance leadership to be used in structuring continuing education for school board members. The framework shall be posted to the TEA website and distributed annually to all current board members and the superintendent.

PREVIOUS BOARD ACTION: At its April 2025 meeting, the SBOE considered proposed revisions to the framework but did not take action.

BACKGROUND INFORMATION AND JUSTIFICATION: The SBOE adopted the Framework for School Board Development on in 1996 pursuant to Texas Education Code § 11.159 and 19 Tex. Admin. Code § 61.1(a). The framework was first amended in 2012 and again in 2020.

PUBLIC AND STUDENT BENEFIT: The public and students would benefit from clarity on the role of the local board of trustees and local board members; the enhancement of communication between local boards of trustees and the Texas Legislature, SBOE, and the Texas Education Agency; and clarity on team building training for trustees.

MOTION TO BE CONSIDERED: The State Board of Education:

Adopt the proposed revisions to the Framework for School Board Development

Staff Members Responsible:
Steve Lecholop, Deputy Commissioner, Governance
Christopher Lucas, Director, Research, Policy, and Information Management, Governance

Attachment:
Proposed revisions to the Framework for School Board Development

Framework for School Board Development

Preamble

The mission of the public education system of this state is to ensure that all Texas children have access to a quality education that enables them to achieve their potential and fully participate now and in the future in the social, economic, and educational opportunities of our state and nation (Texas Education Code, §4.001).

The board of trustees Is the governing body for Texas public schools and holds the ultimate responsibility for the district's success in educating students. Above all else, trustees owe the highest duty to students and their parents, and the board represents taxpayers, attempting to maximize learning outcomes while minimizing resources required. To effectively fulfill the mission of educating students, the board must provide leadership and direction, working in collaboration with the superintendent to implement the board's vision and goals. Each year, the board will self-assess its governing performance both as a corporate body and as individual trustees. On an ongoing basis, the board will monitor the progress of the district's superintendent in leading the district toward the achievement of the board's vision and goals. The board's governing performance is focused on five core areas:

- setting a clear vision and goals for students,
- evaluating the likely success of the superintendent's strategic plan, including its incorporation of effective systems and processes designed to meet the board's vision and goals,
- monitoring progress in the effective implementation of the plan and its critical systems and processes,
- ensuring transparency of goals, progress, processes, and resources,
- maintaining accountable governance to achieve the mission.

The Framework for School Board Development, approved by the State Board of Education, outlines the critical governing performance areas for all public-school boards.

Framework

I. **Vision and Goals**-The board ensures creation of a shared and measurable vision and set of goals for student outcomes. The board:

- Prioritizes support for understanding and achieving state-identified outcomes goals for students
- Develops a measurable vision for what will be true for the district's students if the district is fully successful in its mission in the long term, attempting to ensure the vision is shared among the majority of the district's parents and taxpayers
- Adopts a reasonable number of specific, quantifiable, research-based, and time-bound student outcome goals that lead toward achieving the board's long-term vision
- Establishes locally developed, near-term measurable goals for student opportunities and experiences support the board's long-term vision

- Uses the vision and goals to drive all deliberations, decisions, and actions

II. District Strategic Plan-The board evaluates the superintendent's strategic plan to achieve the board's vision and goals for students, ensuring the plan's systems and processes appear sufficient to accomplish the vision and goals. The board:

- Ensures a plan Is developed, includes appropriately prioritized actions, and describes key systems and process that support its execution
- Ensures the plan includes components designed to determine whether and how well it is implemented over time
- Approves a budget that aligns with the plan and maximizes efficient use of resources to ensure the plan can be successfully executed with a minimum of taxpayer dollars
- Takes steps to ensure adequate flexibility of the superintendent to adopt procedures that support the plan's execution, while clearly delineating when a policy must require board approval
- Ensures that the superintendent's planning and decision-making processes are designed to maximize the likelihood of success, including the need to make evidence-based decision, and where appropriate, incorporating key stakeholder engagement to support changes needed
- Ensures the plan incorporates components designed to support sound business and fiscal practices
- Ensures the plan incorporates components designed to maximize the talent, skill, growth, and efficacy of district personnel
- Verifies that the plan fulfills the statutory duties of the district, including all laws, rules, ethical procedures, and court orders pertaining to schools, school personnel, and school board members

III. Monitoring Progress-The board ensures the superintendent and leadership team provide a cadence of reports to facilitate the monitoring of progress of the district's strategic plan toward the achievement of student outcomes goals and the district's long-term vision. The board:

- Coordinates with the superintendent to identify key measures of progress and performance tied to the district's strategic plan, and aligns on a format and calendar of reporting
- Ensures progress toward achievement of district goals through systematic, timely, and comprehensive reviews of relevant progress reports and performance data that illustrate progress toward the district's goals and vision.
- Consistently prioritizes board time and attention on the aspects of the strategic plan most likely to impact the board's student outcomes goals
- Annually reflects on summative the board's student outcomes goats and the relationship between improvement in reaching the long-term vision for students and progress and performance measures reported from the district's strategic plan

- Annually evaluates the superintendent on the implementation of the district's strategic plan and the achievement of the board's goals

IV. Transparency-The board promotes clarity *for* parents and taxpayers with regard to the performance of the district and the resources used. The board:

- Ensures the district's measurable student outcomes vision and goals are prominently and consistently communicated, both for Internal staff and for parents and taxpayers
- Ensures that current student outcomes are well understood, by parents for their own children, by parents for their schools, and by taxpayers for the entire school district, and by staff
- Ensures the district's strategic plan Is clear, readily accessible, and regularly communicated
- Ensures that district action plan progress reports are readily accessible
- Ensures district financial information, including district revenue and its sources, and district expenditures, are clear and readily accessible
- Ensures that district procedures of use by parents are clearly communicated and the district takes steps to ensure they are easy to follow

V. Accountable Governance -The board's duties are distinct from the superintendent and other district personnel, as the entity with ultimate responsibility to ensure the district is making progress in achieving its vision for students. The board:

- Works collaboratively with the superintendent and the superintendent's leadership team, providing sufficient autonomy to Implement the district's strategic plan while establishing a tone at the top supportive of taking actions needed to achieve the district's vision for students
- Provides feedback when appropriate on perceived strengths and weaknesses of the district's strategic plan, while working to deeply understand the kinds of prioritized actions, systems and processes likely to make the most progress toward achieving the district's vision for students
- Provides recurring feedback on the sufficiency of progress in implementation, while working to ensure the superintendent and district leadership team are empowered to take actions needed to make sufficient progress
- Determines whether to renew or continue a superintendent's employment as the leader of the school system, and whether and how to reward or recognize a superintendent's significant progress in achieving the district's vision
- When it is necessary to hire a new superintendent, evaluates all available options

to select a candidate with the greatest likelihood of making progress to achieve the district's vision for students

- Oversees the district's audit plan, and when appropriate the district's Internal auditor, for the purpose of ensuring financial statements and other information provided to the board can be relied upon to make decisions
- Supports individual members to address constituent concerns by ensuring those constituents know how to avail themselves to district systems and processes designed to address their concerns
- Makes decisions as a whole only at properly caned meetings and recognizes that individual members have no authority to take individual action in policy or district and campus administrative matters
- Respects the right of Individual members to express their viewpoints and vote their convictions, while individual board members recognize they have an ethical duty to be bound by decisions of the board as a body corporate
- Establishes and follows local policies, procedures, and ethical standards governing the conduct and operations of the board, Including the duties and responsibilities of the board president and board officers
- Is responsible for understanding and adhering to laws governing public education in Texas
- Utilizes Executive Session within the guidelines of the Texas Open Meetings Act to discuss the allowable items in relation to the effectiveness of the district efforts. To allow complete transparency within the board, the presence of the superintendent at an Executive Session is at the discretion of the board. The superintendent shall continue to make comments in open session on any agenda item

Recommendation for One Reappointment and One Appointment to the Boys Ranch Independent School District Board of Trustees

June 27, 2025

COMMITTEE ON SCHOOL INITIATIVES: ACTION
STATE BOARD OF EDUCATION: CONSENT

SUMMARY: This item provides an opportunity for the board to consider one reappointment and one appointment to the board of trustees of Boys Ranch Independent School District (ISD). The reappointment is necessary due to the expiration of the term of office of one board member. The appointment is necessary due to the resignation of one board member.

STATUTORY AUTHORITY: Texas Education Code (TEC), §11.352.

TEC, §11.352 authorizes the State Board of Education (SBOE) to appoint school board members in special purpose school districts.

PREVIOUS BOARD ACTION: No previous board action has occurred on this item.

BACKGROUND INFORMATION AND JUSTIFICATION: The SBOE is statutorily authorized to appoint board members for ISDs created under its authority to establish special purpose school districts. Trustees so appointed hold office until their successors are appointed and qualified. When a vacancy occurs, the chief executive officer (CEO) of Cal Farley's Boys Ranch notifies the commissioner of education of the vacancy. The CEO submits resumes and other documents verifying that individuals are qualified to hold the position as well as a statement that the individual would accept the position if appointed. The CEO is required by 19 TAC §61.2 to provide one nomination to the SBOE. The nominee must be qualified under the general school laws of Texas.

Mr. Richard Nedelkoff, president and CEO of Cal Farley's Boys Ranch, has notified the commissioner that the term of office of one trustee of Boys Ranch ISD is expiring. The president and CEO has requested that Mr. James Taylor be reappointed for a two-year term. Mr. Nedelkoff also notified the commissioner that one trustee has resigned. The president and CEO has requested that Mr. Leon Hollis be appointed for a two-year term.

MOTION TO BE CONSIDERED: The State Board of Education:

> Based on Mr. Richard Nedelkoff's recommendation, approve the reappointment of Mr. James Taylor and approve the appointment of Mr. Leon Hollis to serve two-year terms of office from June 27, 2025, to June 26, 2027, on the Boys Ranch ISD Board of Trustees.

Staff Members Responsible:
Steve Lecholop, Deputy Commissioner, Governance
Christopher Lucas, Director, Research, Policy, and Information Management, Governance

Attachment:
Correspondence from Mr. Richard Nedelkoff, president and CEO of Cal Farley's Boys Ranch that includes supporting documentations for the nominees

BOYS RANCH
FOUNDED BY CAL FARLEY

April 17, 2025

Mr. Mike Morath
Commissioner
Texas Education Agency
1701 North Congress Avenue
Austin, Texas 78701-1494

Dear Commissioner Morath,

In my capacity as President and Chief Executive Officer of Cal Farley's Boys Ranch, I request that the State Board of Education, at its June 2025 meeting, reappoint James Taylor and appoint Leon Hollis to the Boys Ranch Independent School District (BRISD) Board of Trustees. Mr. Taylor and Mr. Hollis are qualified under Texas Law and meet all requirements. Mr. Hollis will replace Jacque Branch who elected not to request reappointment at the completion of her current term.

The following documents are provided for Mr. Taylor and Mr. Hollis: resume, signed statement expressing willingness to accept re-appointment/appointment and serve in full adherence to the state-established standards for school board members and certifying that the biographical information is true and correct, and background check information.

I understand that the BRISD Board of Trustees has the power to govern and oversee management of the district, and my power as President and Chief Executive Officer of Cal Farley's Boys Ranch is limited to duty as defined by statues relating to the process of appointing members to the BRISD Board of Trustees. I also certify that the membership composition of the BRISD Board of Trustees is in full compliance with the provisions of the Texas Education Code, section 11.352. I further certify that the role of the BRISD superintendent is in full compliance with the provisions of the Texas Education Code, section 11.201.

Should you have any questions, please contact me at 806-322-2609 or via email at richardnedelkoff@calfarley.org.

I appreciate your consideration and look forward to confirmation of these appointments.

Sincerely,

Richard Nedelkoff
President and Chief Executive Officer

RN:ss
Enclosures

600 SW 11TH AVENUE | AMARILLO, TEXAS 79101-3228 | 800.687.3722 TOLL FREE | CALFARLEY.ORG

leonhollis@calfarley.org
806.367.4841
28 Tascosa Trail
Boys Ranch, TX. 79010

LEON HOLLIS

ACCOMPLISHMENTS

Firefighter Level 1 Certification

Firefighter Instructor

ALEERT Level 1 Certified

CRASE Instructor

Licensed Class D Water Operator License

OSHA General Industry Certification

SKILLS & ABILITIES

- Have completed multiple scenario driven security trainings
- Started classes for Fire Inspector, completed level 1 of 2
- Have been a trainer for verbal de-escalation techniques
- Facilitate table top emergency drills for the organization
- Licensed security officer for 6 years

PROFESSIONAL EXPERIENCE

ADMINISTRATOR OF OPERATIONS
DECEMBER 2021 – PRESENT

Participates in appropriate professional development programs to attain and maintain competency. This competency will include the appropriate provision of services for the age-specific population served. Requires childcare training in compliance with state regulations.

Effectively manages financial, informational and physical resources to achieve the organization's objectives.

Performs work in a safe manner at all times. Maintains an organized and safe work area. Considers the safety of others at all times, and reports unsafe conditions.

Promotes the Continuous Quality Improvement (CQI) process by identifying quality indicators and opportunities for departmental and organizational process improvement.

Within departmental parameters, exhibits customer service, decision-making and problem-solving skills to include establishing and maintaining liaisons with external vendors and within the Cal Farley organization.

Generates reports, correspondence and other documentation as assigned.

Attends and participates in administrative/staff/committee meetings as assigned.

Exhibits effective communication skills.

Facilitates other projects as assigned.

DIRECTOR, ENVIRONMENTAL HEALTH, SAFETY & COMPLIANCE
SEPTEMBER 2015 – MARCH 2024

Supports the development, implementation, and maintenance of a comprehensive Environmental Health and Safety Compliance Program for the organization.
Oversees the safety training/risk management, environmental quality, environmental services, and security services to include preventative activities, as well as timely response to requests for service.
Co-chairs campus safety committees.
Oversees the design, implementation, and maintenance of the organization's emergency and disaster plans, and evaluates outcomes and implements necessary corrective actions.
Oversees investigation of all campuses accidents in a confidential manner and assures implementation of necessary immediate corrective action. Coordinates analysis and assessment of serious and/or repetitive safety-related incidents with administration.
Oversees development and implementation of bi-annual safety inspection of each campus building to identify safety risks, environmental hazards, and environmental cleanliness. Ensures "corrective action" notice to appropriate staff and supervisors.
Oversees development and implementation of monthly environmental audits of each resident home. Ensures "corrective action" notice to appropriate staff and supervisors.
Oversees duties to ensure compliance and timely reporting of ranch environmental quality programs to various regulatory agencies to include domestic water, wastewater, solid waste and incinerator, asbestos, IPM and others as assigned.
Oversees all preparations and development of maps, blueprints, pictures and database for Boys Ranch buildings, grounds and utilities
Oversees the campus security activities of Boys Ranch. Assures a schedule of routine security activities as well as timely response to requests of service of emergency situations. Assures that security staff has the required credentials, training, equipment and PPE and that all safety procedures are strictly adhered to.
Generates correspondence, administrative reports and related documentation as assigned.
Ensures all ranch and personnel environmental quality related licenses are current and training and continuing education requirements comply with regulatory agency directives.
Oversees organization if any requested maps, reports, investigations, and regulations used for reports or special projects.

CAMPUS LIFE SUPERVISOR, CAL FARLEY'S BOYS RANCH
SEPTEMBER 2006 – SEPTEMBER 2015

Responsible for 3 resident homes, 12 staff and 36 teenage boys. Ensuring staff assigned to the homes are current with training standards. Work with houseparent's on budgeting for each home and following budgetary guidelines. Train all campus staff in emergency behavior management techniques (SAMA). Work a rotating on call schedule for campus emergencies whether it be staff or resident related.

CAMPUS LIFE SUPERVISOR, CAL FARLEY'S BOYS RANCH
SEPTEMBER 2006 - PRESENT

Responsible for 3 resident homes, 12 staff and 36 teenage boys. Ensuring staff assigned to the homes are current with training standards. Work with houseparent's on budgeting for each home and following budgetary guidelines. Train all campus staff in emergency behavior management techniques (SAMA). Work a rotating on call schedule for campus emergencies whether it be staff or resident related.

HOUSEPARENT, CAL FARLEY'S BOYS RANCH
MAY 2005 – SEPTEMBER 2006

In charge 1 resident home with up to 14 residents. Responsible for resident's daily routines and schedules. Maintained the home budget, daily communication with all team members,

SUCCESS COACH, CAL FARLEY'S BOYS RANCH
OCTOBER 2004 – MAY 2005

PROGRAM COORDINATOR, AMARILLO PARKS AND RECREATION,
MARCH 2002-MAY 2004

Supervised 50 staff at 20 different locations. Also planned 4 yearly special events. Coordinated the lunch program through AISD which provided meals at 17 different locations.

REGIONAL INVETNORY SPECIALIST, MASTEC ENGINEERING CONSTRUCTION, DULUTH, GA
MARCH 2001-SEPTEMBER 2001

Inventory control for the telecommunications division in the Southeast Region which included locations in Birmingham, AL, Duluth, GA and Memphis, TN.

OPERATIONS MANAGER, GOLFSMITH INTERNATIONAL, KENNESAW, GA
JUNE 1998-MARCH 2002

Responsible for all building maintenance and grounds upkeep of retail location. Trained and supervised warehouse supervisor, golf club repair shop, and the components warehouse. Maintained weekly schedule and electronic timesheets for 40 staff and 3 managers.

EDUCATION

WEST TEXAS A&M UNIVERSITY

Bachelors of General Studies

STATEMENT TO ACCOMPANY
BOYS RANCH INDEPENDENT SCHOOL DISTRICT
SCHOOL BOARD TRUSTEE APPOINTMENT REQUEST
FOR
LEON HOLLIS

I, **Leon Hollis**, verify that I am qualified under the general school laws of Texas to be a BRISD School Board Trustee. I certify that the attached biographical information is true and correct. I am willing to accept the appointment as BRISD School Board Trustee and serve in such capacity with full adherence to the state-established standards for the duties and responsibilities of school board members.

Leon Hollis (signature)

4-9-2025

Date

James Taylor

5714 Andover,
Amarillo, TX 79109

Ph. 806-681-6189(M)
E-mail: taylor.jim01@gmail.com

Experience:

Compliance Coordinator and Training Assistant
6/01/2018-3/2/2023 – Current – Amarillo Area CASA

- Responsible for ensuring volunteer files contain all documentation required by Texas CASA and National CASA.
- Responsible for gathering background information on volunteer applications.
- Responsible for updating on-line records for volunteers
- Responsible for assisting with training of new volunteers and providing on-going training opportunities
- Team Leader for CASA Legislative Action Team (LAT)

Director of Training
11/19/2005 – 11/30/2018 - Cal Farley's, Amarillo, TX

- Responsible for Corporate Residential Services Training Department for Cal Farley's Boys Ranch and Girlstown campuses.
  Duties included:
  - Coaching/Mentoring/Supervising department staff
  - Assuring training meets/exceeds TDFPS and COA standards.
  - Coordinate community training seminars
  - Provide Training for internal and external participants in strength-based models – Life Space Crisis Intervention, Response Ability Pathways, Satori Alternatives to Managing Aggression
  - Align training curricula with corporate strategic plan
  - Implement OPQI based on outcomes indicators

PDTE Coordinator
6/4/2005 – 11/19/2005 Cal Farley's

- Coordination of Program Development Training and Evaluation Team in Corporate Office
  Duties included:
  - Assuring training meets/exceeds TDFPS and COA standards.
  - Assuring training meets/exceeds TDFPS and COA standards.
  - Provide training for organization staff

Director of Adolescent Boys

12/27/03 – 6/4/2005 Cal Farley's

- Responsible for programming in 15 Adolescent boys homes at Boys Ranch.

  Duties included:

  - Coaching/Mentoring/Supervising Direct care and Casework Staff
  - Assuring homes were meeting/exceeding licensing standards.
  - On-call administrator for crisis intervention.
  - Responsible for contacting child abuse hotline if abuse neglect incidents suspected.

Director of Homelife

7/12/03 – 12/27/2005 Cal Farley's

- Responsible for programming in 26 Youth Residential homes at Boys Ranch

  Duties included:

  - Coaching/Mentoring/Supervising Direct care and Casework Staff
  - Assuring homes were meeting/exceeding licensing standards.
  - On-call administrator for crisis intervention.
  - Responsible for contacting child abuse hotline if abuse neglect incidents suspected.

Assistant Administrator for Homelife

6/28/2000 – 7/12/2003 Cal Farley's

- Responsible for programming in 26 Youth Residential homes at Boys Ranch

  Duties included:

  - Coaching/Mentoring/Supervising Direct care and Casework Staff
  - Assuring homes were meeting/exceeding licensing standards.
  - On-call administrator for crisis intervention.
  - Responsible for contacting child abuse hotline if abuse neglect incidents suspected.

Community Director

November 1, 1997 – 6/28/2000 Cal Farley's

- Responsible for programming in 5 Adolescent Boys Community at Boys Ranch

  Duties included:

  - Coaching/Mentoring/Supervising Direct care and Casework Staff
  - Assuring homes were meeting/exceeding licensing standards.
  - On-call administrator for crisis intervention.
  - Responsible for contacting child abuse hotline if abuse neglect incidents suspected.

Education & Professional Licenses

B.A. Henderson State University (1979) – Double Majors – English and Psychology
Nova Southeastern University (1990) Masters in Childcare Administration
Childcare Administrators License (1994) Current

Military
USMC – December 1969 – December 1972, Honorable Discharge E-5

Personal information: A wonderful marriage resulting in 2 wonderful, successful daughters.

Interests and hobbies: Reading, Photography, Music, Hiking, Racquetball, Tennis
Boys Ranch Independent School Board Member

References:

Mel Droegemeier
Friend
806-352-9520

Jay Ricci
Friend/Neighbor
806-679-9973 (Mob)

Tyrone Malish
Friend/Neighbor
806-358-1207

STATEMENT TO ACCOMPANY
BOYS RANCH INDEPENDENT SCHOOL DISTRICT
SCHOOL BOARD TRUSTEE APPOINTMENT REQUEST
FOR
JAMES TAYLOR

I, James Taylor, verify that I am qualified under the general school laws of Texas to be a BRISD School Board Trustee. I certify that the attached biographical information is true and correct. I am willing to accept the appointment as BRISD School Board Trustee and serve in such capacity with full adherence to the state-established standards for the duties and responsibilities of school board members.

James Taylor

James Taylor (signature)

04/10/2025

Date

Review of Adoption of Proposed Amendment to 19 TAC Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes

June 27, 2025

COMMITTEE ON SCHOOL INITIATIVES: ACTION
STATE BOARD OF EDUCATION: ACTION

SUMMARY: This item provides the State Board of Education (SBOE) an opportunity to review the State Board for Educator Certification (SBEC) rule actions that would adopt the proposed amendment to 19 Texas Administrative Code (TAC) Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes. The proposed amendment would update the SBEC's petition for adoption of rule change procedures to align with statute.

STATUTORY AUTHORITY: The statutory authority for the SBOE to review rules that the SBEC proposes to adopt is Texas Education Code (TEC), §21.042. The statutory authority for Chapter 250, Subchapter B, §250.20, is the Texas Education Code (TEC), §21.035(b) and §21.041(a) and (b)(1), and Texas Government Code (TGC), §2001.021.

TEC, §21.042, requires the SBEC to submit a written copy of each rule it proposes to adopt to the SBOE for review. The SBOE may reject a proposed rule by a vote of at least two-thirds of the members of the SBOE present and voting but may not modify a rule proposed by the SBEC.

TEC, §21.035(b), requires the Texas Education Agency (TEA) to provide the SBEC's administrative functions and services.

TEC, §21.041(a), authorizes the SBEC to adopt rules as necessary to implement its procedures.

TEC, §21.041(b)(1), requires the SBEC to propose rules that provide for the regulation of educators and the general administration of the TEC, Chapter 21, Subchapter B, in a manner consistent with the TEC, Chapter 21, Subchapter B.

TGC, §2001.021, authorizes a state agency to prescribe by rule the form for a petition and the procedure for the submission, consideration, and disposition.

BACKGROUND INFORMATION AND JUSTIFICATION: TGC, §2001.021, requires that procedures to petition for the adoption of rule changes be adopted by rule. To comply with statute, the SBEC rules in 19 TAC Chapter 250, Subchapter B, establish procedures for SBEC petition for rulemaking in §250.20, Petition for Adoption of Rules or Rule Changes.

The proposed amendment to §250.20 would strike subsections (b)(1) and (2) and add new subsection (b) to align with statute and allow the SBEC to address petitions for rulemaking more effectively, by either denying or initiating rulemaking within the 60-day required window.

FISCAL IMPACT: No changes have been made to this section since published as proposed. Jessica McLoughlin, associate commissioner for educator preparation, certification, and enforcement, has determined that for the first five years enforcing or administering the rule does not have foreseeable

implications relating to cost or revenues of the state or local governments. There are no additional costs to entities required to comply with the proposal.

LOCAL EMPLOYMENT IMPACT: No changes have been made to this section since published as proposed. The proposal has no effect on local economy; therefore, no local employment impact statement is required under TGC, §2001.022.

SMALL BUSINESS, MICROBUSINESS, AND RURAL COMMUNITY IMPACT: No changes have been made to this section since published as proposed. The proposal has no direct adverse economic impact for small businesses, microbusinesses, or rural communities; therefore, no regulatory flexibility analysis, specified in TGC, §2006.002, is required.

COST INCREASE TO REGULATED PERSONS: No changes have been made to this section since published as proposed. The proposal does not impose a cost on regulated persons, another state agency, a special district, or a local government and, therefore, is not subject to TGC, §2001.0045.

TAKINGS IMPACT ASSESSMENT: No changes have been made to this section since published as proposed. The proposal does not impose a burden on private real property and, therefore, does not constitute a taking under TGC, §2007.043.

GOVERNMENT GROWTH IMPACT: No changes have been made to this section since published as proposed. TEA staff prepared a Government Growth Impact Statement assessment for this proposed rulemaking. During the first five years the proposed rulemaking would be in effect, it would not create or eliminate a government program; would not require the creation of new employee positions or elimination of existing employee positions; would not require an increase or decrease in future legislative appropriations to the agency; would not require an increase or decrease in fees paid to the agency; would not create a new regulation; would not expand, limit, or repeal an existing regulation; would not increase or decrease the number of individuals subject to its applicability; and would not positively or adversely affect the state's economy.

PUBLIC BENEFIT AND COST TO PERSONS: No changes have been made to this section since published as proposed. Jessica McLoughlin, associate commissioner for educator preparation, certification, and enforcement, has determined that for the first five years the proposal is in effect, the public benefit anticipated would be aligning with statute and reflecting current procedures. There is no anticipated economic cost to persons who are required to comply with the proposal.

DATA AND REPORTING IMPACT: No changes have been made to this section since published as proposed. The proposal would have no new data and reporting impact.

ENVIRONMENTAL IMPACT: No changes have been made to this section since published as proposed. The proposal does not require an environmental impact analysis because the proposal does not include major environmental rules under TGC, §2001.0225.

PRINCIPAL AND CLASSROOM TEACHER PAPERWORK REQUIREMENTS: No changes have been made to this section since published as proposed. The TEA staff has determined the proposal would not require a written report or other paperwork to be completed by a principal or classroom teacher.

PUBLIC COMMENTS: In accordance with the SBEC rulemaking process, a summary of comments received by the SBEC on its proposed rules is shared with the SBOE under separate cover prior to this SBOE meeting.

MOTION TO BE CONSIDERED: That the State Board of Education:

> Take no action on the proposed amendment to 19 TAC Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes.

Staff Member Responsible:
Kameryn McCain, Director, EPCE Policy and Planning

Attachment:
Text of Proposed Amendment to 19 TAC Chapter 250, Administration, Subchapter B, Rulemaking Procedures, §250.20, Petition for Adoption of Rules or Rule Changes

ATTACHMENT
Text of Proposed Amendment to 19 TAC

Chapter 250. Administration

Subchapter B. Rulemaking Procedures

§250.20. Petition for Adoption of Rules or Rule Changes.

(a) Any interested person, as defined in Texas Government Code (TGC), §2001.021, may petition for the adoption, amendment, or repeal of a rule of the State Board for Educator Certification (SBEC) by filing a petition on the form provided in this subsection. The petition shall be signed and submitted to the designated Texas Education Agency (TEA) office. The TEA staff shall evaluate the merits of the petition to determine whether to recommend that rulemaking proceedings be initiated or that the petition be denied.

Figure: 19 TAC §250.20(a) (No change.)

(b) The SBEC shall respond to a written request for rulemaking from an interested person in accordance with TGC, §2001.021.

[~~(b) In accordance with TGC, §2001.021, the TEA staff must respond to the petitioner within 60 calendar days of receipt of the petition.~~]

[~~(1) Where possible, the recommendation concerning the petition shall be placed on the next SBEC agenda, and the SBEC shall act on the petition within 60 calendar days.~~]

[~~(2) Where the time required to review the petition or the scheduling of SBEC meetings will not permit the SBEC to act on the petition within the required 60 calendar days, the TEA staff shall respond to the petitioner within the required 60 calendar days, notifying the petitioner of the date of the SBEC meeting at which the recommendation will be presented to the SBEC for action.~~]

(c) The SBEC will review the petition and the recommendation and will either deny the petition, giving reasons for the denial, or direct the TEA staff to begin the rulemaking process. The TEA staff will notify the petitioner of the SBEC's action related to the petition.

(d) Without limitation to the reasons for denial in this subsection, the SBEC may deny a petition on the following grounds:

(1) the SBEC does not have jurisdiction or authority to propose or to adopt the petitioned rule;

(2) the petitioned rule conflicts with a statute, court decision, another rule proposed or adopted by the SBEC, or other law;

(3) the SBEC determines that a different proceeding, procedure, or act more appropriately addresses the subject matter of the petition than initiating a rulemaking proceeding;

(4) the petitioner files a petition:

(A) before the fourth anniversary of the SBEC's having previously considered and rejected a similar rule on the same subject matter; or

(B) to amend a rule proposed or adopted by the SBEC that has not yet become effective; or

(5) any other reason the SBEC determines is grounds for denial.

(e) If the SBEC initiates rulemaking procedures in response to a petition, the rule text which the SBEC proposes may differ from the rule text proposed by the petitioner.

Discussion of Ongoing State Board for Educator Certification Activities

June 26, 2025

COMMITTEE ON SCHOOL INITIATIVES: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the committee to receive updates on current and upcoming State Board for Educator Certification (SBEC) activities and proposed SBEC rules and amendments.

STATUTORY AUTHORITY: Texas Education Code (TEC), §§21.031, 21.035, 21.041, and 21.042.

TEC, §21.031, charges the SBEC with regulating and overseeing all aspects of the certification, continuing education, and standards of conduct of public school educators and ensuring that all candidates for certification demonstrate the knowledge and skills necessary to improve the performance of the diverse student population of the state.

TEC, §21.035, requires Texas Education Agency (TEA) staff to provide the SBEC's administrative functions and services.

TEC, §21.041(a), authorizes the SBEC to adopt rules necessary to implement its own procedures.

TEC, §21.041(b)(1)–(4), requires the SBEC to propose rules that provide for the regulation of educators and the general administration of the TEC, Chapter 21, Subchapter B, in a manner consistent with the TEC, Chapter 21, Subchapter B; and requires the SBEC to propose rules that specify the classes of educator certificates to be issued, including emergency certificates; the period for which each class of educator certificate is valid; and the requirements for the issuance and renewal of an educator certificate.

TEC, §21.041(c) and (d), authorizes the SBEC to adopt fees for the issuance and maintenance of an educator certificate and for the approval or renewal of an educator preparation program.

TEC, §21.042, requires the SBEC to submit a written copy of each rule it proposes to adopt to the State Board of Education (SBOE) for review.

BACKGROUND INFORMATION AND JUSTIFICATION: On May 30, 1995, the 74th Texas Legislature enacted Senate Bill 1, a revision of the TEC. The TEC, §21.031 and §21.041, establish and authorize the SBEC to adopt rules to regulate and oversee all aspects of the certification, continuing education, and standards of conduct of public school educators. In addition, the 79th Texas Legislature enacted House Bill 1116, continuing the SBEC following sunset review. This legislation amended TEC, §21.035, to require TEA to provide all administrative services and functions required by the SBEC. Most of these functions have been assigned to TEA's Department of Educator Preparation, Certification, and Enforcement.

Under TEC, §21.042, the SBEC must submit a written copy of each rule it proposes to adopt to the SBOE for review. The SBOE may reject the proposal by a vote of at least two-thirds of the members of the SBOE present and voting. If the SBOE fails to reject the rules contained in the proposal before the 90th day after the date on which it receives the rules, the rules take effect as rules of the SBEC as provided by

Texas Government Code, Chapter 2001. The SBOE may not modify a rule proposed by the SBEC. Since 1996, the SBEC has submitted a number of rules it proposed to the SBOE for review.

Staff Member Responsible:
Jessica McLoughlin, Associate Commissioner, Educator Preparation, Certification, and Enforcement

Open-Enrollment Charter School Generation 31 Application Updates

June 26, 2025

COMMITTEE ON SCHOOL INITIATIVES: DISCUSSION
STATE BOARD OF EDUCATION: NO ACTION

SUMMARY: This item provides an opportunity for the committee to receive updates regarding the Generation 31 Open-Enrollment Charter Application cycle.

STATUTORY AUTHORITY: Texas Education Code (TEC), §12.101.

TEC, §12.101 requires the commissioner to notify the State Board of Education (SBOE) of each charter the commissioner proposes to grant. Unless, before the 90th day after the date on which the board receives the notice from the commissioner, a majority of the members of the board, present and voting, vote against the grant of that charter, the commissioner's proposal to grant the charter takes effect.

FUTURE ACTION EXPECTED: Following the conclusion of the application cycle, the board will have an opportunity to review and take action or no action on the commissioner's list of proposed Generation 31 Subchapter D Open-Enrollment Charter Schools.

BACKGROUND INFORMATION AND JUSTIFICATION: The SBOE is engaged in an ongoing effort to remain abreast of the evolving state-educational landscape and prepare to address areas that are within its jurisdiction. To that end, this item is for discussion of updates pertaining to the Generation 31 application.

Public information concerning open-enrollment charter schools is available at the division of Charter Schools – Applications page found on the Texas Education Agency's website (https://tea.texas.gov/texas-schools/texas-schools-charter-schools/charter-school-applicants). The Generation 31 applications and required attachments will also be linked on that page upon publication.

Staff Members Responsible:
Kelvey Oeser, Deputy Commissioner, Educator and System Support
Marian Schutte, Deputy Associate Commissioner, Authorizing and Policy

INFORMATION MATERIALS

State Board of Education Meeting Schedule for 2026

June 27, 2025

STATE BOARD OF EDUCATION: INFORMATION

SUMMARY: According to the Texas Education Code (TEC), §7.106, the State Board of Education (SBOE) is to hold four meetings a year in Austin, Texas on dates determined by the chair. The SBOE may also hold other meetings as may be called by the chair. The purpose of this item is to announce SBOE meeting dates in 2026.

BACKGROUND INFORMATION AND JUSTIFICATION: Advance notice of future SBOE meetings will provide an opportunity for the SBOE, agency staff, and the public to be informed of upcoming meetings and to plan activities accordingly. The following dates for SBOE meetings in 2026 have been scheduled by the SBOE chair:

January 26-30, 2026
April 6-10, 2026
June 22-26, 2026
August 31-September 4, 2026
November 16-20, 2026

Staff Member Responsible:
Cari Christman, Deputy Associate Commissioner, Department of State Board of Education

MINUTES

STATE BOARD OF EDUCATION

APRIL 2025

STATE BOARD OF EDUCATION

(January 2025)

(State Board for Career and Technology Education)

AARON KINSEY, Midland
Chair of the State Board of Education
District 15

PAM LITTLE
Vice Chair of the State Board of Education
District 12

WILL HICKMAN
Secretary of the State Board of Education
District 6

Board Members

GUSTAVO REVELES, El Paso
District 1

LJ FRANCIS, Corpus Christi
District 2

MARISA PEREZ-DIAZ, San Antonio
District 3

STACI CHILDS, Houston
District 4

REBECCA BELL-METEREAU
San Marcos, District 5

JULIE PICKREN, Pearland
District 7

AUDREY YOUNG, Trinity
District 8

KEVEN ELLIS, Lufkin
District 9

TOM MAYNARD, Florence
District 10

BRANDON HALL, Aledo
District 11

TIFFANY CLARK, DeSoto
District 13

EVELYN BROOKS, Frisco
District 14

Committees of the State Board of Education
(updated January 2025)

INSTRUCTION

Audrey Young-Chair
Evelyn Brooks-Vice Chair
Rebecca Bell-Metereau
Pam Little
Gustavo Reveles

SCHOOL FINANCE/PERMANENT SCHOOL FUND

Tom Maynard-Chair
Marisa Perez-Diaz-Vice Chair
Keven Ellis
Will Hickman
Aaron Kinsey

SCHOOL INITIATIVES

LJ Francis-Chair
Julie Pickren-Vice Chair
Staci Childs
Tiffany Clark
Brandon Hall

Minutes

State Board of Education

April 11, 2025

Minutes
State Board of Education
Friday, April 11, 2025

The State Board of Education met at 8:47 a.m. on Friday, April 11, 2025, in room, #2.035 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas.

Student Performance

Mrs. Perez-Diaz introduced a student performance by the Conjunto Los Dorado Thomas Edison High School in the San Antonio Independent School District.

The Invocation, Pledge of Allegiance to the Flag of the United States of America, and Salute to the Texas Flag were led by Mrs. Little. Staff called the roll.

Present: Aaron Kinsey, chair; Gustavo Reveles; LJ Francis; Marisa B. Perez-Diaz; Staci Childs; Rebecca Bell-Metereau; Will Hickman; Julie Pickren; Audrey Young; Keven Ellis; Tom Maynard; Pam Little; Brandon Hall; Tiffany Clark; Evelyn Brooks

NOTE: The Board took up items in the following order:

1, 2, Consent (3), 3, 4, 5, 6, 7, 8, 9, 10, Consent (1), 11, 12, Consent (2), 14, 15, 16, Consent (7), Consent (6), 13, Consent (4), Consent (5)

Approval of Minutes

State Board of Education, January 28 and 31, 2025

MOTION AND VOTE: *Without objection, the State Board of Education approved the minutes of the January 28 and 31, 2025, meetings of the State Board of Education, as printed.*

1. Resolutions and Presentation

No resolutions were considered.

Public Testimony

Public Testimony was provided by the following individual:

NAME	AFFILIATION
Julia Brookins	American Historical Association

2. Approval of Consent Agenda

Any agenda item may be placed on the consent agenda by any State Board of Education committee. The State Board of Education may elect to take separate action on any item on the consent agenda.

Items 1, 2, 4, 5, 6, and 7 were removed from the Consent Agenda by individual members. *Without objection, the State Board of Education approved the following items on the consent agenda.*

Consent (3)

Proposed Amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12, Foundation High School Program, and §74.13, Endorsements
(Second Reading and Final Adoption)
(Board agenda page I-1)
[Official agenda item #8]

ADOPTED RECOMMENDATION: That the State Board of Education approve for second reading and final adoption proposed amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12, Foundation High School Program, and §74.13, Endorsements; and

Make an affirmative finding that immediate adoption of proposed amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12, Foundation High School Program, and §74.13, Endorsements, is necessary and shall have an effective date of August 1, 2025.

(ATTACHMENT 1, page 12)

COMMITTEE OF THE FULL BOARD

3. **Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills**
(First Reading and Filing Authorization)
(Board agenda page I-1)
[Official agenda item #3]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025, *as amended*.

AMENDMENT: *It was moved by Dr. Bell-Metereau and seconded by Mr. Francis, to amend §127.15, Career and Technical Education Employability Skills, (2) (E) to read* "describe and demonstrate the importance of ~~and demonstrate~~ punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed." The amendment was defeated 6-6.

ADOPTED RECOMMENDATION: The recommendation was adopted as presented, 12-1.

4. **Adoption of Review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option**
(Adoption of Review)
(Board agenda page I-7)
[Official agenda item #4]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they postpone the item for further consideration at the June 2025 meeting.

ADOPTED RECOMMENDATION: The recommendation was adopted.

5. Proposed New 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, §§111.29-111.31
(Second Reading and Final Adoption)
(Board agenda page I-12)
[Official agenda item #5]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for second reading and final adoption proposed new 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, §§111.29-111.31; and

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, §§111.29-111.31, is necessary and shall have an effective date of 20 days after filing as adopted with the Texas Register.

AMENDMENT: *It was moved by Mr. Hickman and seconded by Ms. Childs to amend the title of §111.31 Grade 8, Middle School Advanced Mathematics, Algebra by adding a Roman numeral "I" in the title.* The motion was adopted.

AMENDMENT*: It was moved by Mr. Hickman and seconded by Mr. Maynard to amend the course §111.31 Grade 8, Middle School Advanced Mathematics, Algebra I by amending paragraph (b) General requirements, to read:* "~~Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation.~~ This course is recommended for students in Grade 8. Prerequisite: Middle School Advanced Mathematics, Grade 7 or Mathematics, Grade 8. Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation. This course satisfies the requirement for any course that identifies Algebra I as a prerequisite." The motion was adopted.

AMENDMENT: *It was moved by Mr. Hickman and seconded by Mr. Maynard to amend the course §111.31 Grade 8, Middle School Advanced Mathematics, Algebra I by amending paragraph (b) General requirements, to read:* "~~Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation.~~ This course is recommended for students in Grade 8. Prerequisite: Middle School Advanced Mathematics, Grade 7 or Mathematics, Grade 8. Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation. This course satisfies the requirement for any course that identifies Algebra I as a prerequisite." The motion was adopted.

AMENDMENT: *It was moved by Mr. Hickman and seconded by Mrs. Little to amend the course §111.31 Grade 8, Middle School Advanced Mathematics, Algebra I by amending paragraph (c) Knowledge and skills, item 8 (C), to read:* "identify examples of proportional and non-proportional ~~functions~~ relationships that arise from mathematical and real-world problems." The motion was adopted.

ADOPTED RECOMMENDATION: The recommendation was adopted with a 2/3 vote, as amended.

(ATTACHMENT 2, page 15)

6. Consideration of the Committee of Education's Generation 30 High-Performing Entity Charter School Proposals
(Board agenda page I-32)
[Official agenda item #6]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they take no action on the proposed Generation 30, High-Performing Entity charter school, Mater Academy San Antonio, scheduled to open in the 2026-2027 school year.

ADOPTED RECOMMENDATION: A roll call vote was taken on the recommendation, which was adopted 11-3.

District 1: Gustavo Reveles	NO	District 9: Keven Ellis	YES
District 2: L. J. Francis	YES	District 10: Tom Maynard	YES
District 3: Marisa Perez-Diaz	YES	District 11: Brandon Hall	YES
District 4: Staci Childs	YES	District 12: Pam Little	YES
District 5: Rebecca Bell-Metereau	YES	District 13: Tiffany Clark	NO
District 6: Will Hickman	YES	District 14: Evelyn Brooks	NO
District 7: Julie Pickren	YES	District 15: Aaron Kinsey	
District 8: Audrey Young	YES		

7. Proposed New 19 TAC Chapter 67, <u>State Review and Approval of Instructional Materials</u>, Subchapter C, <u>Local Operations</u>, §67.69, <u>Local Review of Classroom Instructional Materials</u> (Second Reading and Final Adoption)
(Board agenda page I-34)
[Official agenda item #7]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for second reading and final adoption proposed new 19 TAC Chapter 67, State Review and Approval of Instructional Materials, Subchapter C, Local Operations, §67.69, Local Review of Classroom Instructional Materials; and

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 67, State Review and Approval of Instructional Materials, Subchapter C, Local Operations, §67.69, Local Review of Classroom Instructional Materials, is necessary and shall have an effective date of 20 days after filing as adopted with the Texas Register.

ADOPTED RECOMMENDATION: The recommendation was adopted with a 2/3 vote.

(ATTACHMENT 3, page 30)

8. Approval of Local Classroom Review Rubrics
(Board agenda page I-39)
[Official agenda item #8]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve Mathematics K–12, ELAR K–3 Reading Comprehension, and ELAR 4–8 Reading Comprehension rubrics related to classroom reviews.

ADOPTED RECOMMENDATION: The recommendation was adopted.

MOTION: *Mrs. Little moved and Mr. Hickman seconded a motion to approve the ELAR K–3 Foundational Literacy Skills rubric related to classroom reviews.*

ADOPTED MOTION: The motion was adopted.

9. Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-419, 127.452, and 127.453
(Second Reading and Final Adoption)
(Board agenda page I-49)
[Official agenda item #9]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453; and

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453 is necessary and shall have an effective date of August 1, 2025.

AMENDMENT: *It was moved by Mr. Maynard and seconded by Mrs. Little to amend §127.407. Environmental Engineering (d)(9)(H)* "research and describe emerging contaminants in water such as microplastics and pharmaceuticals, including methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal [in water]." Following amendment, the item read "research and describe contaminants in water and demonstrate understanding of methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal of contaminants." The motion was adopted.

AMENDMENT: *It was moved by Mr. Maynard and seconded by Mrs. Pickren to amend §127.407. Environmental Engineering (d)(10)(A)* "explain the differences between and costs [cost] of renewable and non-renewable energy sources , providing [of energy and provide] examples of each and discuss factors, including energy density, subsidies, raw materials, the impact on land and animal life, and the environmental and resource demands of mining for renewable and non-renewable energy sources." Following amendment, the item was divided into (A) and (B) and read "(A) explain the differences between and costs [cost] of renewable and non-renewable energy sources, providing [of energy and provide] examples of each;

(B) describe energy density, subsidies, raw materials, the impact of energy production on land and animal life, and the environmental and resource demands of mining in relation to renewable and non-renewable energy sources." The motion was adopted.

AMENDMENT*: It was moved by Mr. Hickman and seconded by Dr. Clark to amend §127.406. Engineering Design and Problem Solving (b) "General requirements.* This course is a Level 4 course and is recommended for students in Grade 12. Prerequisites: Algebra I, Geometry, and at least one credit in a Level 2 or higher course in the Engineering Career Cluster. Recommended prerequisites or corequisites: Engineering Science, Chemistry, Physics, or Physics for Engineering. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course." Following amendment, the item read "General requirements. This course is a Level 4 course and is recommended for students in Grade 12. Prerequisites: Algebra I, Geometry, and at least one credit in a Level 2 or higher course in the Engineering Career Cluster. Recommended prerequisites or corequisites: Engineering Science, chemistry, or physics. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course." The motion was adopted.

AMENDMENT: *It was moved by Mr. Maynard and seconded by Mrs. Little to amend §127.407. Environmental Engineering (d)(9)(H)* "research and describe emerging contaminants in water such as microplastics and pharmaceuticals, including methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal [in water]." Following amendment, the item read "research and describe contaminants in water and demonstrate understanding of methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal of contaminants." The motion was adopted.

ADOPTED RECOMMENDATION: The recommendation was adopted as amended with a 2/3 vote.

RECONSIDER: *Following adoption, Mr. Maynard moved to reconsider the vote on the recommendation. The motion was seconded by Mrs. Little and adopted.*

AMENDMENT: *It was moved by Mrs. Little and seconded by Mr. Maynard to strike the Levels from each Engineering course. The motion was adopted.*

ADOPTED RECOMMENDATION: The recommendation was adopted as further amended with a 2/3 vote.

(ATTACHMENT 4, page 31)

10. Proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773
(Second Reading and Final Adoption)
(Board agenda page I-148)
[Official agenda item #10]

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and

Technical Education, Subchapter C, Agriculture, Food, and Natural Resources,§127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699, and Subchapter N, Law and Public Service, §127.773; and

Make an affirmative finding that immediate adoption of proposed new TEKS in 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources,§127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699, and Subchapter N, Law and Public Service, §127.773, is necessary and shall have an effective date of August 1, 2025.

AMENDMENT: *It was moved by Mrs. Little and seconded by Mr. Maynard to strike the Levels from each of the mentioned courses. The motion was adopted.*

ADOPTED RECOMMENDATION: The recommendation was adopted as amended with a 2/3 vote.

(ATTACHMENT 5, page 132)

Consent (1)

Proposed Amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3 Description of a Required Secondary Curriculum
(Second Reading and Final Adoption)
(Board agenda page I-214)

RECOMMENDATION: On behalf of the Committee of the Full Board, Mrs. Little recommended to the State Board of Education that they approve for second reading and final adoption the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum; and

Make an affirmative finding that immediate adoption of the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum, is necessary and shall have an effective date of August 1, 2025.

AMENDMENT: *It was moved by Mr. Hickman and seconded by Ms. Childs to adopt the staff recommendations as provided. The motion was adopted.*

ADOPTED RECOMMENDATION: The recommendation was adopted as amended with a 2/3 vote.

(ATTACHMENT 6, page 195)

COMMITTEE ON INSTRUCTION

11. Consideration of Renewal of Currently Approved Innovative Courses
(Board agenda page II-25)
[Official agenda item # 11]

No business related to this item was brought forward to the State Board of Education.

12. Approval of Updates and Substitutions to Approved Instructional Materials
(Board agenda page II-29)
[Official agenda item 12]

RECOMMENDATION: On behalf of the Committee on Instruction, Dr. Young recommended to the State Board of Education that they approve requests from Texas Education Agency to update the following content in its English language arts and reading materials:

- Kindergarten Unit 7: Serving Our Neighbors;
- Grade 2 Unit 2: Ancient Greeks;
- Grade 4 Unit 7 Poetry: Wonderous Words;
- Grade 4: Anthology;
- Grade 5 Unit 5 Poetry: Collage of Words;
- Grade 5 Unit 5: World War II;
- Grade 5 Anthology.

AMENDMENT: *It was moved by Dr. Young and seconded by Ms. Childs to amend the items by adding*

- Kindergarten Unit 11: Exploring Art;
- Grade 4 Unit 9: Innovations and Industry in Energy;
- Grade 5 Unit 9: Beyond Juneteenth.

The motion to amend was adopted.

ADOPTED RECOMMENDATION: The recommendation was adopted as amended.

Consent (2)

Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education (Second Reading and Final Adoption)
(Board agenda page II-1)
No business related to this item was brought forward to the State Board of Education.

COMMITTEE ON SCHOOL INITIATIVES

14. Review of Adoption of Proposed Amendment to 19 TAC Chapter 249, Disciplinary Proceedings, Sanctions, and Contested Cases
(Board agenda page IV-8)
[Official agenda item #14]

RECOMMENDATION: On behalf of the Committee on School Initiatives, Mr. Francis recommended to the State Board of Education that they take no action on the Adoption of Proposed Amendment to 19 TAC Chapter 249, Disciplinary Proceedings, Sanctions, and Contested Cases.

ADOPTED RECOMMENDATION: The recommendation was adopted.

15. **Review of Adoption of Proposed Revisions to Amendment to 19 TAC Chapter 235, Classroom Teacher Certification Standards, Subchapter A, General Provisions, Subchapter B, Elementary School Certificate Standards, Subchapter C, Middle School Certificate Standards, and Subchapter D, Secondary School Certificate Standards**
(Board agenda page IV-37)
[Official agenda item #15]

RECOMMENDATION: On behalf of the Committee on School Initiatives, Mr. Francis recommended to the State Board of Education that they take no action on the Proposed Revisions to Amendment to 19 TAC Chapter 235, Classroom Teacher Certification Standards, Subchapter A, General Provisions, Subchapter B, Elementary School Certificate Standards, Subchapter C, Middle School Certificate Standards, and Subchapter D, Secondary School Certificate Standards.

ADOPTED RECOMMENDATION: The recommendation was adopted.

16. **Review of Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments**
(Board agenda page IV-74)
[Official agenda item #16]

RECOMMENDATION: On behalf of the Committee on School Initiatives, Mr. Francis recommended to the State Board of Education that they veto the Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments.

DEFEATED RECOMMENDATION: The recommendation was defeated 4-9.

MOTION: *It was moved by Dr. Ellis and seconded by Ms. Perez-Diaz that the State Board of Education take on action on the Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments.*

ADOPTED MOTION: The motion was adopted 9-4.

Consent (7)

Proposed Amendments to the "Framework for Governance Leadership" Required to be Adopted under Texas Education Code (TEC) §11.159, Member Training and Orientation, and 19 Texas Administrative Code (TAC) Chapter 61, School Districts, Subchapter A, Board of Trustees Relationship, §61.1, Continuing Education for School Board Members
(Board agenda page IV-97)

RECOMMENDATION: On behalf of the Committee on School Initiatives, Mr. Francis recommended to the State Board of Education that they adopt the substitute "Framework for Governance Leadership" as adopted and amended by the Committee on School Initiatives.

POSTPONE: *It was moved by Mr. Francis and seconded by Mr. Hall that the State Board of Education postpone further consideration of the "Framework for Governance Leadership" to the next Board meeting.*

ADOPTED POSTPONEMENT: The motion to postpone was adopted 8-4.

Consent (6)

Approval of 2025-2029 Rule Review Plan for State Board of Education Rules
(Board agenda page IV-2)

RECOMMENDATION: On behalf of the Committee on School Initiatives, Mr. Francis recommended to the State Board of Education that they approve the Proposed 2025-2029 Rule Review Plan for State Board of Education Rules.

ADOPTED RECOMMENDATION: The recommendation was adopted.

COMMITTEE ON SCHOOL FINANCE/PERMANENT SCHOOL FUND

13. Adoption of Review of 19 TAC Chapter 109, Budgeting, Accounting, and Auditing, Subchapter A, Budgeting, Accounting, Financial Reporting, and Auditing for School Districts, Subchapter B, Texas Education Agency Audit Functions, Subchapter C, Adoptions by Reference, and Subchapter D, Uniform Bank Bid or Request for Proposal and Depository Contract (Adoption of Review)
(Board agenda page III-1)
[Official agenda item #13]

RECOMMENDATION: On behalf of the Committee on School Finance/Permanent School Fund, Mr. Maynard recommended to the State Board of Education that they approve the review of 19 Texas Administrative Code (TAC) Chapter 109, Budgeting, Accounting, and Auditing, Subchapter A, Budgeting, Accounting, Financial Reporting, and Auditing for School Districts, Subchapter B, Texas Education Agency Audit Functions, Subchapter C, Adoptions by Reference, and Subchapter D, Uniform Bank Bid or Request for Proposal and Depository Contract

ADOPTED RECOMMENDATION: The recommendation was adopted.

Consent (4)

Adoption of an Annual Report on the Status of the Bond Guarantee Program
(Board agenda page III-66)

RECOMMENDATION: On behalf of the Committee on School Finance/Permanent School Fund, Mr. Maynard recommended to the State Board of Education that they adopt the annual report on the status of the Bond Guarantee Program.

ADOPTED RECOMMENDATION: The recommendation was adopted.

Consent (5)

Review the Process for Consideration of Board Member Nominees for State Board Positions
(Board agenda page III-67)

RECOMMENDATION: On behalf of the Committee on School Finance/Permanent School Fund, Mr. Maynard recommended to the State Board of Education that they adopt the procedures for selecting nominees to be sent to the Governor for appointment to the School Land Board and the Texas Teacher Retirement System Board of Trustees.

ADOPTED RECOMMENDATION: The recommendation was adopted.

REGARDING AGENDA ITEMS POSTED FOR DISCUSSION ON COMMITTEE AGENDAS

Committee on Instruction

Dr. Young did not report on the Committee on Instruction.

Committee on School Finance/Permanent School Fund

Mr. Maynard asked that Jerry Stout give a brief overview of the Permanent School Fund. Mr. Stout reported on the PSF, noting that he was distributing a list of assets under management of the largest endowments in the country, and their annual returns. The PSF has about $53.7B, with a return of 10.1%, which is one of the largest funds and has among the best returns in the US. He noted that over time, the returns were over 6%, and explained the PSF Corporation Board's Asset Allocation Policy and steps taken to avoid losses in the Fund.

Committee on School Initiatives

Mr. Francis did not report on the Committee on School Initiatives.

REPORTS OF OTHER STATE BOARD OF EDUCATION MEMBERS REGARDING AGENDA ITEMS AND EDUCATIONAL ACTIVITIES AND CONCERNS IN INDIVIDUAL DISTRICTS

No further reports were given.

The meeting adjourned at 2:30 p.m.

_____
Will Hickman, Secretary

ATTACHMENT
Text of Proposed Amendments to 19 TAC

Chapter 74. Curriculum Requirements

Subchapter B. Graduation Requirements

§74.12. Foundation High School Program.

(a) (No change.)

(b) Core courses. A student must demonstrate proficiency in the following.

(1)-(2) (No change.)

(3) Science--three credits. One credit must consist of Biology or a comparable AP or IB biology course.

(A) One credit must be selected from the following laboratory-based courses:

(i) Integrated Physics and Chemistry;

(ii) Chemistry;

(iii) Physics;

(iv) Physics for Engineering [~~Principles of Technology~~] ; and

(v) a comparable AP or IB chemistry or physics course that does not count toward another credit required for graduation.

(B) The additional credit may be selected from one full credit or a combination of two half credits from two different courses, subject to prerequisite requirements, from the following laboratory-based courses:

(i)-(xvii) (No change.)

(xviii) Physics for Engineering [~~Principles of Technology~~] ;

(xix)-(xxiv) (No change.)

(C) Credit may not be earned for both physics and Physics for Engineering [~~Principles of Technology~~] to satisfy science credit requirements.

(4)-(7) (No change.)

(c)-(d) (No change.)

§74.13. Endorsements.

(a)-(d) (No change.)

(e) To earn an endorsement a student must demonstrate proficiency in the following.

(1)-(5) (No change.)

(6) An additional credit in science that may be selected from one full credit or a combination of two half credits from two different courses, subject to prerequisite requirements, from the following courses:

(A)-(Q) (No change.)

(R) Physics for Engineering [~~Principles of Technology~~] ;

(S)-(X) (No change.)

(Y) credit may not be earned for both physics and Physics for Engineering [~~Principles of Technology~~] to satisfy science credit requirements.

(Z) (No change.)

(7) (No change.)

(f) A student may earn any of the following endorsements.

(1) Science, technology, engineering, and mathematics (STEM). Students who entered high school prior to the 2022-2023 school year may earn a STEM endorsement by completing the requirements specified in subsection (e) of this section, including Algebra II, chemistry, and physics or Physics for Engineering [~~Principles of Technology~~] and:

(A) a coherent sequence of courses for four or more credits in career and technical education (CTE) that consists of at least two courses in the same career cluster and at least one advanced CTE course. The courses may be selected from [~~Chapter 130 of this title (relating to Texas Essential Knowledge and Skills for Career and Technical Education),~~] Chapter 127 of this title (relating to Texas Essential Knowledge and Skills for Career Development and Career and Technical Education) [~~,~~] or CTE innovative courses. The final course in the sequence must be selected from Chapter 127, Subchapter O, of this title (relating to Science, Technology, Engineering, and Mathematics) as it existed prior to August 1, 2025, or Career Preparation I or II (Career Preparation General or Career Preparation for Programs of Study) and Project-Based Research (Career and Technical Education Project-Based Capstone) in Chapter 127, Subchapter B, of this title (relating to High School), if the course addresses a STEM-related field;

(B)-(E) (No change.)

(2) Business and industry. Students who entered high school prior to the 2022-2023 school year may earn a business and industry endorsement by completing the requirements specified in subsection (e) of this section and:

(A) a coherent sequence of courses for four or more credits in CTE that consists of at least two courses in the same career cluster and at least one advanced CTE course. The courses may be selected from [~~Chapter 130 of this title,~~] Chapter 127 of this title [~~,~~] or CTE innovative courses. The final course in the sequence must be selected from one of the following:

(i) Chapter 127, Subchapter C, of this title (related to Agriculture, Food, and Natural Resources);

(ii) Chapter 127, Subchapter D, of this title (relating to Architecture and Construction;

(iii) Chapter 127, Subchapter E, of this title (relating to Arts, Audio/Video Technology, and Communications);

[~~(ii) Chapter 130, Subchapter A, of this title (relating to Agriculture, Food, and Natural Resources)~~] ;

[~~(iii) Chapter 130, Subchapter B, of this title (relating to Architecture and Construction)~~] ;

[~~(iv) Chapter 130, Subchapter C, of this title (relating to Arts, Audio/Video Technology, and Communications);~~]

(iv) [~~(v)~~]Chapter 127, Subchapter F, of this title (relating to Business, Marketing, and Finance);

(v) Chapter 127, Subchapter H, of this title (relating to Energy);

[~~(vi) Chapter 130, Subchapter D, of this title (relating to Business Management and Administration);~~]

[~~(vii) Chapter 130, Subchapter F, of this title (relating to Finance);~~]

(vi) [~~(viii)~~] Chapter 127, Subchapter K [~~I~~] , of this title (relating to Hospitality and Tourism);

(vii) Chapter 127, Subchapter M, of this title (relating to Information Technology);

(viii) Chapter 127, Subchapter O, of this title (relating to Manufacturing);

[~~(ix) Chapter 130, Subchapter K, of this title (relating to Information Technology);~~]

[~~(x) Chapter 130, Subchapter M, of this title (relating to Manufacturing);~~]

[~~(xi) Chapter 130, Subchapter N, of this title (relating to Marketing);~~]

(ix) [~~(xii)~~] Chapter 127, Subchapter P, of this title (relating to Transportation, Distribution, and Logistics); or

[~~(xiii) Chapter 130, Subchapter P, of this title (relating to Transportation, Distribution, and Logistics);~~]

[~~(xiv) Chapter 130, Subchapter Q, of this title (relating to Energy); or~~]

(x) [~~(xv)~~] Career Preparation I or II (Career Preparation General or Career Preparation for Programs of Study) and Project-Based Research (Career and Technical Education Project-Based Capstone) in Chapter 127, Subchapter B, of this title if the course addresses a career from a field listed in clauses (i)-(ix) [~~(i)-(xiv)~~] of this subparagraph;

(B)-(D) (No change.)

(3) Public services. Students who entered high school prior to the 2022-2023 school year may earn a public services endorsement by completing the requirements specified in subsection (e) of this section and:

(A) a coherent sequence of courses for four or more credits in CTE that consists of at least two courses in the same career cluster and at least one advanced CTE course. The courses may be selected from [~~Chapter 130 of this title,~~] Chapter 127 of this title [~~;~~] or CTE innovative courses. The final course in the sequence must be selected from one of the following:

(i) Chapter 127, Subchapter G, of this title (relating to Education and Training);

(ii) Chapter 127, Subchapter J [~~I~~] , of this title (relating to Health Science);

(iii) Chapter 127 [~~130~~] , Subchapter L [~~J~~] , of this title (relating to Human Services);

(iv) Chapter 127, Subchapter N [~~M~~] , of this title (relating to Law and Public Service); or

(v) Career Preparation I or II (Career Preparation General or Career Preparation for Programs of Study) and Project-Based Research (Career and Technical Education Project-Based Capstone) in Chapter 127, Subchapter B, of this title if the course addresses a field from a cluster listed in clauses (i)-(iv) [~~(i)-(v)~~] of this subparagraph;

(B)-(C) (No change.)

(4)-(5) (No change.)

(6) STEM. Students who entered high school in the 2022-2023 school year or later may earn a STEM endorsement by completing the requirements specified in subsection (e) of this section, including Algebra II, chemistry, and physics or Physics for Engineering [~~Principles of Technology~~] and:

(A)-(D) (No change.)

(7)-(8) (No change.)

(g) (No change.)

**Approved by the State Board of Education for second reading and final adoption on April 11, 2025.
Not yet filed as adopted with the Texas Register; subject to edits by Texas Register editors.**

Text of Adopted New 19 TAC

Chapter 111. Texas Essential Knowledge and Skills for Mathematics

Subchapter B. Middle School

§111.29. Grade 6, Middle School Advanced Mathematics, Adopted 2025.

(a) Implementation. The provisions of this section may be implemented by school districts beginning with the 2025-2026 school year.

(b) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) To increase the number of students who complete advanced mathematics courses in high school, the middle school advanced mathematics courses are designed to enable students to complete Algebra I by the end of Grade 8.

(4) The primary focal areas in Grade 6, Middle School Advanced Mathematics are numeracy; proportionality; expressions, equations, and relationships; and data science. Students use concepts, algorithms, and properties of rational numbers to explore mathematical relationships and to describe increasingly complex situations. Students use concepts of proportionality to explore, develop, and communicate mathematical relationships, including number, geometry and measurement, and statistics. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other. Students connect verbal, numeric, graphic, and symbolic representations of relationships, including equations and inequalities. Students begin to develop a foundational understanding of functions. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about geometric figures or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, and reasoning to draw conclusions, evaluate arguments, and make recommendations. The use of technology, including graphing tools, is essential in middle school advanced mathematics courses to master algebra readiness skills by bridging conceptual understanding and procedural fluency.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(c) Knowledge and skills.

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Numeracy--foundations of rational numbers. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:

(A) classify sets and subsets using a visual representation such as a Venn diagram or a hierarchy to describe relationships between sets of rational numbers;

(B) identify a number, its opposite, and its absolute value;

(C) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers as proportional relationships;

(D) generate equivalent forms of fractions, decimals, and percents using real-world problems as proportional relationships, including problems that involve money;

(E) use equivalent fractions, decimals, and percents to show equal parts of the same whole as proportional relationships;

(F) locate, compare, and order integers and rational numbers using a number line;

(G) order a set of rational numbers arising from mathematical and real-world contexts; and

(H) use coordinate geometry to identify locations on a plane, including graphing points in all four quadrants using ordered pairs of rational numbers.

(3) Numeracy--operations with rational numbers. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;

(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;

(C) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$;

(D) represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

(E) add, subtract, multiply, and divide integers fluently;

(F) add, subtract, multiply, and divide rational numbers;

(G) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

(H) balance a check register that includes deposits, withdrawals, and transfers; and

(I) create and organize a financial assets and liabilities record and construct a net worth statement.

(4) Numeracy--applications of percents. The student applies mathematical process standards to solve problems involving percents as proportional relationships. The student is expected to:

(A) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and

(B) calculate the sales tax for a given purchase and calculate income tax for earned wages.

(5) Proportionality--foundations of ratios and rates. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:

(A) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;

(B) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;

(C) represent ratios and percents with concrete models, fractions, and decimals; and

(D) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions.

(6) Proportionality--applications of ratios and rates. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:

(A) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

(B) calculate unit rates from rates in mathematical and real-world problems; and

(C) convert within and between measurement systems, including the use of proportions and the use of unit rates.

(7) One-variable expressions, equations, and relationships--foundations of one-variable relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) distinguish between expressions and equations verbally, numerically, and algebraically;

(B) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and

(C) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.

(8) One-variable expressions, equations, and relationships--applications of one-variable relationships. The student applies mathematical process standards to use equations and inequalities to represent situations and solve problems. The student is expected to:

(A) write one-variable, one- and two-step equations and inequalities to represent constraints or conditions within problems;

(B) write corresponding real-world problems given one-variable, one- and two-step equations or inequalities;

(C) represent solutions for one-variable, one- and two-step equations and inequalities on number lines;

(D) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts;

(E) model and solve one-variable, two-step equations and inequalities; and

(F) determine if the given value(s) make(s) one-variable, one- and two-step equations and inequalities true.

(9) Two-variable equations and relationships--foundations of linear relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:

(A) identify independent and dependent quantities from tables and graphs;

(B) write an equation that represents the relationship between independent and dependent quantities from a table;

(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$; and

(D) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships.

(10) Two-variable equations and relationships--applications of proportional relationships. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$.

(11) Geometric expressions, equations, and relationships--foundations of geometric concepts equations. The student applies mathematical process standards to use geometry to represent relationships. The student is expected to:

(A) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes; and

(B) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

(12) Geometric expressions, equations, and relationships--applications of geometric concepts. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:

(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;

(B) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles where dimensions are positive rational numbers;

(C) solve problems involving the volume of right rectangular prisms and triangular prisms; and

(D) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.

(13) Data science--foundations of measurement and data. The student applies mathematical process standards to represent and analyze data. The student is expected to:

(A) distinguish between situations that yield data with and without variability; and

(B) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots.

(14) Data science--applications of measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze and solve problems. The student is expected to:

(A) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;

(B) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution;

(C) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots;

(D) solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents;

(E) compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads; and

(F) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.

(15) Personal financial literacy--money management. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:

(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions;

(B) identify and explain the advantages and disadvantages of different payment methods, including distinguishing between debit cards and credit cards;

(C) explain why it is important to establish a positive credit history;

(D) describe the information in a credit report and how long it is retained;

(E) describe the value of credit reports to borrowers and to lenders;

(F) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and

(G) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.

§111.30. Grade 7, Middle School Advanced Mathematics, Adopted 2025.

(a) Implementation. The provisions of this section may be implemented by school districts beginning with the 2025-2026 school year.

(b) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking,

mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) To increase the number of students who complete advanced mathematics courses in high school, the middle school advanced mathematics courses are designed to enable students to complete Algebra I by the end of Grade 8.

(4) The primary focal areas in Grade 7, Middle School Advanced Mathematics are numeracy; proportionality; expressions, equations, and relationships; and data science. Students use concepts, algorithms, and properties of real numbers to explore mathematical relationships and to describe increasingly complex situations. Students use concepts of proportionality to explore, develop, and communicate mathematical relationships, including number, geometry and measurement, and statistics and probability. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other. Students connect verbal, numeric, graphic, and symbolic representations of relationships, including equations and inequalities. Students continue to develop a foundational understanding of functions. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about geometric figures or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, and reasoning to draw conclusions, evaluate arguments, and make recommendations. The use of technology, including graphing tools, is essential in middle school advanced mathematics courses to master algebra readiness skills by bridging conceptual understanding and procedural fluency.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(c) Knowledge and skills.

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Numeracy--foundations of real numbers. The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to:

(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers;

(B) approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line;

(C) convert between standard decimal notation and scientific notation; and

(D) order a set of real numbers arising from mathematical and real-world contexts.

(3) Numeracy--operations with rational numbers. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:

(A) add, subtract, multiply, and divide rational numbers fluently; and

(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.

(4) Numeracy--applications of percents. The student applies mathematical process standards to represent and solve problems involving percents as proportional relationships. The student is expected to:

(A) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems;

(B) calculate and compare simple interest and compound interest earnings;

(C) analyze and compare monetary incentives, including sales, rebates, and coupons;

(D) solve real-world problems comparing how interest rate and loan length affect the cost of credit;

(E) calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator;

(F) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time; and

(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college.

(5) Proportionality--geometric ratios. The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships such as dilations. The student is expected to:

(A) describe π as the ratio of the circumference of a circle to its diameter;

(B) generalize the critical attributes of similarity, including ratios within and between similar shapes;

(C) solve mathematical and real-world problems involving similar shape and scale drawings;

(D) compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane; and

(E) use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation.

(6) Proportionality--probability. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to:

(A) represent sample spaces for simple and compound events using lists and tree diagrams;

(B) select and use different simulations to represent simple and compound events with and without technology;

(C) make predictions and determine solutions using experimental data for simple and compound events;

(D) make predictions and determine solutions using theoretical probability for simple and compound events;

(E) find the probabilities of a simple event and its complement and describe the relationship between the two;

(F) solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and

(G) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.

(7) One-variable expressions, equations, and relationships--applications of one-variable relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to:

(A) represent solutions for one-variable, two-step inequalities on number lines;

(B) model and solve one-variable, two-step inequalities;

(C) write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants;

(D) write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants; and

(E) model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants.

(8) Two-variable equations and relationships--foundations of linear relationships. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to:

(A) determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems;

(B) distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$; and

(C) identify examples of proportional and non-proportional relationships [~~functions~~] that arise from mathematical and real-world problems.

(9) Two-variable equations and relationships--applications of linear relationships. The student applies mathematical process standards to represent linear relationships using multiple representations.

The student is expected to represent linear proportional and non-proportional relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.

(10) Geometric expressions, equations, and relationships--foundations of geometric concepts. The student applies mathematical process standards to develop geometric relationships and solve problems. The student is expected to:

(A) use models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas;

(B) solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net;

(C) describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height;

(D) model the relationship between the volume of a rectangular prism and a rectangular pyramid having both congruent bases and heights and connect that relationship to the formulas;

(E) explain verbally and symbolically the relationship between the volume of a triangular prism and a triangular pyramid having both congruent bases and heights and connect that relationship to the formulas;

(F) model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas;

(G) use models and diagrams to explain the Pythagorean theorem; and

(H) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

(11) Geometric expressions, equations, and relationships--applications of geometric concepts. The student applies mathematical process standards to solve geometric problems. The student is expected to:

(A) determine the circumference and area of circles;

(B) determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles;

(C) use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders;

(D) solve problems involving the volume of rectangular pyramids and triangular pyramids;

(E) solve problems involving the volume of cylinders, cones, and spheres;

(F) use the Pythagorean theorem and its converse to solve problems; and

(G) determine the distance between two points on a coordinate plane using the Pythagorean theorem.

(12) Geometric expressions, equations, and relationships--transformations. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to:

(A) generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane;

(B) differentiate between transformations that preserve congruence and those that do not;

(C) explain the effect of translations, reflections over the *x*- or *y*-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation; and

(D) model the effect on linear and area measurements of dilated two-dimensional shapes.

(13) Data science--applications of measurement and data. The student applies mathematical process standards to use statistical representations and procedures to analyze and describe data. The student is expected to:

(A) use data from a random sample to make inferences about a population;

(B) compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations;

(C) simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected; and

(D) determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points.

(14) Personal financial literacy--money management. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:

(A) identify the components of a personal budget, including income; planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses, and calculate what percentage each category comprises of the total budget;

(B) use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby; and

(C) analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility.

§111.31. Grade 8, Middle School Advanced Mathematics, Algebra I (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section may be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. [~~Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation.~~] This course is recommended for students in Grade 8. Prerequisite: Middle School Advanced Mathematics, Grade 7 or Mathematics, Grade 8. Students shall be awarded one credit that satisfies the Algebra I requirement for high school graduation. This course satisfies the requirement for any course which identifies Algebra I as a prerequisite.

(c) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on fluency and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and

the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) To increase the number of students who complete advanced mathematics courses in high school, the middle school advanced mathematics courses are designed to enable students to complete Algebra I by the end of Grade 8.

(4) In Grade 8, Middle School Advanced Mathematics, Algebra I , students will build on the knowledge and skills for mathematics in Middle School Advanced Mathematics, Grades 6 and 7, which provide a foundation in linear relationships, number and operations, and proportionality. Students will study linear, quadratic, and exponential functions and their related transformations, equations, and associated solutions. Students will connect functions and their associated solutions in both mathematical and real-world situations. Students will use technology to collect and explore data and analyze statistical relationships. In addition, students will study polynomials of degree one and two, radical expressions, sequences, and laws of exponents. Students will generate and solve linear systems with two equations and two variables and will create new functions through transformations. The use of technology, including graphing tools, is essential in Grade 8, Middle School Advanced Mathematics, Algebra I, to bridge conceptual understanding and procedural fluency.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Linear functions, equations, and inequalities. The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations. The student is expected to:

(A) determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities;

(B) write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points;

(C) write linear equations in two variables given a table of values, a graph, and a verbal description;

(D) write and solve equations involving direct variation;

(E) write the equation of a line that contains a given point and is parallel to a given line;

(F) write the equation of a line that contains a given point and is perpendicular to a given line;

(G) write an equation of a line that is parallel or perpendicular to the x- or y- axis and determine whether the slope of the line is zero or undefined;

(H) write linear inequalities in two variables given a table of values, a graph, and a verbal description; and

(I) write systems of two linear equations given a table of values, a graph, and a verbal description.

(3) Linear functions, equations, and inequalities. The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations. The student is expected to:

(A) use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y2 - y1)/ (x2 - x1)$, is the same for any two points $(x1, y1)$ and $(x2, y2)$ on the same line;

(B) graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship;

(C) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$;

(D) calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems;

(E) use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems;

(F) graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems;

(G) graph the solution set of linear inequalities in two variables on the coordinate plane;

(H) determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c, and d;

(I) graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist;

(J) estimate graphically the solutions to systems of two linear equations with two variables in real-world problems; and

(K) graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.

(4) Linear functions, equations, and inequalities. The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness based on real-world data. The student is expected to:

(A) construct a scatterplot and describe the observed data to address questions of association such as linear, non-linear, and no association between bivariate data;

(B) contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation;

(C) use a trend line that approximates the linear relationship between bivariate sets of data to make predictions;

(D) calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association;

(E) compare and contrast association and causation in real-world problems; and

(F) write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.

(5) Linear functions, equations, and inequalities. The student applies the mathematical process standards to solve, with and without technology, linear equations and evaluate the reasonableness of their solutions. The student is expected to:

(A) solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides;

(B) solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides; and

(C) solve systems of two linear equations with two variables for mathematical and real-world problems.

(6) Quadratic functions and equations. The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations. The student is expected to:

(A) determine the domain and range of quadratic functions and represent the domain and range using inequalities;

(B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x) = a(x - h)^2 + k$), and rewrite the equation from vertex form to standard form ($f(x) = ax^2 + bx + c$); and

(C) write quadratic functions when given real solutions and graphs of their related equations.

(7) Quadratic functions and equations. The student applies the mathematical process standards when using graphs of quadratic functions and their related transformations to represent in multiple ways and determine, with and without technology, the solutions to equations. The student is expected to:

(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry;

(B) describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions; and

(C) determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c, and d.

(8) Quadratic functions and equations. The student applies the mathematical process standards to solve, with and without technology, quadratic equations and evaluate the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to:

(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula; and

(B) write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.

(9) Exponential functions and equations. The student applies the mathematical process standards when using properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to:

(A) determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities;

(B) interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems;

(C) write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay;

(D) graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems; and

(E) write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems.

(10) Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions. The student is expected to:

(A) add and subtract polynomials of degree one and degree two;

(B) multiply polynomials of degree one and degree two;

(C) determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend;

(D) rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property;

(E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two; and

(F) decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial.

(11) Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms. The student is expected to:

(A) simplify numerical radical expressions involving square roots; and

(B) simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents.

(12) Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to write, solve, analyze, and evaluate equations, relations, and functions. The student is expected to:

(A) identify functions using sets of ordered pairs and mappings;

(B) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function;

(C) evaluate functions, expressed in function notation, given one or more elements in their domains;

(D) identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes;

(E) write a formula for the n^{th} term of arithmetic and geometric sequences, given the value of several of their terms; and

(F) solve mathematic and scientific formulas, and other literal equations, for a specified variable.

ATTACHMENT
Text of Proposed New 19 TAC

Chapter 67. State Review and Approval of Instructional Materials

Subchapter C. Local Operations

§67.69. Local Review of Classroom Instructional Materials.

(a) School districts and open-enrollment charter schools must establish a process by which a parent of a student may request an instructional material review under Texas Education Code, §31.0252, for a subject area in the grade level in which the student is enrolled. This process shall:

(1) establish minimum requirements for a parent's petition to the school district board of trustees for a local review of classroom instructional materials, including submission guidelines and timelines for the petition. The process must align to the statewide submission window of September 1 through the last instructional day for students. The process must require that the board consider such petitions at the regular board meeting that allows proper posting immediately following submission of the petition provided that it is submitted by the prescribed submission deadline;

(2) require parent petitions to include the student assignment, grade level, content area, campus name, and teacher name to complete the local review process; and

(3) establish an appeal process for parents if a petition for a local review is denied by the school district board of trustees, detailing steps for submitting an appeal, the criteria for reviewing the appeal, and the timelines for a final decision.

(b) A school district or open-enrollment charter school is requested to notify the State Board of Education member(s) representing the district or charter school, at the member's state email address as listed on the SBOE.Texas.gov website, within one week of a decision to approve a parent request for local classroom review and one week after receiving the final report.

ATTACHMENT
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter I. Engineering [~~Health Science~~]

§127.402. Engineering Design Process (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 9 and 10. Prerequisite: Algebra I. Recommended prerequisite: Principles of Applied Engineering. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Engineering Design Process is an engineering course applicable to all engineering fields. Students use an iterative engineering design process to solve problems, make decisions, and manage a project. Professional practices are addressed, including development of a problem statement, maintenance of documentation, use of an engineering notebook, research, project management, internal and external communication, and creation of technical drawings and prototypes. The student delivers a professional presentation detailing the experience of working through each step of the engineering design process.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student discusses ethics pertaining to engineering. The student is expected to identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) describe teamwork, group dynamics, and conflict resolution and how they can impact the collective outcome;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences;~~]

[~~(D) identify time management skills such as prioritizing tasks, following schedules, and tending to goal-relevant activities and how these practices optimize efficiency and results;~~]

[~~(E) define work ethic and discuss the characteristics of a positive work ethic, including punctuality, dependability, reliability, and responsibility for reporting for duty and performing assigned tasks;~~]

[~~(F) identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(K) describe the roles and responsibilities of managers.~~]

(2) The student understands there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define and discuss the roles of ideation and conceptualization in innovation and problem solving;

(D) explain the criteria for selecting an idea or concept for detailed prototype design, development, and testing;

(E) explain the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the relevance of experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) explain the purpose of effective communication throughout the entirety of the engineering design process to various audiences.

(3) The student explores and develops skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

(4) The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(C) identify and explain the appropriate use of types of personal protective equipment used in industry;

(D) demonstrate safe practices for preventing or reducing slips, trips, and falls in the workplace;

(E) describe types of risks of and control methods to prevent electrical hazards in the workplace; and

(F) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace.

(5) The student understands the value of maintaining documentation using an engineering notebook. The student is expected to:

(A) explain the purpose and legal value of maintaining an engineering notebook as intellectual property;

(B) describe the proper implementation of an engineering notebook, including notebook type, documentation, signatures, adding external materials, sealing, and dating;

(C) create and maintain an engineering notebook by recording ideas, notes, decisions, findings, deficiencies, and corrections throughout the entire design process; and

(D) communicate progress during the engineering design process at regular intervals using various methods such as written reports, informal presentations, and formal presentations.

(6) The student understands how to conduct research in the engineering design process. The student is expected to:

(A) describe the advantages and disadvantages of emerging technologies and practices in the research process;

(B) explain the importance of identifying and synthesizing information from a variety of sources in the research process;

(C) explain the ethical acquisition and use of digital information;

(D) demonstrate use and citation of source material ethically and appropriately;

(E) define and discuss intellectual property laws such as patent, copyright, and trade secret law and their role in protecting proprietary information in the research process; and

(F) identify limitations in information and research such as outdated, conflicting, proprietary, or limited access.

(7) The student understands the process of creating and refining a problem statement in the engineering design process. The student is expected to:

(A) explain the essential components of a problem statement such as who the problem affects, when it is a problem, where the problem happens, and the magnitude of the problem;

(B) describe different methods for creating and refining a problem statement such as questioning, observation, and client needs;

(C) create a problem statement that is concise, specific, and measurable;

(D) collect, analyze, and interpret information relevant to a problem statement;

(E) modify a problem statement based on information acquired from using processes or various analysis tools such as fishbone charts, root-cause analysis, 80-20 rule, heat maps, survey results, and end-user input;

(F) explain the purpose of a technical document such as a design brief or design basis that compiles the objectives, constraints, data, alternatives, and design solutions in the engineering design process; and

(G) compile a technical document that includes a problem statement, constraints, resources, budget, timeline, deliverables, and solution criteria such as quality, risk, and extent to which problem is solved.

(8) The student understands the importance of conceptualizing a solution in the engineering design process. The student is expected to:

(A) discuss the importance of creativity in engineering, innovation, and problem solving;

(B) explain and use various techniques for idea generation such as brainstorming, mapping, storyboarding, sketching, questioning, reverse engineering, and natural solutions to create solution concepts;

(C) explain the similarities and differences between designing a solution in the classroom versus designing a solution in the real world;

(D) analyze and evaluate solutions using [~~the~~] established criteria such as structured techniques, design matrix, or cost-benefit analysis ;

(E) explain the importance of capturing client feedback to refine solution concepts; and

(F) explain and use various techniques for gathering end-user input such as focus groups, interviews, and surveys to refine solution concepts.

(9) The student creates technical drawings in the engineering design process. The student is expected to:

(A) explain the role of freehand sketching, freehand modeling, technical drawing, and technical modeling in the development of a prototype or solution;

(B) create nontechnical representations such as sketches, drawings, or models of a solution with relevant annotations;

(C) develop a technical model of the solution using a nontechnical representation of a solution; and

(D) create technical drawings, including single-view projections, multi-view projections, and orthographic views, using industry standards.

(10) The student creates prototypes in the engineering design process. The student is expected to:

(A) identify different types of prototypes and explain the role of a prototype in the development of a solution;

(B) identify and describe the steps needed to produce a prototype;

(C) identify and use appropriate tools, equipment, machines, and materials to produce a prototype; and

(D) present a prototype using presentation software.

(11) The student tests and evaluates a prototype or solution using experiments, data, and end-user feedback. The student is expected to:

(A) explain the purpose of conducting tests on a prototype or solution;

(B) design appropriate protocols for testing a prototype or solution;

(C) analyze, evaluate, and critique a prototype or solution by using observational testing, experimental testing, empirical evidence, and statistical analysis;

(D) collect end-user feedback using appropriate protocols such as focus groups, interviews, and surveys to evaluate a prototype or solution; and

(E) identify the successes and failures of a prototype or solution based on the criteria established in the testing protocols and technical document to determine next steps in the engineering design process.

(12) The student understands the iterative nature of the engineering design process to develop a solution. The student is expected to:

(A) analyze design flaws of a prototype or solution using various tools such as fishbone charts, root-cause analysis, 80-20 rule, heat maps, survey results, and end-user feedback;

(B) iterate steps of the design process, as necessary, to improve and optimize a solution; and

(C) evaluate the potential impact of a solution on the original problem identified during the design process.

(13) The student prepares and delivers a professional presentation detailing the experience of working through each step of the engineering design process to create a viable solution. The student is expected to:

(A) prepare and deliver a presentation detailing the experience of working through each step of the engineering design process to create a viable solution;

(B) solicit and evaluate feedback on implementation of the design process and the presentation; and

(C) present learning experiences such as essential skills gained, areas of personal growth, and challenges encountered throughout the design process.

§127.403. Programming for Engineers (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. Prerequisite: Algebra I and Principles of Applied Engineering, Physics for Engineering, Introduction to Computer-Aided Design and Drafting, or Introduction to Engineering Design. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Programming for Engineers focus on understanding, writing, evaluating, and troubleshooting code to solve engineering problems. Students use the engineering process and computational thinking to write computer programs for real-world solutions. Students explore autonomous systems, sensors, and careers to integrate computational thinking within their engineering mindset. Students spend at least 40% of the instructional time completing hands-on, real-world projects.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(4) Computational thinking--foundations. The student explores the core concepts of computational thinking related to engineering solutions, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms. The student is expected to:

(A) decompose real-world engineering problems into structured parts by using visual representation;

(B) analyze and use industry-specific symbols, patterns, and sequences found in visual representations such as flow-charts, pseudocode, concept maps, or other representations of data;

(C) define and practice abstraction in the context of writing a program to solve an engineering problem;

(D) design a plan using visual representation to document a problem, possible solutions, and an expected timeline for the development of a coded engineering solution;

(E) analyze different techniques used in debugging and apply them to an algorithm;

(F) analyze the benefits of using iteration such as code and sequence repetition in algorithms, including loops and functions;

(G) define and analyze Boolean expressions;

(H) define and analyze conditional statements;

(I) write code that uses conditional statements such as (if), (then), (while), and (else);

(J) compare the differences between scripting and programming languages such as interpretation versus compiling; and

(K) identify and demonstrate when to use a compiler and editor for programming design.

(5) Computational thinking--applications. The student applies the fundamentals of programming within the context of engineering. The student is expected to:

(A) analyze how programming parallels iterative design within the engineering design process such as problem solving and critical thinking illustrated in an engineering notebook;

(B) modify previously written code and implement the modified code to develop improved programs;

(C) solve an engineering problem by creating block-based or text-based programs that include sequences, functions, loops, conditionals, and events;

(D) identify and label variables that relate to a program or algorithm;

(E) manipulate and rename variables and describe different data types;

(F) write comments while coding programs for engineering solutions to enhance readability and functionality such as descriptive identifiers, internal comments, white space, spacing, punctuation, indentation, and standardized programming style;

(G) write code that uses comparison operators such as greater than, less than, equal to, and modulus to perform mathematical computations;

(H) write code that uses strings to sort different data types such as Boolean operators, floats, and integers; and

(I) perform user testing on code to assess and improve a program.

(6) The student understands physical computing systems to integrate input and output functions in engineering concepts. The student is expected to:

(A) write programming to process data and control physical devices for efficient and optimized solutions;

(B) apply coding to demonstrate the correct operation of the output device such as motors, video displays, speakers, rapid prototype machines, and lights;

(C) apply coding to demonstrate the correct operation of the input device such as buttons, sensors, and switches;

(D) apply critical problem-solving skills to troubleshoot any errors and miscommunication such as wiring, code, and physical hardware;

(E) apply basic circuit theory as it pertains to ground and power systems for diagramming input and output devices and use tools such as a multimeters, microcontrollers, sensors, and LEDs; and

(F) use script writing to develop engineering solutions such as automatic data collecting, data analysis, programmable logic controllers, power system programming, robotics, and scripting for commercial engineering related software.

(7) The student understands the roles of sensors and programming sensors in engineering. The student is expected to:

(A) describe how sensors were used in the past and are used currently in real-world engineered products, including innovative applications for sensors;

(B) identify the proper input sensors to measure light, distance, sound, and color such as photoresistors, thermistors, sonar, switches, and buttons;

(C) identify the specifications of sensors and other input devices used in engineering problems, including units of measurement, upper limits, lower limits, and errors;

(D) select the proper sensor and defend the choice in developing a solution to an engineering problem;

(E) write code that will control sensors and accurately collect relevant information pertaining to the function of sensors;

(F) debug, asses, and test code to evaluate and improve sensor performance; and

(G) document the steps of sensor integration in an engineering notebook using flowcharts or technical drawings.

(8) The student understands how automation plays a role in engineering and manufacturing. The student is excepted to:

(A) research and explain how automated machines are used in engineering and manufacturing;

(B) research and explain different job roles and required level of education in the field of automation;

(C) compare the roles of engineers, technicians, and technologists in automation;

(D) describe the role of safety and ethics related to the use of automation within engineering; and

(E) convert a manual mechanical system to an automated system using code and hardware.

(9) The student uses appropriate tools and demonstrates safe work habits. The student is expected to:

(A) demonstrate lab safety as prescribed by the instructor in compliance with local, state, and federal regulations;

(B) recognize the classification of hazardous materials and wastes;

(C) dispose of hazardous materials and wastes appropriately;

(D) describe the implications of negligent or improper maintenance of tools in engineering solutions;

(E) demonstrate the use of precision measuring instruments;

(F) analyze a circuit design and identify specific areas where quality, reliability, and safety features can be implemented; and

(G) identify governmental and organizational regulations for health and safety in the workplace related to electronics.

§127.404. Engineering Design and Presentation [~~I~~] (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: Algebra I and at least one credit in a course from the Engineering Career Cluster. Recommended prerequisite:

Principles of Applied Engineering. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Engineering Design and Presentation [~~I~~] demonstrate knowledge and skills of the design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Through implementation of the design process, students transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and learn what is required to gain and maintain employment in these areas.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student understands the value of maintaining documentation using an engineering notebook. The student is expected to:

(A) explain the legal value of maintaining an engineering notebook as intellectual property;

(B) describe the proper implementation of an engineering notebook, including notebook type, documentation, signatures, adding external materials, sealing, and dating; and

(C) create and maintain an engineering notebook by recording ideas, notes, decisions, findings, and corrections.

(4) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(5) The student gains knowledge of and demonstrates the skills necessary for success in the engineering workplace. The student is expected to:

(A) describe and compare the roles of an industry technician, engineering technologist, and engineer;

(B) identify educational requirements and career opportunities for engineers, engineering technologists, and industry technicians;

(C) research and describe various engineering disciplines such as mechanical, civil, aerospace, biomedical, chemical civil, computer, electrical, petroleum, and other related and emerging fields;

(D) investigate and describe the requirements of engineering licensure and industry-based certifications;

(E) investigate and describe elements of teamwork critical for success in the engineering and technology industries such as communication, active listening, and time management;

(F) research and describe industry standards and governmental regulations such as health and safety and environmental regulations applicable to a design problem; and

(G) analyze and discuss ethical issues related to engineering and technology.

(6) The student understands the roles and responsibilities of individual team members, how successful teams function, and how to constructively contribute to the team. The student is expected to:

(A) describe the various roles and responsibilities of a project team;

(B) identify the strengths of individual team members to assign roles and distribute tasks within a team; and

(C) describe and demonstrate appropriate behaviors such as active listening and clear communication while serving as a team leader and member on projects.

(7) The student practices safe and proper work habits. The student is expected to:

(A) identify and explain the appropriate use of types of personal protective equipment used in industry;

(B) explain and comply with safety guidelines and procedures as described in relevant manuals, instructions, and regulations;

(C) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(D) describe the various types of electrical hazards in the workplace and the risks associated with electrical hazards;

(E) describe the various control methods to prevent electrical hazards in the workplace;

(F) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and explain how emergency plans and Safety Data Sheets are used to make decisions in the workplace;

(G) describe the appropriate disposal of selected hazardous materials and wastes;

(H) perform routine maintenance on selected tools, equipment, and machines;

(I) demonstrate proper handling, use, and storage of tools and materials; and

(J) research and describe the consequences of negligent or improper equipment maintenance.

(8) The student understands how visual and spatial reasoning applies to engineering design. The student is expected to:

(A) describe and compare characteristics and dimensional changes of two-dimensional (2D) and three-dimensional (3D) figures;

(B) draw and manipulate geometric shapes in three dimensions;

(C) create 2D views of a 3D object; and

(D) explain the symmetry of figures through the proportionate transformation of objects.

(9) The student uses sketching and computer-aided design and drafting (CADD) to represent 3D objects in a 2D format needed for manufacturing an object. The student is expected to:

(A) use single and multi-view projections to represent 3D objects in a 2D format;

(B) use appropriate line types in engineering drawings to represent 3D objects in a 2D format;

(C) use orthographic and pictorial views to represent 3D objects in a 2D format;

(D) use auxiliary views to represent 3D objects in a 2D format;

(E) use section views to represent 3D objects in a 2D format;

(F) prepare and revise annotated multi-dimensional production drawings in computer-aided design and drafting to industry standards;

(G) apply best practices for file structure and management to efficiently retrieve and edit files;

(H) use advanced dimensioning techniques, including annotation scale; and

(I) construct and use CADD drawings to develop a model or prototype for presentation.

(10) The student designs products using appropriate engineering design processes and techniques. The student is expected to:

(A) design product components using a variety of technologies;

(B) research and analyze the applications of different types of CADD software for various engineering problems;

(C) create and interpret engineering drawings using industry standards;

(D) describe how quality, reliability, and safety can be designed into specific products;

(E) identify specific requirements of users with special needs and modify a product design to accommodate users with special needs;

(F) research and explain the patenting process and analyze opportunities for potential patents related to a project; and

(G) use multiple software applications for concept presentations.

(11) The student builds a prototype(s) using the appropriate tools, materials, and techniques. The student is expected to:

(A) identify and describe the steps needed to produce a prototype;

(B) identify and use appropriate tools, equipment, machines, and materials to produce the prototype;

(C) present the prototype and explain how the prototype meets the project requirements; and

(D) evaluate the successes and failures of the prototype(s) in the context of an iterative design process.

(12) The student creates justifiable solutions to open-ended real-world problems using engineering design practices and processes. The student is expected to:

(A) identify and define an engineering problem;

(B) formulate goals, objectives, and requirements to solve an engineering problem;

(C) investigate and select appropriate materials for a particular product to be designed;

(D) explain the importance of manufacturability and maintainability when designing a product;

(E) determine design constraints such as personnel, resources, funding, feasibility, and time associated with an engineering problem;

(F) identify requirements, including health, safety, social, environmental, ethical, regulatory, and legal constraints, defining an engineering problem;

(G) identify alternative solutions to a problem using a variety of techniques such as brainstorming, reverse engineering, and researching engineered and natural solutions;

(H) test and evaluate proposed solutions using engineering practices such as experiments, simulations, statistical analysis, and critical design review; and

(I) select and justify a preferred solution to a problem using structured techniques such as a decision tree, design matrix, or cost-benefit analysis.

(13) The student presents a solution derived through the engineering design process. The student is expected to:

(A) present the solution in a professional manner;

(B) solicit and evaluate feedback on the solution and presentation; and

(C) present learning experiences, including essential skills gained, areas of personal growth, challenges, and solutions, encountered throughout the design process.

§127.405. Advanced Engineering Design and Presentation [~~II~~] (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: Algebra I, Geometry, and [~~Principles of Applied Engineering or~~] Engineering Design and Presentation [~~I~~] . Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Advanced Engineering Design and Presentation [~~II~~] is a continuation of knowledge and skills learned in Engineering Design and Presentation [~~I~~] . Students enrolled in this course demonstrate advanced knowledge and skills of a system design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students expand on the use of a variety of computer hardware and software applications to complete assignments and projects. Through implementation of a system design process, students transfer advanced academic skills to component designs and engineering systems. Emphasis is placed on transdisciplinary and integrative approaches using skills from ideation, prototyping, and project management methods.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how interested parties impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule, influence an engineering design, and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(4) The student practices safe and proper work habits. The student is expected to:

(A) identify and explain the appropriate use of types of personal protective equipment used in industry;

(B) explain and comply with safety guidelines and procedures as described in relevant manuals, instructions, and regulations;

(C) explain the importance of lock out tag out (LOTO) procedures in preventing the release of hazardous energy;

(D) explain the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(E) describe the various types of electrical hazards in the workplace and the risks associated with electrical hazards;

(F) describe the various control methods to prevent electrical hazards in the workplace;

(G) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and explain how health and safety resources are used to make decisions in the workplace;

(H) describe the appropriate disposal of selected hazardous materials and wastes;

(I) perform routine maintenance on selected tools, equipment, and machines;

(J) handle, use, and store tools and materials correctly; and

(K) research and describe the consequences of negligent or improper equipment maintenance.

(5) The student demonstrates the roles and responsibilities of individual team members, how successful teams function, and how to constructively contribute to the team. The student is expected to:

(A) demonstrate the various roles and responsibilities of a project team;

(B) create a plan to improve team member's skillsets based on strengths of individual team members;

(C) demonstrate appropriate behaviors of a successful team such as active listening, development of consensus, and clear communication while serving as a team leader and member on projects; and

(D) describe and demonstrate the roles and responsibilities specific to team leaders such as assigning roles and responsibilities, facilitating decision making, tracking progress, and soliciting and providing timely feedback to team members.

(6) The student uses and documents engineering design processes. The student is expected to:

(A) use idea generation techniques such as brainstorming, sketching, rapid prototyping, and mind mapping during conceptual stages and for resolving problems of an engineering project;

(B) analyze and evaluate solution constraints;

(C) develop or improve a solution using evidence-based decision-making;

(D) compare solutions using analysis tools such as a decision matrix or paired comparison analysis;

(E) create and maintain an organized engineering notebook to record findings and corrections, including deficiencies in the design process and decisions throughout the entire design process; and

(F) develop an engineering notebook or portfolio to record and justify the final design, construction, and manipulation of finished projects.

(7) The student understands how systems impact the design, integration, and management of engineering solutions. The student is expected to:

(A) analyze and document systems such as electrical, mechanical, or information processes within a product or design concept in engineering;

(B) explain ethical reverse engineering;

(C) reverse engineer a multi-system product and explain how the systems work together; and

(D) modify a system design to meet a newly identified need or to improve performance.

(8) The student demonstrates proficiency using computer-aided design and drafting (CADD) software as part of the engineering design process. The student is expected to:

(A) research and explain the features and benefits of different types of CADD software applications for use in design systems and problem solving;

(B) identify and describe industry graphic standards such as American National Standards Institute (ANSI) and International Organization for Standardization (ISO) standards;

(C) create drawings that meet industry standards using CADD software;

(D) customize CADD software user interface options such as buttons, tabs, and ribbons to match different digital work environments;

(E) prepare and use advanced views such as auxiliary, section, and break-away using CADD software;

(F) draw detailed parts, assembly diagrams, and sub-assembly diagrams using CADD software;

(G) indicate tolerances and standard fittings using appropriate library functions within CADD software;

(H) setup and apply annotation styles by defining fonts, dimension styles, and leader lines using CADD software;

(I) identify and incorporate the use of advanced layout techniques and viewports using paper-space and modeling areas using CADD software;

(J) create and use layers to organize objects in drawings using CADD software;

(K) create and use custom templates using CADD software for advanced project management;

(L) use advanced polar tracking and blocking techniques using CADD software to increase drawing efficiency;

(M) create drawings that incorporate external referencing using CADD software;

(N) create and render objects using parametric modeling tools within CADD software; and

(O) model individual parts or assemblies and produce rendered or animated output using CADD software.

(9) The student builds a prototype using the appropriate tools, materials, and techniques. The student is expected to:

(A) delineate and implement the steps such as defining the problem and generating concepts needed to produce a prototype;

(B) develop a prototype safely using tools, equipment, machines, or precision measuring instruments;

(C) select and justify the use of materials for prototyping and manufacturing;

(D) describe how design quality concepts, including performance, usability, accessibility, reliability, and safe use, affect prototype development;

(E) document quality-control requirements in the design and production of a prototype;

(F) evaluate prototype quality and performance to meet design criteria;

(G) fabricate a prototype using a systems engineering approach to compare the actual prototype performance to the required performance; and

(H) present a prototype and explain how the prototype meets the project requirements.

(10) The student creates justifiable solutions to open-ended real-world problems within a multitude of engineering disciplines using engineering design practices and processes. The student is expected to:

(A) identify and define a multi-system engineering problem requiring a complex solution from different engineering disciplines such as aerospace, biomedical, chemical, civil, electrical, industrial, mechanical, petroleum, robotics, or structural engineering;

(B) formulate and document goals, objectives, and requirements to solve a multi-system engineering problem;

(C) determine the design constraints such as materials, personnel, resources, funding, manufacturability, feasibility, and time associated with a multi-system engineering problem;

(D) identify parameters, including health, safety, social, environmental, ethical, regulatory, and legal constraints, defining a multi-system engineering problem;

(E) identify or create alternative solutions to a multi-system engineering problem using a variety of techniques such as brainstorming, reverse engineering, and researching engineered and natural solutions;

(F) test and evaluate proposed multi-system engineering solutions using tools such as models, prototypes, and mockups and methods such as simulations, critical design review, statistical analysis, and experiments; and

(G) select and justify a preferred solution to a multi-system engineering problem using a structured technique such as a decision tree, design matrix, or cost-benefit analysis.

(11) The student presents a solution derived through the engineering design process. The student is expected to:

(A) develop and deliver a presentation describing the solution to a multi-system engineering problem in a professional manner to an appropriate audience such as peers, educators, potential clients, potential employers, community members, or engineering professionals;

(B) solicit and evaluate feedback from the audience on the multi-system engineering solution and presentation; and

(C) present learning experiences, including essential skills gained, areas of personal growth, challenges, and solutions encountered throughout the design process for a multi-system engineering solution.

§127.406. Engineering Design and Problem Solving (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grade 12. Prerequisites: Algebra I, Geometry, and at least one credit in a Level 2 or higher course in the Engineering Career Cluster. Recommended prerequisites or corequisites: Engineering Science, chemistry, or physics [~~Chemistry, Physics, or Physics for Engineering~~] . This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) The Engineering Design and Problem Solving course extends students' problem solving skills by identifying needs and then devising solutions using scientific and engineering practices. Students apply prior knowledge to develop a multi-system product or solution for a complex problem. Students demonstrate project management skills by collaborating as part of a team, conducting research, and analyzing data that culminates in a comprehensive report and presentation. Technical drawings, models, and prototypes are created using the appropriate tools, materials, and techniques. Structured decision-making processes are used to select and justify a preferred, multi-system solution to an authentic problem. Students develop, implement, and document repeated trials of experiments and tests using scientific and engineering practices to determine whether a prototype meets design requirements.

(4) Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not currently scientifically testable.

(5) Scientific hypotheses and theories. Students are expected to know that:

(A) hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories; and

(B) scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are

well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.

(6) Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.

(A) Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.

(B) Engineering practices. Students should be able to identify problems and design solutions using appropriate tools and models.

(7) Scientific decision making is a way of answering questions about the natural world involving its own set of ethical standards about how the process of science should be carried out. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).

(8) Science consists of recurring themes and making connections between overarching concepts. Recurring themes include systems, models, and patterns. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested, while models allow for boundary specification and provide a tool for understanding the ideas presented. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.

(9) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(10) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;

(B) apply scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;

(C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;

(D) use appropriate tools such as dial caliper, micrometer, protractor, compass, scale rulers, multimeter, and circuit components;

(E) collect quantitative data using the International System of Units (SI) and United States customary units and qualitative data as evidence;

(F) organize quantitative and qualitative data using spreadsheets, engineering notebooks, graphs, and charts;

(G) develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and

(H) distinguish between scientific hypotheses, theories, and laws.

(3) The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:

(A) identify advantages and limitations of models such as their size, scale, properties, and materials;

(B) analyze data by identifying significant statistical features, patterns, sources of error, and limitations;

(C) use mathematical calculations to assess quantitative relationships in data; and

(D) evaluate experimental and engineering designs.

(4) The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(A) develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and

(C) engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.

(5) The student knows the contributions of scientists and engineers and recognizes the importance of scientific research and innovation on society. The student is expected to:

(A) analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing so as to encourage critical thinking by the student;

(B) relate the impact of past and current research on scientific thought and society, including research methodology, cost-benefit analysis, and contributions of various scientists and engineers as related to the content; and

(C) research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field.

(6) The student understands how to implement an engineering design process to develop a multi-system product or solution for a complex problem. The student is expected to:

(A) implement the stages of an engineering design process to construct a model of a multi-system product or solution;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, affect stages of the engineering design process;

(C) explain how interested parties affect an engineering design process; and

(D) discuss how lessons learned from failure is often an essential component of the engineering design process.

(7) The student explores and implements the methods and aspects of project management for complex, multi-phase, multi-system projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) create a resource-loaded project schedule for an engineering project;

(D) maintain a resource-loaded project schedule for the life of an engineering project;

(E) develop and implement a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(F) describe how project requirements, constraints, and deliverables affect the project schedule and influence and are influenced by an engineering design;

(G) create a budget that includes materials, equipment, and labor for an engineering project;

(H) describe the importance of management of change (MOC) and how MOC applies throughout the life of an engineering project;

(I) create and implement a project management plan for an engineering project; and

(J) describe how techniques such as Monte Carlo simulation, risk matrices, and tornado diagrams are used to evaluate risk.

(8) The student conducts research and analyzes data to create a problem statement in the engineering design process. The student is expected to:

(A) create an organized engineering notebook to record research and findings for an engineering project;

(B) select an open-ended real-world problem that can be solved using scientific and engineering practices and the engineering design process;

(C) collect, organize, analyze, and summarize scientific and technical articles, data, and information to support the development of a problem statement;

(D) define and use relevant scientific and engineering vocabulary as it relates to the problem statement;

(E) evaluate information from sources for quality, accuracy, completeness, and reliability and conduct additional research as appropriate in the context of an iterative design process; and

(F) create a problem statement that is concise, specific, and measurable.

(9) The student identifies potential solutions and uses structured techniques to select and justify a preferred solution using scientific and engineering practices and the engineering design process. The student is expected to:

(A) identify or create alternative solutions to a problem using a variety of techniques such as sketching, brainstorming, reverse engineering, and researching engineered and natural solutions;

(B) select a preferred solution to a problem by applying structured techniques such as a decision tree, design matrix, or cost-benefit analysis;

(C) evaluate whether the preferred solution meets the requirements of the problem statement in the context of an iterative design process;

(D) identify material properties that are important to the solution design such as physical, mechanical, chemical, electrical, and magnetic properties and explain how material properties affect material selection;

(E) explain how different engineering solutions can have significantly different effects on individuals, society, and the natural world; and

(F) document concepts, solutions, findings, and structured decision-making techniques in the engineering notebook.

(10) The student creates technical drawings, models, and prototypes using the appropriate tools, materials, and techniques. The student is expected to:

(A) determine and explain the type of technical drawing that best represents the solution;

(B) create a technical drawing(s) that includes dimensions, scale, views, annotations, tolerances, legends, symbols, and material specifications;

(C) create a mathematical or physical model(s) to make predictions, identify limitations, and optimize design criteria;

(D) create a prototype for testing;

(E) evaluate the successes and failures of the prototype(s) in the context of an iterative design process; and

(F) revise technical drawings, models, and prototype(s) as the solution evolves to better meet objectives.

(11) The student develops, implements, and documents repeated trials of experiments and tests using scientific and engineering practices to determine whether a prototype meets design requirements. The student is expected to:

(A) design and conduct experiments and tests to determine whether the prototype meets the requirements of the problem statement;

(B) document and evaluate quantitative and qualitative data obtained through experiments and tests of the prototype in the engineering notebook;

(C) create and analyze charts, data tables, or graphs to organize information collected during experiments on the prototype;

(D) determine acceptable limits of error in data from experiments and tests of the prototype;

(E) explain the purpose of regression analysis as a method to model and investigate relationships between independent and dependent variables from experiments and tests of the prototype;

(F) identify linear and nonlinear relationships in data and situations where regression is appropriate;

(G) identify sources of random error and systematic error and differentiate between both types of error from experiments and tests of the prototype; and

(H) evaluate and determine whether the prototype meets the requirements of the problem statement by analysis of data collected in the context of an iterative design process.

(12) The student develops and presents a comprehensive report that describes the problem, research and information collected and analyzed, concepts and solutions considered, prototypes developed and tested, and final results. The student is expected to:

(A) create and present the comprehensive report in a professional manner to an appropriate audience such as peers, educators, potential clients, potential employers, community members, or engineering professionals;

(B) solicit and evaluate feedback from the audience on the comprehensive report and presentation;

(C) present learning experiences such as essential skills gained, areas of personal growth, and challenges and solutions encountered throughout the design process; and

(D) predict the local and global impacts or risks of an engineering solution to segments of the society such as the economy or the environment.

§127.407. Environmental Engineering (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisites: At least one credit in a course from the Engineering or Energy Career Cluster. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) In Environmental Engineering, students research, develop, and design solutions related to water, land, and energy problems, with consideration to ethics and regulations. Using technology and the engineering design process, students devise innovative solutions to address current and future engineering challenges.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations, organizations that foster leadership and career development in the profession such as student chapters of related professional associations, and work-based experiences.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(1) [~~(2)~~] The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(2) [~~(3)~~] The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(3) [~~(4)~~] Engineering ethics. The student applies ethical consideration to analyze resilient engineered systems. The student is expected to:

(A) analyze [~~compare~~] the Texas Engineering Practices Act and [~~to the code of ethics of other engineering societies such as the American Society of Civil Engineers and the National Society of Professional Engineers to~~] explain how engineers demonstrate the responsibility they have to serve the public interest, their clients, and the profession with a high degree of honesty, integrity, and accountability;

(B) research the New London school explosion and explain how this event led to the development of the Texas Engineering Practice Act and other regulations such as odorization of natural gas;

(C) evaluate and explain an engineering ethical dilemma between environmental considerations and the needs and wants of society; and

(D) explain how engineering solutions can have significantly different impacts on an individual, society, and the natural world.

(4) [~~(5)~~] Models. The student builds a model using the appropriate tools, materials, and techniques. The student is expected to:

(A) identify and describe the steps needed to produce a model of a system such as hydrological, watershed management, or geospatial analysis models;

(B) identify advantages and limitations of models such as size, scale, properties, and materials;

(C) identify and use appropriate tools, equipment, and materials to produce a model;

(D) describe the use of a model to accurately represent the key aspects of a physical system, including the identification of constraints such as cost, time, or expertise, that may influence the selection of a model;

(E) develop a design proposal using a variety of media to produce a model; and

(F) evaluate the successes and failures of a model in the context of an iterative design process.

(5) [~~(6)~~] Critical and creative problem-solving. The student examines environmental challenges and gathers assumptions to synthesize a meaningful, well-defined problem and ideates multiple solutions. The student is expected to:

(A) collect, analyze, and interpret information relevant to an environmental engineering problem;

(B) document a design process according to best practices in an engineering notebook;

(C) identify and define visual, functional, and design requirements with realistic constraints against which solution alternatives can be evaluated;

(D) list potential appropriate criteria for a defined problem that may impact the success of a design solution such as economic, environmental, ethical, health and safety, technical feasibility, and design;

(E) represent concepts using a variety of visual tools such as sketches, graphs, and charts to communicate the details of an idea;

(F) develop, design, and test alternatives to generate valid quantitative data to inform decision making and demonstrate solutions; and

(G) explain why there are often multiple viable solutions.

(6) [~~(7)~~] Critical and creative problem-solving. The student selects the optimal design solution for real-world environmental problems based on engineering judgement. The student is expected to:

(A) evaluate competing solutions paths using a decision matrix to compare solutions based on design criteria;

(B) formulate a risk analysis matrix using a spreadsheet to evaluate threats and opportunities, including cost, time, and environmental impacts;

(C) identify data needed to address an environmental engineering research question and the appropriate tools necessary to collect, record, analyze, and evaluate the data; and

(D) evaluate evidence and arguments to identify deficiencies, limitations, and biases for appropriate next steps in the pursuit of a better solution.

(7) [~~(8)~~] Engineering tools and technology. The student uses a variety of techniques to measure and report quantities appropriate for an environmental analysis. The student is expected to:

(A) research and determine appropriate units of measure, including acres, miles, and hectares, for environmental analysis;

(B) measure and estimate a large-scale area such as a wetland, streamline, or floodplain using maps or digital resources;

(C) perform dimensional analysis and unit conversions to transform data to units appropriate for a particular purpose or model; and

(D) select and effectively use appropriate tools for accurately measuring specific volumes.

(8) [~~(9)~~] Water resources. The student analyzes environmental factors related to safe drinking water. The student is expected to:

(A) research and describe the Texas State Water Plan, including the sources of water, floodplain management, and recycling;

(B) analyze the relationship between population growth and water resources;

(C) describe how human health is affected by the quality of drinking water sources;

(D) describe and compare the most common sources of drinking water such as desalination, aquifers, surface water, and reclaimed water in developed and developing countries;

(E) explain the characteristics of potable water;

(F) describe common sources of drinking water contamination, including stormwater runoff;

(G) explain contaminant cycling through an ecosystem; and

(H) describe the infrastructure components of private wells and public drinking water systems.

(9) [~~(10)~~] Water quality. The student evaluates water quality and uses a variety of chemical and biological assays to describe water quality. The student is expected to:

(A) research and describe Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) surface water quality standards for rivers, lakes, and estuaries;

(B) research and describe annual water quality compliance reports and compare water quality between the different reports;

(C) explain how water quality is quantitatively measured using chemical and biologically based testing processes;

(D) perform and analyze a culture assay to detect coliform in water;

(E) collect a water sample and determine water turbidity and pH;

(F) outline the stages of treatment that a typical septic system and modern sewage treatment plant use to treat sewage water;

(G) explain the role of bacteria in wastewater treatment;

(H) research and describe emerging contaminants in water and demonstrate understanding of methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal of contaminants [~~such as microplastics and pharmaceuticals in water~~] ;

(I) describe the interacting roles of bacteria, protozoa, and rotifers in a wastewater treatment ecosystem;

(J) describe and provide examples of how physical, chemical, and biological processes work in the process of purifying contaminated water;

(K) explain how plants remove nitrates from contaminated water;

(L) use the engineering design process to design, build, and test a water filtration system;

(M) design and perform an experiment to use phytoremediation to remove contaminants from water; and

(N) design and conduct a scientific experiment to test a variable affecting the bacteria's ability to decompose oil.

(10) [~~(11)~~] Energy. The student demonstrates a working knowledge of various sources of energy and their environmental and economic impact. The student is expected to:

(A) explain the differences between and costs [~~cost~~] of renewable and non-renewable energy sources , providing [~~of energy and provide~~] examples of each;

(B) describe energy density, subsidies, raw materials, the impact of energy production on land and animal life, and the environmental and resource demands of mining in relation to renewable and non-renewable energy sources;

(C) [~~(B)~~]identify and measure the amount and types of energy that students use in their daily lives;

(D) [~~(C)~~] compare the fuel efficiency of various fuel sources;

(E) [~~(D)~~] analyze the results of software simulations and models that vary the amounts and types of energy used to predict future energy needs;

(F) define and identify types of intermittent and on-demand energy;

(G) [~~(E)~~] perform a full life cycle assessment (LCA) of material and energy sources; and

(H) [~~(F)~~] identify the variables and the methods for completing an LCA.

(11) [~~(12)~~] Engineering resilient systems. The student understands the environmental impacts to infrastructure systems and the need to support system performance with resilient solutions. The student is expected to:

(A) identify innovations and laws which have improved air quality in the United States, including bag houses, water suppression at mines, the catalytic converter, industrial scrubbers, and the Clean Air Act;

[~~(A) describe mitigation techniques and their associated costs for air pollutants and greenhouse gas emissions;~~]

(B) analyze the impact on human habitat and access to energy of climate and [~~humans of naturally occurring~~] extreme weather events such as flooding, freezing temperatures, hurricanes, tornadoes, and thunderstorms;

(C) research and explain how engineering design can be more resilient to environmental impacts to limit additional impacts to the natural environment; [~~and~~]

(D) research and explain elements of natural environmental resilience ; and [~~.~~]

(E) compare and analyze air quality data from different countries around the world, evaluating factors that influence air quality such as laws and use of different types of energy.

(12) [~~(13)~~] Land management. The student understands land management and land management practices. The student is expected to:

(A) explain the value of a healthy ecosystem and the impact of biodiversity on the environment;

(B) research and explain ecological value of the land such as direct products and provisioning, regulating, supporting, and cultural services;

(C) identify and evaluate land conservation , [~~and~~] preservation , and restorative measures using industry practice standards , including [~~such as~~] the United States Department of Agriculture (USDA) National Resources Conservation Services (NRCS) Conservation Practice Standards and the Texas Railroad Commission (TRC) environmental regulations [~~for a given land area~~] ;

(D) research changes in land use and land cover over time using geospatial tools;

(E) analyze and report positive and negative environmental impacts due to changes in land use , including [~~such as~~] urbanization over time , mining of rare earth minerals, and precision farming ; and

(F) explain the role of protected areas and lands to safeguard natural ecosystems.

(13) [~~(14)~~] Waste management. The student understands the role and importance of waste management. The student is expected to:

(A) analyze the impacts of reduction, reuse, and recycling in waste management;

(B) explain the impact of individual practices of waste reduction on resource management;

(C) explain how landfills manage waste decomposition, including the capture and potential use of gases, including methane;

[~~(C) explain the capture and use of methane gas from landfills;~~]

(D) analyze the waste breakdown cycle of various waste products that enter landfills; and

(E) research and describe hazardous waste products and impacts on the environment, including long-term storage needs and pollution.

(14) [~~(15)~~] Regulations. The student understands the role of national and local standards and regulations in environmental design. The student is expected to:

(A) research and describe the functions of the EPA and U.S. Fish and Wildlife Service;

(B) research and describe the functions of the TCEQ and the Texas Parks and Wildlife Department; [~~and~~]

(C) describe the relationship between the National Environmental Policy Act, the EPA, and TCEQ ; and [~~.~~]

(D) explain the role of the TRC in facilitating the restoration of mined land to its original condition.

(15) [~~(16)~~] Future challenges in environmental engineering. The student discusses and analyzes some of the persistent environmental engineering challenges to sustain growing populations and the natural environment and improve quality of life. The student is expected to:

(A) explain why some environmental engineering challenges are persistent such as providing access to clean water, energy, sanitation, and health to growing populations;

(B) create a solution to a current challenge to meet the needs of society without compromising the ability to meet the needs of the future;

(C) identify principles that guide the development of resilient solutions that enhance quality of life, support a high standard of living, and conserve resources;

[~~C) identify principles that help guide development of solutions with considerations for sustainable development to include people and the planet; and~~]

(D) describe the life cycle of a product or service and identify energy consumption, wastes, and emissions that are produced in the process.

§127.408. Fluid Mechanics (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: at least one credit in a course from the Engineering Career Cluster and physics or chemistry [~~Physics or Chemistry~~] . Recommended prerequisite or corequisite: Algebra II. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Fluid Mechanics investigate the behavior and properties of fluids, including liquids and gasses. Through hands-on experiments, simulations, and real-world examples, students learn about concepts such as viscosity, pressure, buoyancy, and flow dynamics. Students explore how fluids interact with solid objects, understanding phenomena like lift and drag, which are critical to the operation of ships, airplanes, and vehicles. Students engage in case studies and problem-solving activities to gain insights into how fluid mechanics shape our everyday lives, technological advancements, and industrial applications. This course prepares students to progress in careers in engineering and scientific disciplines such as aerospace, mechanical, civil, chemical, materials, and physics.

(4) Nature of science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.

(5) Scientific hypotheses and theories. Students are expected to know that:

(A) hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories; and

(B) scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.

(6) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.

(A) Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.

(B) Engineering practices. Students should be able to identify problems and design solutions using appropriate tools and models.

(7) Science and social ethics. Scientific decision making is a way of answering questions about the natural world involving its own set of ethical standards about how the process of science should be carried out. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).

(8) Science consists of recurring themes and making connections between overarching concepts. Recurring themes include systems, models, and patterns. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested, while models allow for boundary specification and provide tools for understanding the ideas presented. Students should analyze a system in terms of its

components and how these components relate to each other, to the whole, and to the external environment.

(9) [~~(4)~~] Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(10) [~~(5)~~] Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time-management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;

(B) apply scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;

(C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;

(D) use appropriate tools such as dial calipers, protractors, scale rulers, tape measures, load cells, micrometers, scales, tensiometer, multimeter, and thermometers;

(E) collect quantitative data using the System International (SI) and United States customary units and qualitative data as evidence;

(F) organize quantitative and qualitative data using spreadsheets, engineering notebooks, graphs, and charts;

(G) develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and

(H) distinguish between scientific hypotheses, theories, and laws.

(3) The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:

(A) identify advantages and limitations of models such as their size, scale, properties, and materials;

(B) analyze data by identifying significant statistical features, patterns, sources of error, and limitations;

(C) use mathematical calculations to assess quantitative relationships in data; and

(D) evaluate experimental and engineering designs.

(4) The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(A) develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and

(C) engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.

(5) The student knows the contributions of scientists and engineers and recognizes the importance of scientific research and innovation on society. The student is expected to:

(A) analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing so as to encourage critical thinking by the student;

(B) relate the impact of past and current research on scientific thought and society, including research methodology, cost-benefit analysis, and contributions of various scientists and engineers as related to the content; and

(C) research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field.

(6) The student explains the application of fluids in historical and modern applications. The student is expected to:

(A) describe the efficient storage and transportation of fluids, including gravity flow and natural phenomena such as aqueducts, water towers, winds, and currents;

(B) explain the use of fluids in power generation and power transmission such as hydraulics, pneumatics, pumps, compressors, and turbomachinery; and

(C) explain the impact of lift and drag on a moving object.

(7) The student describes basic concepts of fluid mechanics. The student is expected to:

(A) differentiate and compare the properties that distinguish a solid from a fluid;

(B) define the characteristics of a fluid and identify different types of fluids, including gasses, liquids, Newtonian, and non-Newtonian;

(C) define and list examples of compressible and incompressible fluids;

(D) explain the properties of fluids, including density, specific weight, specific gravity, viscosity, and compressibility;

(E) describe methods to measure and calculate the density, specific weight, specific gravity, viscosity, and compressibility of a Newtonian fluid;

(F) calculate density, specific weight, and specific gravity for a variety of fluids from measured data;

(G) explain the appropriate use of material reference frames and spatial reference frames, including boundary conditions, control surfaces, and control volumes;

(H) identify and explain the variables in the ideal gas law and apply the ideal gas law to constructed problems;

(I) explain the laws of conservation of energy and conservation of mass, including the algebraic version of Reynold's Transport theorem; and

(J) identify appropriate boundary conditions, including no-slip and ambient pressure boundary conditions in fluid flow.

(8) The student demonstrates an understanding of pressure and hydrostatics and calculates values in a variety of systems. The student is expected to:

(A) describe the relationship between force, area, and pressure;

(B) calculate force proportionalities in hydraulic and pneumatic cylinders using Pascal's law and explain the impact of the cylinders' diameter on the resultant force;

(C) differentiate between atmospheric pressure, gauge pressure, and absolute pressure;

(D) describe the working principles of a pressure gauge and measure fluid pressure using dial gauges and manometers;

(E) calculate the buoyant force of floating and submerged objects according to Archimedes' principle; and

(F) define and calculate hydrostatic pressure.

(9) The student demonstrates an understanding of fluid flows in steady-state pipes, channels, and free jets. The student is expected to:

(A) compare developing, fully developed, and steady-state Newtonian fluid flows in pipes and channels;

(B) compare fluid flow profiles, including uniform and parabolic;

(C) describe experimental measurements of fluid flow field lines, including stream, streak, and pathlines;

(D) calculate volumetric flow rate in a steady state system using the continuity equation and conservation of mass;

(E) explain how Bernoulli's equation relates to the total energy of a steady-state system;

(F) calculate unknown variables in varying conditions, including changes in height, velocity, and cross-sectional area of a steady state system using Bernoulli's equation and the conservation of energy;

(G) derive Torricelli's equation from Bernoulli's equation and calculate the exit velocity and mass flow rates of free jets;

(H) calculate fluid flows in pipes, channels, and free jets using the Reynolds Transport theorem and conservation of mass; and

(I) calculate the resultant force of a free jet at the outlet based on the density of the fluid, cross-sectional area, pressure, and velocity of the fluid.

(10) The student demonstrates an understanding of the effects of an object moving through a fluid. The student is expected to:

(A) differentiate turbulent and laminar flows;

(B) calculate the Reynolds number of given flows to determine if the flows are turbulent or laminar;

(C) define lift and drag as applied to fluid flows;

(D) explain the relationship between viscosity and shear force in a fluid flow;

(E) explain the variables of lift and drag formulas and how the variables relate to fluid flow; and

(F) design an experiment to measure the drag coefficient for a solid body in a fluid flow.

(11) The student understands compressible flow and the relationship between sound transmission through a fluid and fluid compression. The student is expected to:

(A) differentiate between compressible and incompressible fluids and explain the effect of compressibility on the speed of sound through a fluid;

(B) explain how density impacts the speed of sound through a fluid;

(C) calculate and use the Mach number to model a fluid as compressible or incompressible; and

(D) explain the effects on fluid, including shock waves, when the sound barrier is broken.

(12) The student designs and analyzes fluid systems. The student is expected to:

(A) explain the function of weirs in an open channel and describe an application of weirs such as flow control or flow measurement;

(B) calculate the fluid flow in open channels with different shapes, slopes, and weirs;

(C) design an application of hydrostatics using the principle of buoyancy such as a boat, submarine, floating dock, or hot air balloon;

(D) analyze and design a fluid device such as a clepsydra, water tower, pressure regulator, or nozzle using the principles of fluid dynamics;

(E) describe applications and processes of different types of pumps, including centrifugal pumps, peristaltic pumps, gear pumps, and positive displacement pumps;

(F) describe the operation of a centrifugal pump and explain the data presented in a pump curve, including head, flow rate, efficiency, and power;

(G) design a hydraulics system with components, including hydraulic fluid, pump, reservoir, motor, cylinders, valves, and flow controllers;

(H) identify and compare different types of turbomachines, including pumps and turbines;

(I) describe and differentiate the applications of turbomachines, including pumps and turbines; and

(J) explain the concept of tribology and identify the associated variables of tribology such as film thicknesses and pressures.

§127.409. Mechanics of Materials (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: at least one credit from the Engineering Career Cluster and physics [~~Physics~~] . Prerequisite or corequisite: Algebra II. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for the successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Mechanics of Materials describe the mechanical behavior of engineering materials, including metals, ceramics, polymers, composites, welds, and adhesives, and the applications of load, deformation, stress and strain relationships for deformable bodies, and mechanical elements relevant to engineers. The course includes axially loaded members, buckling of columns, torsional members, beams, and failure.

(4) Nature of science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.

(5) Scientific hypotheses and theories. Students are expected to know that:

(A) hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories; and

(B) scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.

(6) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making

comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.

(A) Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.

(B) Engineering practices. Students should be able to identify problems and design solutions using appropriate tools and models.

(7) Science and social ethics. Scientific decision making is a way of answering questions about the natural world involving its own set of ethical standards about how the process of science should be carried out. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).

(8) Science consists of recurring themes and making connections between overarching concepts. Recurring themes include systems, models, and patterns. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested, while models allow for boundary specification and provide tools for understanding the ideas presented. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.

(9) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(10) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time-management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;

(B) apply scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;

(C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;

(D) use appropriate tools such as dial calipers, protractors, scale rulers, tape measures, load cells, micrometers, scales, tensometers, multimeters, and thermometers;

(E) collect quantitative data using the System International (SI) and United States customary units and qualitative data as evidence;

(F) organize quantitative and qualitative data using spreadsheets, engineering notebooks, graphs, and charts;

(G) develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and

(H) distinguish between scientific hypotheses, theories, and laws.

(3) The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:

(A) identify advantages and limitations of models such as their size, scale, properties, and materials;

(B) analyze data by identifying significant statistical features, patterns, sources of error, and limitations;

(C) use mathematical calculations to assess quantitative relationships in data; and

(D) evaluate experimental and engineering designs.

(4) The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(A) develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and

(C) engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.

(5) The student knows the contributions of scientists and engineers and recognizes the importance of scientific research and innovation on society. The student is expected to:

(A) analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing to encourage critical thinking by the student;

(B) relate the impact of past and current research on scientific thought and society, including research methodology, cost-benefit analysis, and contributions of various scientists and engineers as related to the content; and

(C) research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field.

(6) The student examines the historical developments that led to the field of mechanics of materials and material science. The student is expected to:

(A) describe the contribution to the field of mechanics by historical scientists such as Pascal, Galileo, Euler, Navier, Lame, Poisson, Hooke, and Young;

(B) describe key historical advancements related to the development of different materials such as bronze, iron, steel, Damascus steel, and Roman concrete;

(C) explain how materials have influenced historical events and products such as the steel in the Titanic, the space race, and smartphones;

(D) evaluate and explain the impact of modern development of materials to manufacturing such as composites, nanotechnology, semi-conductors, and alloys and the effects of processes on materials such as subtractive manufacturing, additive manufacturing, and welding; and

(E) describe the development of shapes in architectural structures such as columns, arches, domes, keystones, and suspension bridges.

(7) The student identifies and measures different properties of an object. The student is expected to:

(A) classify properties of an object as geometric, structural, or material;

(B) identify and describe the application of tools, including rulers, calipers, micrometers, weighing scales, tensile testers (tensometers), and thermometers;

(C) measure common properties of materials, including length, width, height, and mass;

(D) measure and observe intrinsic properties of materials such as hardness, thermal conductivity, and impact resistance;

(E) calculate density, cross-sectional area, specific gravity, thermal expansion, modulus of elasticity, Poisson's ratio, bulk modulus, yield, and ultimate stress using data from a table or graph;

(F) differentiate material properties, including ductility, malleability, resilience, toughness, and reflectivity;

(G) classify material properties as geometric (extrinsic), material (intrinsic), or structural; and

(H) classify types of materials, including metals and alloys, polymers, ceramics, biomaterials, composites, and semiconductors.

(8) The student understands various manifestations of forces acting on solids. The student is expected to:

(A) illustrate forces, including axial, radial, normal, torsional, and shear and identify different units such as newtons, pounds, and kips used in force measurement;

(B) explain force intensity of distributed forces, including forces distributed over a line, area, and volume;

(C) calculate and simplify multiple loads to a single combined load;

(D) distinguish between normal forces and shear forces; and

(E) identify and calculate different types of stress, including axial stress, shear stress, and bending stress.

(9) The student evaluates the effect of temperature on the properties of a material. The student is expected to:

(A) describe engineering applications of thermo-mechanical properties such as thermometers, thermocouples, thermistors, thermostatic valves and controllers, and fuses;

(B) explain the atomic origin of thermal expansion resulting in measurable effects such as building height change and material distortion;

(C) describe potential failure modes due to thermal expansion for kinematically constrained structures;

(D) explain how to accommodate thermal expansion in construction such as buckling of railroad rails, U-runs in piping, and expansion joints; and

(E) explain the effect of temperature on the mechanical properties of materials, including modulus of elasticity, yield strength, ductility, and toughness.

(10) The student determines the material properties from different mechanical material tests and how they are graphically represented. The student is expected to:

(A) describe a tensile test, the various possible shapes of tensile testing specimens, and tensile test measurements, including force, elongation, and change in thickness;

(B) analyze data from a tensile test to calculate engineering stress and strain for various materials such as aluminum, brass, cast iron, steel, and nylon at significantly different temperatures;

(C) plot engineering stress and strain on a two-dimensional graph;

(D) identify regions of a stress-strain curve, including elastic deformation, plastic deformation, resilience, strain hardening, fracture, and tension toughness;

(E) estimate the values from a stress-strain curve, including 0.2% offset, modulus of elasticity, yield stress, ultimate stress, resilience, and tension toughness;

(F) compare and explain differences in testing plots based on differences in specimen geometry and material;

(G) compare different types of material testing, including compression tests, tensile tests, and three-point bending tests;

(H) analyze testing results from compression and three-point bending tests with different specimen geometries, including length, cross-sectional shape, and cross-sectional area; and

(I) describe modern mechanical testing such as digital image correlation, thermography, acoustic emission, and x-ray diffraction.

(11) The student analyzes the impact of the cross-sectional geometry on the second moment of area for beams and shafts. The student is expected to:

(A) calculate the area and the second moment of area for primitive shapes, including rectangles, triangles, circles, and semi-circles;

(B) explain the parallel-axis theorem and use the parallel axis theorem to calculate the second moment of area for complex shapes;

(C) calculate area, centroid, and second moment of area for complex shapes composed of primitive shapes such as an H-beam, square tubes, round tubes, and angle iron; and

(D) hypothesize the best cross-sectional shape for different types of loads such as tension, compression, torsion, bending, and combinations of these loads.

(12) The student represents point and distributed forces on a sketch and calculates the maximum deflection and factor of safety of bars, cables, columns, beams, and shafts using algebraic equations. The student is expected to:

(A) describe the consequences of stresses such as elastic deformation, plastic deformation, and fracture on solid objects with mass;

(B) calculate the maximum deflection of various homogenous prismatic beams, including simply supported, cantilever, and overhang beams, using algebraic formulas;

(C) calculate the factor of safety of various homogenous prismatic beams, including simply supported, cantilever, overhang beams, and columns, using algebraic formulas;

(D) analyze the impact of cross-sectional area and length on the potential for various homogenous prismatic columns to buckle under load;

(E) explain the impact of and the reason for using a tapered object in structural applications; and

(F) describe why pre-stress is used in applications such as shot-peening, tempered glass, wheel spokes, flatbed trailers, and bridges.

(13) Students demonstrate an understanding of stress, strain, and displacement fields throughout a structure, including bars and beams. The student is expected to:

(A) identify compression and tension regions in a bent beam;

(B) describe the kinematics of a bent member, including elongation due to tension, shortening due to compression, the neutral axis, and the linear displacement profile; and

(C) identify regions of compression and tension in digital image correlation data.

(14) The student understands that the mechanics of materials are required to analyze a multi-member structure for strength and stability in real-world applications. The student is expected to:

(A) compare permanent and non-permanent joints, including welding, brazing, soldering, adhesives, bolting, screwing, and riveting joints;

(B) analyze a bolted connection for pre-stress, load, factor of safety, grade, size, yield stress, and applied torque; and

(C) design a structure to support a specified load with materials of adequate properties, size, and geometry and with an appropriate factor of safety.

§127.410. Statics (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: at least one credit in a course from the Engineering Career Cluster and physics [~~Physics~~] . Prerequisite or corequisite: Algebra II.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Statics is a gateway course into most engineering majors such as aerospace, mechanical, civil, and biomedical engineering. Students learn the elements of statics that include the forces in structures that are in equilibrium and usually not moving. This includes forces calculated in two dimensions, free-body diagrams, distributed loads, centroids, and friction as applied to cables, trusses, beams, machines, gears, and mechanisms. Students explore scenarios where objects remain stationary, emphasizing the importance of balance and stability in engineering design. This course not only equips students with theoretical knowledge but also empowers them with practical skills that are indispensable in real-world engineering scenarios.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student describes milestones in structural design and construction throughout history. The student is expected to:

(A) research and evaluate the significance of pioneering structures such as the Eiffel Tower, pyramids, Roman aqueducts, ferris wheel, Sydney Opera House, and St. Louis Bridge to the field of structural design;

(B) analyze how locally available materials and technology have impacted the construction of structures through time;

(C) identify the contributions of structural design pioneers such as Archimedes, Leonardo DaVinci, Galileo, René Descartes, and Albert of Saxony; and

(D) identify careers that use the field of statics and predict the future application of statics.

(3) The student measures and converts units in the System International (SI) units and United States (US) customary systems of measurement. The student is expected to:

(A) measure objects using different units of measurement such as feet, inches, centimeters, meters, pounds force, Newtons, slugs, and kilograms in decimal and fractional measurements;

(B) apply prefixes to units of measure and convert between units in U.S. customary and SI systems such as kilograms and kips; and

(C) identify physical examples of different units of measurement, including one Newton, one pound, and one kip.

(4) The student develops an understanding of point and distributed forces and moments, including torque and couples and their respective units. The student is expected to:

(A) explain how Newton's third law of motion applies to static systems;

(B) explain the purpose and operation of mechanical components, including gears, sprockets, pulleys, and simple machines;

(C) explain how mechanical components, including gears, sprockets, pulley systems, and simple machines, are used in mechanisms;

(D) explain distributed loads and simplify distributed loads to point loads;

(E) compare a two-dimensional distributed load applied over a line to a distributed load applied over an area and a volume;

(F) calculate and use applicable units for forces, torque, distances, and mechanical advantages related to levers, gears, and pulleys;

(G) define and calculate the efficiency of mechanical systems; and

(H) identify and explain couples in a static system.

(5) The student applies vector algebra to calculate the equivalent force and moment vectors. The student is expected to:

(A) differentiate between scalar and vector quantities;

(B) identify properties of a vector, including magnitude and direction;

(C) convert forces represented graphically to vector notation;

(D) represent a force vector in its horizontal and vertical components;

(E) calculate resultant vectors from multiple vectors using a strategy, including vector addition and the parallelogram rule;

(F) simplify free-body diagrams by using strategies, including the principle of transmissibility, couples, and the summation of moments;

(G) calculate moments of a rigid body system using strategies, including multiplying force by the perpendicular distance to a specified axis and the right-hand rule;

(H) calculate moments from component forces using Varignon's principle; and

(I) apply equivalent transformation to simplify external loads in a structural system.

(6) The student locates and applies the geometric centroid and the center of mass of homogenous and heterogeneous objects. The student is expected to:

(A) explain the difference between geometric centroid and center of mass;

(B) locate the geometric centroid of simple and complex shapes using the composite parts method; and

(C) locate the center of mass for two-dimensional and three-dimensional homogeneous and heterogeneous objects.

(7) The student determines the stability of simple and complex objects with a variety of applied forces. The student is expected to:

(A) identify potential pivot points at which objects could potentially rotate leading to a tip-over;

(B) determine the stability of simple and complex objects with only frictional force using the relative location of the center of mass and the object pivot point;

(C) calculate the stability of simple and complex objects with external forces applied at different locations on the object and a reaction force caused by friction; and

(D) describe how the friction reaction forces when combined with applied forces at different locations affect the stability of an object and how to stabilize systems subject to tipping.

(8) The student differentiates supports, including fixed, pin, and roller supports, for structures. The student is expected to:

(A) define and compare the applications of different structural supports, including fixed, pin, and roller supports, and describe which support is utilized in a cantilevered beam;

(B) explain the degrees of freedom for fixed, pin, and roller supports;

(C) describe how fixed, pin, and roller supports affect a structural system; and

(D) describe and sketch the different reaction forces and moments for structural supports, including fixed, pin, and roller supports.

(9) The student constructs free-body diagrams of particles and rigid bodies around various supports and determines the reaction forces of the static body. The student is expected to:

(A) sketch a complete free-body diagram that includes applied and reaction forces for a structure;

(B) define static equilibrium;

(C) formulate translational and rotational static equilibrium equations into a system of algebraic equations; and

(D) solve for unknown forces in a structure using equations of equilibrium.

(10) The student analyzes statically determinant plane trusses. The student is expected to:

(A) test if a plane truss is statically determinant;

(B) apply the method of sections and method of joints to calculate the internal forces of a statically determinant plane truss;

(C) explain the difference between tension and compression forces;

(D) describe capabilities of members, including beams, cables, ropes, bars, and columns, to bear tension, compression, or both tension and compression;

(E) identify internal members as being in tension or compression, the members bearing the maximum loads, and the member most likely to fail; and

(F) design structures such as bridges, tensegrity structures, or trusses to support external loads.

(11) The student recognizes the limitations of a two-dimensional model. The student is expected to:

(A) identify the differences between a two-dimensional and three-dimensional system;

(B) explain the implications of adding a third dimension to a structure and how a two-dimensional analysis is insufficient to model a three-dimensional structure; and

(C) describe how a third dimension can cause instability in a structure.

§127.411. Mechanical Design I (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: Algebra I [~~and at least one credit in a course from the Engineering Career Cluster~~] . Recommended corequisite: Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Mechanical Design I demonstrate knowledge and skills associated with design and manufacture of mechanical systems. Fundamental mechanisms are introduced such as gears, belts, threaded elements, and four-bar mechanisms. Basic manufacturing processes such as stamping, injection molding, casting, machining, and assembly are explored through reverse engineering. The mechanisms encountered through reverse engineering enable the exploration of product functionality. Students compare engineering choices made for components, materials, and manufacturing processes. Emphasis is placed on team collaboration and professional documentation.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student discusses ethics pertaining to engineering. The student is expected to identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying.

(2) The student understands that there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define ideation and conceptualization and discuss the role these processes play in innovation and problem solving;

(D) explain the processes of selecting an idea or concept for detailed prototype design, development, and testing;

(E) describe the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the process of relevant experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) describe the purpose of effective communication of the engineering solution as obtained through the engineering design process to various audiences.

(3) The student explores and develops skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

[~~(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:~~]

[~~(A) describe and implement the stages of an engineering design process to construct a model;~~]

[~~(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;~~]

[~~(C) explain how stakeholders impact an engineering design process; and~~]

[~~(D) analyze how failure is often an essential component of the engineering design process.~~]

[~~(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:~~]

[~~(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;~~]

[~~(B) explain the roles and responsibilities of team members, including project managers and leads;~~]

[~~(C) research and evaluate methods and tools available for managing a project;~~]

[~~(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;~~]

[~~(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;~~]

[~~(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and~~]

[~~(G) describe the importance of management of change (MOC) and how MOC applies to project planning.~~]

(4) Collaboration. The student develops teamwork skills. The student is expected to:

(A) discuss principles of critique such as describing, analyzing, interpreting, and evaluating;

(B) identify and demonstrate teamwork skills such as sensemaking where a team member recognizes another team member who requires additional clarity and then addresses the team member by providing clarity;

(C) identify methods for structuring projects such as Gantt charts, work breakdown structure, Agile, and critical path method; and

(D) discuss the importance of contributing to positive and productive group dynamics to enhance teamwork.

(5) Documentation. The student documents information gathered and interpretation developed throughout engineering processes. The student is expected to:

(A) create documents such as executive summaries, reverse engineering forms, test reports, failure documents, system black box models, engineering notebooks, and drawing packages aligned with professional industry standards;

(B) select the document format to communicate essential information to identified stakeholders; and

(C) explain and justify the structure and sequence of how information is presented in engineering documents.

(6) Applications for mechanical design. The student examines domestic, commercial, and industrial applications of mechanical design. The student is expected to:

(A) explain applications of mechanical design in various industries, including medical, aeronautical, automotive, naval, and robotics industries;

(B) research and identify commercial applications for mechanical design such as heating and cooling systems and robotics; and

(C) identify and discuss household items that are impacted by mechanical design such as environmental controls, refrigerators, washing machines, and clothes dryers.

(7) Mechanisms. The student investigates and understands mechanisms that convert motion such as gears, belts, threaded elements, linkages, or linear actuators. The student is expected to:

(A) create virtual models of physical mechanisms using appropriate tools;

(B) predict how different inputs affect the motion of a mechanism such as gears and linkages and compare the predictions with physical models;

(C) classify mechanisms into different types such as gears, belts, threaded elements, linkages, or linear actuators; and

(D) explain how changes in the dimensions of a mechanism influence the relationship between input and output.

(8) Reverse engineering. The student systematically disassembles and analyzes a system to identify the concepts involved in function and manufacture. The student is expected to:

(A) use appropriate simple tools and methods to disassemble consumer products such as can openers, mixers, or drills;

(B) document the reverse engineering process using appropriate documentation tools and methods;

(C) identify mechanisms of a product such as drive systems and gears and how their function contributes to the overall function of the product;

(D) identify elements of a product such as housings, covers, and controls and how their attributes contribute to the product;

(E) use appropriate measurement tools and methods to capture and document information about the sub-assemblies and components in a product;

(F) identify and evaluate the choice of particular materials in the elements of a product;

(G) identify and evaluate the choice of the process used to manufacture the element of a product; and

(H) identify and evaluate the choice of the process to assemble a product.

(9) Manufacturing. The student identifies different manufacturing processes such as stamping, injection molding, casting, sintering, and machining and assembly. The student is expected to:

(A) explain and compare common manufacturing processes such as stamping, casting, injection molding, and machining;

(B) identify and describe stamping manufacturing process elements such as press, tool, and blank and process steps such as shearing, bending, and perforating;

(C) identify and describe injection molding elements such as hopper, heater, platen, and mold and process steps such as heating and injecting;

(D) identify and describe casting elements such as mold, furnace, parting plane, sprue, and gate and process steps such as heating, pouring, cooling, and removal;

(E) identify and describe sintering elements such as mold, furnace, binder, and powder and process steps such as heating, pressing, cooling, and post-processing;

(F) identify and describe material removal elements such as workpiece, tool, jigs, and fixtures; the machine used such as mill, lathe, or drill; and process steps such as holding, locating, and cutting;

(G) identify and describe assembly process elements such as jigs and fixtures, tolerances, fasteners, and tools and related process steps such as locating, holding, joining, and automating; and

(H) identify and explain which material types are appropriate for manufacturing processes such as stamping, injection molding, casting, sintering, material removal, and assembly.

(10) Assembly. The student explores the assembly process. The student is expected to:

(A) explain the purposes of joining methods such as welding, adhesive bonding, fastening, riveting, and snap fitting;

(B) evaluate the choice of joining methods found in a consumer product and generate requirements based on the evaluation; and

(C) compare different assembly strategies such as assembly line, automation versus manual, or batch versus pull.

(11) Design. The student applies appropriate professional design tools. The student is expected to:

(A) define industry relevant terminology, including Failure Modes Effects Analysis (FMEA), Design for Manufacturing (DFM), Design for Assembly (DFA), Lean Manufacturing, Design of Experiments (DOE), benchmarking, reverse engineering, and Life Cycle Analysis (LCA);

(B) use design tools such as FMEA, Quality Functional Deployment (QFD), root cause analysis, five whys, or decision matrices to extract information about a reverse engineered product;

(C) develop an engineering requirements list to justify the selection of materials, processes, parts, and features from a reverse engineered product;

(D) identify opportunities for manufacturing and assembly improvement from a reverse engineered consumer product; and

(E) design and conduct tests to collect information needed to understand the engineers' design decisions, including material, manufacturing process, and mechanism choices, during a reverse engineering project.

(12) Key concepts. The student understands key concepts of mechanical engineering. The student is expected to:

(A) define heat transfer concepts such as conduction, convection, or radiation;

(B) define thermodynamic concepts such as systems boundary, conservation, or entropy;

(C) define mechanics of materials concepts such as strain, stress, elasticity, brittleness, or fatigue;

(D) define dynamics concepts such as vibrations, dampening, or spring coefficients;

(E) define material concepts such as strength, hardness, metallics, polymers, or ceramics;

(F) define fluids concepts such as mass flow rate, viscosity, compressibility, turbulence, or boundary layer;

(G) define statics concepts such as free body diagrams, force, torque, moment, or equilibrium;

(H) define controls concepts such as open loop, closed loop, or systems modeling; and

(I) identify and explain the use of engineering computational tools such as computer-aided design (CAD), finite element analysis (FEA), or computational fluid dynamics (CFD).

§127.412. Mechanical Design II (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: Mechanical Design I. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Mechanical Design II demonstrate knowledge and skills associated with the design development and validation of a prototype solution to meet a given set of requirements.

Students identify project stakeholders; manage projects; evolve requirements; model system solutions; develop, test, and refine prototypes; and validate project solutions. Emphasis is placed on budget management, professional documentation, conducting project status updates, critiquing design reviews, and team collaboration.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(4) Collaboration. The student develops teamwork skills. The student is expected to:

(A) explain and apply sensemaking skills such as recognizing team members who require additional clarity and addressing team members to provide clarity;

(B) apply methods such as Gantt charts, work breakdown structure, Agile, and critical path method to structure a project;

(C) apply principles of critique within the team such as describing, analyzing, interpreting, and evaluating;

(D) develop and present action plans to positively support the team's work relationships;

(E) explain and model how to provide an effective critique of team members on topics such as team performance, test performance, project development, or presentation;

(F) explain and model how to provide an effective critique of other teams on topics such as presentation, problem definition, schedule, and solution justification;

(G) analyze and evaluate critique received from team members and other teams; and

(H) develop a design review presentation to provide status and solicit feedback on the design problem and solution.

(5) Documentation. The student documents information gathered and interpretations developed throughout the applied engineering process. The student is expected to:

(A) generate documents such as executive summaries, reverse engineering forms, test reports, failure documents, system black box models, engineering notebooks, and drawing packages by applying professional standards and templates;

(B) select the appropriate document format for the information being communicated based on the audience;

(C) explain and justify the structure and sequence of how the information is presented in the engineering documents;

(D) create assembly and user manuals for peer review; and

(E) generate a final design report that focuses on the project scope and solution with appendices to capture all relevant design information such as the design process used, requirements compliance matrix, concept reports, and test reports.

(6) Project management. The student reviews and applies basic project management strategies following a proposal-justification-approval process for each significant model considered. The student is expected to:

(A) generate a project management plan that includes time and deliverable estimates;

(B) review and update periodically the project management plan based on appropriate industry standard practices such as stage-gate and Agile Project Management; team structure and formation; and project modeling such as flow charts, Gantt charts, Program Evaluation Review Technique (PERT), critical path method, and work breakdown structures;

(C) create model or test proposals for review; and

(D) compare project management approaches such as stage-gate and Agile.

(7) Stakeholder. The student understands how to engage stakeholders, including end user, consumer, fabricator, maintenance, the design team, and other engineers. The student is expected to:

(A) describe how an engineer's professional responsibility applies to stakeholders;

(B) develop a journey map or equivalent tool to model how the stakeholder interacts with the product; and

(C) explain the importance of maintaining engagement with the stakeholder throughout the project.

(8) Design requirements. The student understands the importance of the role of requirements in the mechanical engineering design process. The student is expected to:

(A) identify and solicit stakeholder requirements;

(B) generate, refine, and document product and project requirements throughout the project;

(C) document requirements in correct format with appropriate standards such as National Aeronautics and Space Administration (NASA), military, and International Council on Systems Engineering (INCOSE);

(D) verify that each requirement can be associated to at least one stakeholder;

(E) verify that each stakeholder can be associated to at least one requirement;

(F) discuss the importance of the relation between requirements and respective stakeholders;

(G) analyze how key mechanical design concepts such as heat transfer, mechanics of materials, statics, or fluids impact the design process, design requirements, and design decisions; and

(H) explain how requirements drive the project.

(9) System modeling. The student generates multiple abstract models of mechanical systems using representations such as schematic diagramming and function structure modeling. The student is expected to:

(A) create models of various mechanical system concepts;

(B) compare different models against the appropriate requirements;

(C) extract new system requirements from the models;

(D) create models to communicate engineering design solutions to stakeholders for a project;

(E) discuss conservation principles of energy, matter, and motion; and

(F) apply conservation principles throughout the system model.

(10) Design space modeling. The student models conceptual design spaces using morphological matrices. The student is expected to:

(A) select the key requirements for the problem;

(B) generate multiple means to address each key requirement to populate a morphological matrix;

(C) generate multiple integrated solutions by selecting means from each requirement for further modeling and refinement; and

(D) calculate the total number of possible solutions captured in the generated morphological matrix.

(11) Concept generation. The student generates multiple systematic concepts using appropriate ideation tools. The student is expected to:

(A) explain the rules of ideation tools such as brainstorming, 6-3-5, Gallery Method, C-Sketch, and concept mapping;

(B) apply ideation tools to generate multiple concepts for a problem; and

(C) compare the ideation tools based on the rules, number of people, representation, and purpose.

(12) Concept pruning. The student prunes sets of concepts using design tools such as decision matrices, pair-wise comparison, and pro-con lists. The student is expected to:

(A) use and explain absolute or relative decision matrices to prune a set of concepts;

(B) use and explain pair-wise comparisons to prune a set of concepts;

(C) use and explain pro-con lists to prune a set of concepts;

(D) explain why it is important to use multiple pruning tools in design; and

(E) explain why the pruning tools are not for selecting concepts.

(13) Prototyping and testing. The student fabricates multiple physical prototypes ranging from parts to subsystems to final integrated prototypes to gather information needed to support mechanical engineering design decision making. The student is expected to:

(A) develop prototyping proposals that include cost, time, and effort estimates; desired information; and testing plans;

(B) use appropriate tools and materials to fabricate prototypes;

(C) evaluate and execute testing plans for each prototype to gather information or check requirement satisfaction;

(D) extract and document new requirements from prototyping and testing; and

(E) justify the purpose for each physical or virtual model constructed against the cost of making the model.

(14) Embodiment and refinement. The student refines design solutions by selecting and sizing components appropriately. Students justify material choices based on the requirements defined. The student is expected to:

(A) construct geometric models and drawings to represent designed system;

(B) justify and use appropriate analytical and simulation tools to correlate the changes in parameters of the models with changes in the performance of the modeled system;

(C) justify design decisions using requirements such as functionality, cost, performance, or time;

(D) use appropriate tools and materials to fabricate a final prototype;

(E) develop final product documents such as bill of materials, assembly models, user manual, and assembly instructions; and

(F) explain the evolution of requirements between earlier and final prototypes.

(15) Solution validation. The student tests and verifies requirements throughout the project. The student understands the importance of discovering new requirements through testing and simulation. The student is expected to:

(A) analyze information gained from testing and simulation to document new or refined requirements;

(B) document simulations or tests using an appropriate report template;

(C) design and execute simulations or tests to validate functional requirements are met;

(D) explain why engineering design processes are iterative; and

(E) discuss how continuous improvement and design iteration are related.

(16) Budget. The student plans, monitors, and updates project budgets throughout the design project. The student is expected to:

(A) create budgets for initial project costs such as raw materials, purchased parts, salvaged parts, hardware, taxes, shipping, and handling categories;

(B) create a Bill of Materials cost report for the final build;

(C) compare and explain any differences between the final product build cost and the project budget;

(D) monitor and update the project budget throughout the duration of the project;

(E) prepare budget status reports that include explanations of spenddown rates and changes to the budget; and

(F) explain the importance of budget tracking in design projects.

§127.413. Aerospace Design I (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: Algebra I [~~and at least one credit in a course from the Engineering Career Cluster~~] . Recommended corequisite: Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Aerospace Design I demonstrate knowledge and skills associated with the design evolution and emerging trends of aircraft and aerospace systems. Fundamental concepts such as forces of flight, structures, aerodynamics, propulsion, stability and control, and orbital mechanics are introduced as related to design decisions for atmospheric and space flight. These concepts are related to mission requirements and solution approaches.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student discusses ethics pertaining to engineering. The student is expected to identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying.

(2) The student understands that there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define ideation and conceptualization and discuss the role these processes play in innovation and problem solving;

(D) explain the processes of selecting an idea or concept for detailed prototype design, development, and testing;

(E) describe the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the process of relevant experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) describe the purpose of effective communication of the engineering solution as obtained through the engineering design process to various audiences.

(3) The student explores and develops skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

[~~(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:~~]

[~~(A) describe and implement the stages of an engineering design process to construct a model;~~]

[~~(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;~~]

[~~(C) explain how stakeholders impact an engineering design process; and~~]

[~~(D) analyze how failure is often an essential component of the engineering design process.~~]

[~~(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:~~]

[~~(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;~~]

[~~(B) explain the roles and responsibilities of team members, including project managers and leads;~~]

[~~(C) research and evaluate methods and tools available for managing a project;~~]

[~~(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;~~]

[~~(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;~~]

[~~(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and~~]

[~~(G) describe the importance of management of change (MOC) and how MOC applies to project planning~~.]

(4) Collaboration. The student engages in multiple team projects and activities. The student is expected to:

(A) discuss principles of critique such as describing, analyzing, interpreting, and evaluating;

(B) identify and demonstrate teamwork skills such as sensemaking where a team member recognizes another team member who requires additional clarity and then addresses the team member by providing clarity;

(C) identify methods for structuring projects such as Gantt charts, work breakdown structure, Agile, and critical path method; and

(D) discuss the importance of contributing to positive and productive group dynamics to enhance teamwork.

(5) Documentation. The student documents information and interpretation developed throughout engineering processes. The student is expected to:

(A) use professional standards and templates to generate documents such as executive summaries, test reports, failure documents, system black box models, engineering notebooks, and drawing packages;

(B) select the document format to communicate essential information for identified stakeholders; and

(C) explain and justify the structure and sequence of how the information is presented in the engineering documents.

(6) History of flight. The student understands the history and evolution of human flight, including flight within and outside the Earth's atmosphere. The student is expected to:

(A) identify and discuss successes and failures in human efforts to fly prior to powered flight;

(B) research and discuss innovations in aircraft prior to the jet age and explain how world events impacted these innovations;

(C) research and discuss innovations in aircraft after the beginning of the jet age and explain how world events impacted these innovations;

(D) research and discuss innovations in rockets prior to human spaceflight and explain how world events impacted these innovations;

(E) research and discuss innovations in rockets after the first human spaceflight and explain how world events impacted these innovations; and

(F) discuss the history of regulation of aircraft and the role of the Federal Aviation Administration (FAA).

(7) Introduction to aircraft. The student explains the FAA categories for aircraft and categorizes the different types of aircraft such as airplanes, rotorcraft, lighter-than-air or aerostats, glider, powered-lift, powered parachutes, weight-shift aircraft, ground-effect vehicles (GEV), air-cushion vehicles (ACV), and rockets. The student is expected to:

(A) identify and describe classes of aircraft such as single-engine land (SEL), gyroplane, powered-lift, and glider using the FAA categories;

(B) categorize aircraft by attributes such as piston engine, turboprop, powered or unpowered, and drones or piloted;

(C) compare aircraft categories and use cases for each category; and

(D) research and discuss emerging trends in aircraft such as airships, rotary powered aircraft, and alternative energy powered aircraft.

(8) Atmospheric flight. The student identifies and relates the three axes of an aircraft, the four forces of flight, and the components used for stability and control of the aircraft. The student is expected to:

(A) explain the relationships between atmospheric temperature, pressure, density, and altitude;

(B) identify and describe the motion about the three axes of an aircraft, including yaw, pitch, and roll;

(C) identify and describe ways to control motion about the three axes;

(D) identify and explain the four forces acting on aerospace vehicles in flight, including lift, drag, thrust, and weight;

(E) explain the relationship between weight, mass, gravity, and acceleration and identify their corresponding units such as pounds-force, pound-mass, kilogram, and Newton;

(F) discuss the difference between g-force and weight;

(G) draw the forces of flight for a straight and level flight and a level banked turn;

(H) identify different ways to control the forces that change the pitch, roll, and yaw of an aircraft;

(I) identify and explain the major fixed and movable components of various aircraft to enable stability and control within the atmosphere; and

(J) define and discuss aerodynamics as a subset of aerospace.

(9) Lift and drag. The student explains how lift and drag are generated by an aircraft and how they change during flight. The student is expected to:

(A) explain how an airfoil generates lift;

(B) explain how the angle of attack (AoA) influences lift;

(C) explain how to interpret a "Lift Coefficient (CL) versus AoA" chart;

(D) define and discuss stall for an airfoil;

(E) explain the types of drag, including profile/form, skin friction, interference, trim, and induced;

(F) explain how the AoA influences drag;

(G) explain how to interpret a "Drag Coefficient (CD) versus AoA" chart;

(H) explain how changes in drag during flight impact performance such as range, altitude, and power requirements;

(I) define and discuss Lift-to-Drag (L/D) ratio;

(J) explain how to interpret an L/D chart;

(K) identify the maximum L/D ratio from a chart to determine the optimal glide speed for maximum range;

(L) research and discuss other systems that use airfoils such as windmills, fans, and propelling aircraft; and

(M) explain how a plane can fly without engine power and in some cases can gain altitude to stay aloft for extended time and distance.

(10) Weight and balance. The student recognizes that components have mass, weight, and location resulting in moments that are balanced by control surfaces. The student is expected to:

(A) identify and calculate moments created by the forces of flight;

(B) define and discuss center of gravity (CG);

(C) define and discuss center of pressure (CP);

(D) explain how the locations of the CP and CG influence the stability of an aircraft; and

(E) create a model of an aircraft with variable configurations for CG and CP to determine stability of an aircraft.

(11) Computerized design tools. The student understands that computerized technology is available for design and analysis. The student is expected to:

(A) identify engineering computational tools such as computer-aided design (CAD), finite element analysis (FEA), or computational fluid dynamics (CFD); and

(B) explain the applications of engineering computational tools used in aerospace [~~mechanical~~] design.

(12) Mission requirements. The student understands how mission requirements influence the type and form of aircraft. The student is expected to:

(A) analyze a mission to generate a list of atmospheric mission requirements such as payload, range, cruise, take-off length, landing length, climb gradient, altitude, and land or sea;

(B) analyze a mission to generate a list of space mission requirements such as payload, altitude, vibration sensitivity, launch conditions, environmental conditions, and recovery;

(C) explain how the mission requirements are interrelated;

(D) discuss how the mission requirements relate to the aircraft and spacecraft categories;

(E) discuss how mission requirements relate to the overall aircraft design; and

(F) interpret a mission profile and explain how it impacts mission requirements.

(13) Propulsion. The student explains and evaluates different types of propulsion systems such as piston engine, turboprop, jet, and rocket. The student is expected to:

(A) identify and explain how a piston powered aircraft delivers thrust with respect to altitude limits and speed limitations;

(B) identify and explain how a turboprop powered aircraft delivers thrust with respect to design requirements such as cost, operation cost, reliability, power, altitude limits, and speed limitations;

(C) identify and explain how a jet powered aircraft delivers thrust with respect to design requirements such as cost, operation cost, reliability, power, altitude limits, and speed limitations;

(D) explore and explain how a rocket engine is different from a jet engine;

(E) research and discuss the applications for solid-fuel rockets; and

(F) research and discuss the applications for liquid-fuel rockets.

(14) Material selection. The student explains why a particular material is used in an aircraft application, taking into account cost, density, strength, and mission requirements. The student is expected to:

(A) research and discuss material classes used in aerospace design such as woods, composites, metals, and plastics;

(B) explain why specific materials might have been chosen for components on different aircraft;

(C) discuss methods for manufacturing aircraft components such as landing gears, wings, fuselage, or canopies;

(D) explain the impact of material and manufacturing costs on design decisions; and

(E) explain how material requirements relate to mission requirements.

(15) Aerospace structures. The student explains and compares and contrasts types of structures such as truss, semi-monocoque, monocoque. The student is expected to:

(A) identify and discuss truss, semi-monocoque, and monocoque structures;

(B) explain why different structure types are used in various aircraft categories;

(C) discuss how mission requirements impact the selection of the structural types for an aircraft;

(D) identify structural components in the fuselage such as stringers, bulkheads, and skin;

(E) identify structural components in the wings and empennage such as ribs, spars, stringers, and skin; and

(F) compare structures used in atmospheric flight and space flight.

(16) Space flight and orbital mechanics. The student knows properties of orbital mechanics as they relate to space flight and the impact of the space environment on design. The student is expected to:

(A) identify and describe orbits based on the six Keplerian Elements;

(B) explain how changes in Keplerian Elements change the orbit;

(C) explain how mission requirements determine specific orbit types;

(D) describe the unique environmental conditions of operating in space for human or autonomous missions;

(E) research and discuss methods to reach and recover a spacecraft from space; and

(F) research and discuss emerging trends in space flight.

(17) Alternate applications for aerospace design. The student examines alternate applications for aerospace design in various industries, including the automotive, naval, and other commercial industries. The student is expected to:

(A) research and discuss how aerospace engineers contribute to automotive and naval applications to improve performance;

(B) research and identify commercial applications for aerospace design such as heating and cooling systems, building design, and wind turbines; and

(C) identify and discuss items at home that are impacted by aerodynamics such as fans, convection ovens, and heating and cooling systems.

(18) Aircraft systems. The student explores and discusses other aircraft systems such as navigation, communication, entertainment, flight control, actuation, energy storage and management, and propulsion. The student is expected to:

(A) explain basic functionality for aircraft systems such as navigation, communication, entertainment, flight control, and propulsion; and

(B) research and discuss different implementations for aircraft systems such as navigation, communication, entertainment, flight control, and propulsion.

§127.414. Aerospace Design II (Two Credits) [~~Credit~~] , Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: Geometry and Aerospace Design I. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Aerospace Design II demonstrate knowledge and skills associated with the design and prototyping of aerospace systems. Through aerospace projects, students apply fundamental concepts such as managing an engineering project to meet mission requirements, prototyping, testing, and validating requirements. Students explore choices made for propulsion, material, and structural design as well as various ways aircraft can navigate. Emphasis is placed on team collaboration and professional documentation.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(4) Collaboration. The student engages in multiple team projects and activities. The student is expected to:

(A) explain and apply sensemaking skills such as recognizing team members who require additional clarity and addressing team members to provide clarity;

(B) apply methods such as Gantt charts, work breakdown structure, Agile, and critical path method to structure a project;

(C) apply principles of critique within the team such as describing, analyzing, interpreting, and evaluating;

(D) develop and present action plans to positively support the team's work relationships;

(E) explain and model how to provide an effective critique of team members on topics such as team performance, test performance, project development, or presentation;

(F) explain and model how to provide an effective critique of other teams on topics such as presentation, problem definition, schedule, and solution justification;

(G) analyze and evaluate critique received from team members and other teams; and

(H) develop a design review presentation to provide status and solicit feedback on the design problem and solution.

(5) Documentation. The student documents information and interpretation developed throughout engineering processes. The student is expected to:

(A) generate documents such as executive summaries, reverse engineering forms, test reports, failure documents, system black box models, engineering notebooks, and drawing packages by applying professional standards and templates;

(B) select the appropriate document format for the information being communicated based on the audience;

(C) explain and justify the structure and sequence of how the information is presented in the engineering documents;

(D) create assembly and user manuals for peer review; and

(E) generate a final design report that focuses on the project scope and solution with appendices to capture all relevant design information such as the design process used, requirements compliance matrix, concept reports, and test reports.

(6) Designing to mission requirements. The student generates conceptual aircraft solutions to meet a set of given requirements. The student is expected to:

(A) analyze given mission requirements such as altitude, speed, and payload to derive sub-requirements;

(B) generate and document additional sub-requirements for the mission considering various factors such as maintainability, producibility, operational cost, and safety;

(C) generate and document conceptual aircraft solutions to address mission and sub-requirements;

(D) classify the generated conceptual aircraft solutions into appropriate categories such as single-engine land (SEL), gyroplane, powered-lift, and glider using the Federal Aviation Agency (FAA) classification system;

(E) select, justify, and document a conceptual solution that addresses the mission and sub-requirements; and

(F) create a model such as a graph or matrix that displays the relationships between the documented requirements.

(7) Managing aerospace engineering projects. The student applies project management techniques to aerospace projects. The student is expected to:

(A) generate a project plan that includes time, deliverable, and cost estimates;

(B) review and update periodically a project plan according to a stage gate process;

(C) document and execute test plans to evaluate prototypes against requirements;

(D) justify and present design choices through periodic design reviews; and

(E) generate a final design report with an executive summary, a body with problem and solution descriptions, and appendices with additional relevant information such as the design process used, requirements compliance matrix, concept reports, and test reports.

(8) Prototyping aerospace vehicles. The student creates a prototype to address a set of mission requirements. The student is expected to:

(A) generate a list of design parameters based on the mission and sub-requirements;

(B) generate and document design concepts to address design parameters;

(C) use appropriate tools such as decision matrices, pro-con lists, and pair-wise comparison to evaluate, downselect, and justify design concepts to prototype;

(D) create and document prototypes to test, validate, and modify design concepts;

(E) use appropriate tools such as decision matrices, pro-con lists, and pair-wise comparison to evaluate, downselect, and justify a prototype to develop as the solution;

(F) evaluate a prototype to identify areas of improvement for iteration;

(G) test, evaluate, and document performance of the revised prototype in meeting project requirements; and

(H) compose and present a project debrief, including lessons learned.

(9) Atmospheric flight. The student relates the three axes of an aircraft, the four forces of flight, and the components used for stability and control. The student is expected to:

(A) research and discuss ways to control motion about the three axes;

(B) calculate and explain changes in motion due to the four forces acting on aircraft during flight;

(C) explain why loads acting on aircraft change during different flight scenarios;

(D) draw and calculate the forces of flight for a straight and level flight and a level banked turn; and

(E) describe which aircraft components control and provide stability with respect to the six degrees of freedom.

(10) Lift and drag. The student explains how lift and drag are generated by an aircraft and how they change during flight. The student is expected to:

(A) explain the lift equation and illustrate the relationships between its variables;

(B) explain the drag equation and illustrate the relationships between its variables;

(C) calculate the changes to lift and drag based on changes to atmospheric conditions such as temperature, density, and pressure;

(D) describe how aircraft control surfaces, including leading edge flaps, trailing edge flaps, ailerons, and spoilers, influence lift;

(E) describe how aircraft control surfaces, including leading edge flaps, trailing edge flaps, ailerons, and spoilers, influence drag;

(F) define and discuss how the stall angle and stall speed can be changed; and

(G) research and present contemporary developments reducing drag such as winglets, boundary layer control, and surface effects.

(11) Weight and balance. The student recognizes that components have mass, weight, and location resulting in moments that are balanced by control surfaces. The student is expected to:

(A) calculate an aircraft's estimated center of gravity throughout a mission profile considering factors such as fuel consumption, payload, and passengers;

(B) estimate the location of an aircraft's center of pressure;

(C) calculate the static margin throughout a flight profile to verify positive stability margin;

(D) generate and document solutions to improve positive static stability in the event of a negative stability margin; and

(E) revise and document static margin calculations reflecting proposed solutions.

(12) Propulsion. The student evaluates various propulsion solutions to downselect the solutions to meet mission requirements. The student is expected to:

(A) evaluate and select a propulsion solution that meets requirements such as piston, jet, turboprop, and rocket;

(B) evaluate and select the number of engines to meet mission and sub-requirements; and

(C) calculate propulsion weight of the selected solution to meet mission and sub-requirements.

(13) Material selection. The student evaluates various materials to meet mission and sub-requirements. The student is expected to:

(A) analyze component material requirements to select materials that meets mission and sub-requirements; and

(B) document the justification for the materials selected to meet component requirements.

(14) Aerospace structures. The student evaluates and selects structure types to meet mission and sub-requirements. The student is expected to:

(A) analyze structural requirements to select structure types that meets mission and sub-requirements; and

(B) document the justification for the structure types selected to meet structural requirements.

(15) Navigation. The student defines and explains types of navigation used for flight. The student is expected to:

(A) explain dead reckoning navigation using an aeronautical chart, compass, clock, and airspeed indicator;

(B) explain navigation using radio radials such as Automatic Direction Finder (ADF) and VHF Omnidirectional Range (VOR);

(C) explain navigation using an Inertial Navigation System (INS); and

(D) explain navigation using Global Positioning Systems (GPS).

§127.415. Civil Engineering I (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. Prerequisite: Algebra I and Introduction to Computer-Aided Design and Drafting or Principles of Applied Engineering. Recommended prerequisite: Geometry. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students in Civil Engineering I are introduced to the basic principles and practices essential to the field of civil engineering. Throughout this course students investigate different career paths in civil engineering, explore the various specializations within the field, and understand the phases and life cycle of civil engineering projects. They also delve into the functional mathematics crucial to the profession. Additionally, the course emphasizes the importance of effective project document structure and project management, ethical considerations, and the impact of civil engineering on the natural and built environment.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) describe teamwork, group dynamics, and conflict resolution and how they can impact the collective outcome;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences;~~]

[~~(D) identify time management skills such as prioritizing tasks, following schedules, and tending to goal relevant activities and how these practices optimize efficiency and results;~~]

[~~(E) define work ethic and discuss the characteristics of a positive work ethic, including punctuality, dependability, reliability, and responsibility for reporting for duty and performing assigned tasks;~~]

[~~(F) identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(K) describe the roles and responsibilities of managers.~~]

(1) [~~(2)~~] The student understands that there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define ideation and conceptualization and discuss the role these processes play in innovation and problem solving;

(D) explain the processes of selecting an idea or concept for detailed prototype design, development, and testing;

(E) describe the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the process of relevant experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) describe the purpose of effective communication of the engineering solution as obtained through the engineering design process to various audiences.

(2) [~~(3)~~] Students explore and develop skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

(3) [~~(4)~~] The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities;

(C) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(D) identify and explain the appropriate use of types of personal protective equipment used in industry;

(E) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(F) describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace;

(G) analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(H) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace;

(I) describe the elements of a safety and health program, including management leadership, worker participation, and education and training;

(J) explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel;

(K) explain the components of a hazard communication program; and

(L) explain and give examples of safety and health training requirements specified by standard setting organizations.

(4) [~~(5)~~] The student investigates different career paths in civil engineering. The student is expected to:

(A) explain the licensing requirements for an engineer in training and a professional engineer;

(B) identify various career options related to civil engineering such as surveyors, architects, construction contractors, urban and regional planners, inspectors, and regulators;

(C) identify and explain the requirements to obtain professional credentials such as certified flood plain manager (CFM), project management professional (PMP), professional engineer (PE), Autodesk certifications, SolidWorks certifications, certified surveying technician (CST), registered professional land surveyor (RPLS), certified quality engineer (CQE), and certified quality inspector (CQI) associated with civil engineering; and

(D) describe sub-disciplines within civil engineering, including water resources, environmental, geotechnical, structural, transportation, material sciences, coastal, land development, urban development, and infrastructure.

(5) [~~(6)~~] The student examines the functional mathematics used in civil engineering. The student is expected to:

(A) calculate the mean, median, and mode of a given data set;

(B) calculate the standard deviation of a given data set;

(C) identify parts of a normal distribution curve;

(D) define the Empirical Rule and analyze the distribution of a data set using the Empirical Rule;

(E) define systematic, gross, and random error;

(F) define accuracy and precision in a data set;

(G) analyze the accuracy and precision of a data set;

(H) identify the types and properties of various polygons;

(I) solve for the parts of a triangle using the Pythagorean theorem, the law of sines, and the law of cosines;

(J) identify the properties of circles;

(K) solve for the measurements of a circle, including diameter, radius, circumference, area, chord, arclength, delta, and tangent;

(L) solve linear functions on a Cartesian Coordinate System using standard form, slope-intercept form, point-slope form, and the distance between two points; and

(M) calculate the volumes of three-dimensional shapes such as cylinders, spheres, and trapezoidal and triangular prisms.

(6) [~~(7)~~] The student understands methods of measurement and associated errors. The student is expected to:

(A) define units of linear measurement, including U.S. survey feet, international feet, chains, rods, miles, fathoms, furlongs, varas, and other metric units commonly used in the surveying and civil engineering industry;

(B) define the different units of angular measurement, including vertical angles, horizontal angles, bearings, azimuths, degrees-minutes-seconds, decimal degrees, seconds of arc, and gradians;

(C) define the different units of volumetric measurement, including cubic feet, cubic yards, tons, and acre-feet;

(D) calculate and define area measurements such as acre, hectare, square feet, square mile, league, or sitio;

(E) convert linear, angular, and area measurements between different units;

(F) determine a change in elevation between two or more points by performing a differential level loop;

(G) measure the distance between two points on a plane using methods such as taping, electronic distance meter, total station, pacing, odometer, tacheometry, and stadia;

(H) compare the errors from two or more methods of calculating distance between two points such as comparing pacing and taping; and

(I) identify and analyze various types of errors associated with survey data.

(7) [~~(8)~~] The student researches civil engineering throughout history. The student is expected to:

(A) describe the significance and development of historic civil engineering projects such as the Panama Canal, Roman aqueducts, and Hadrian's wall;

(B) describe the significance and development of a major Texas civil engineering project; and

(C) describe the significance and development of a major U.S. civil engineering project.

(8) [~~(9)~~] The student understands a civil engineering project life cycle. The student is expected to:

(A) explain the civil engineering project conception, scope, proposal, contract, design planning and development, construction documents, bid and specifications, construction, and closeout phase; and

(B) identify and sequence the phases of a project life cycle.

(9) [~~(10)~~] The student understands and develops a civil engineering project scope of work and proposal. The student is expected to:

(A) identify and describe the importance of potential components in a feasibility report, including soil analysis, existing land entitlements, existing topography, federal

emergency management agency (FEMA) floodplain location and elevation, existing utility and locations, environmental studies, and adjacent rights-of-way;

(B) identify and quantify costs and benefits associated with a proposed civil engineering project, including initial investments, operational expenses, and anticipated returns;

(C) conduct a cost-benefit analysis for a small civil engineering project;

(D) identify common risks associated with civil engineering projects, including technical, financial, environmental, and regulatory risks;

(E) describe methodologies for conducting risk analysis such as probability assessment, impact analysis, and risk prioritization;

(F) develop a feasibility report for a small civil engineering project;

(G) explain the purpose of a request for qualifications (RFQ);

(H) evaluate RFQs based on a project's scope;

(I) identify relevant codes and regulations impacting civil engineering projects;

(J) define the fundamental components of a scope of work document, including project description, stakeholders, objectives, deliverables, scope exclusions, milestones, schedule, and signature block; and

(K) develop a scope of work document for a small civil engineering project.

(10) [~~(11)~~] The student understands and develops the components of civil engineering designs. The student is expected to:

(A) identify various conceptual schematic design drawings, sketches, and diagrams that explore design solutions and communicate design concepts;

(B) generate a conceptual schematic design drawing, sketch, or diagram that effectively communicates a design concept;

(C) explain the purpose and application of common civil engineering calculations such as superelevation, flow line, beam analysis, cost amortization, materials testing, plasticity index, and differential leveling;

(D) evaluate engineering plans and specifications using quality control and quality assurance (QCQA) processes; and

(E) prepare a design quantity take-off and estimate of probable construction cost.

(11) [~~(12)~~] The student researches the use and application of technology in civil engineering. The student is expected to:

(A) identify the tools and technology used in civil engineering throughout history such as abacus, compass, scale, measuring tape, slide rule, calculator, computer-aided drafting and design, level, auto-level, grade rod, plumb bob, transit, theodolite, total station, GPS, lidar, and drones;

(B) explain the evolution of technology used in civil engineering; and

(C) explain the uses of design analysis and computer-aided drafting software.

(12) [~~(13)~~] The student understands and researches the components of project closeout processes. The student is expected to:

(A) identify the main stakeholders involved in final inspections such as owner, utility provider(s), designer(s), contractors, municipalities, and regulatory agencies;

(B) develop a punch list that is organized by trade, area, or priority and identifies deficiencies in a substantially completed project; and

(C) evaluate the completed project to identify project successes and deficiencies.

(13) [~~(14)~~] The student understands and navigates civil engineering construction documents. The student is expected to:

(A) identify the sections of a construction document set, including plat, existing conditions, site plan, fire protection plan, dimensional control plan, grading plan, drainage plan, utility plan, paving plan, erosion control plan, and project detail sheets;

(B) research and describe the purpose of a fire protection plan;

(C) describe the components of a paving plan, including pavement sections, material types, and design details;

(D) identify and locate construction specification documents relevant to a given project;

(E) explain and locate the fundamental components of a construction document's legend, including symbols, line types, and typical abbreviations;

(F) explain the process of drafting a construction document to scale;

(G) determine and demonstrate which scale best fits a standard size drawing sheet;

(H) explain the relationship between a construction document's specifications, plans, legend, and scale; and

(I) identify and explain the differences between design drawings and record drawings.

(14) [~~(15)~~] The student applies best practices for effective project document structure and management. The student is expected to:

(A) explain the significance of systematic organizational structure for project documents;

(B) develop a systematic organizational structure for project documents that considers factors such as project phase, discipline, and document type;

(C) develop a consistent naming convention for project documents; and

(D) implement and maintain a uniform naming convention for project documents.

(15) [~~(16)~~] The student describes and exhibits characteristics that lead to a successful civil engineering team. The student is expected to:

(A) research and describe time management techniques such as using Gantt charts, schedules, critical paths, and man-power projections for project management;

(B) demonstrate effective communication skills in written and oral formats to facilitate collaboration in a project team; and

(C) explain how project team dynamics impact project outcomes and member morale.

(16) [~~(17)~~] The student researches and describes ethics pertaining to civil engineering. The student is expected to:

(A) research and identify the fundamental engineering ethics established by the Texas Board of Professional Engineers and Land Surveyors [~~and other professional organizations such as American Society of Civil Engineers, the National Society of Professional Engineers, the National Council of Examiners for Engineering and Surveying, and the National Institute of Engineering Ethics~~] ; and

(B) analyze root causes and lessons learned from historical examples or case studies involving ethical misconduct in civil engineering projects.

(17) [~~(18)~~] The student explores the impact of engineering in the natural world and built environment. The student is expected to:

(A) describe the potential impacts, costs, and benefits of sustainable practices on local and global communities, environments, and economies;

(B) apply cost-benefit analysis to [~~describe~~] sustainability standards used throughout the project life cycle to evaluate their economic, environmental, and social trade-offs ;

(C) describe governmental agencies that regulate environmental impact at the federal, state, and local level;

(D) describe the potential impacts of construction on the natural world, including flora, fauna, groundwater, surface water, soil, Earth's atmosphere, air quality, and waterways; and

(E) describe methods used by engineers to mitigate and remediate the effects of construction on the natural world.

(18) [(~~19~~)] The student understands the methods environmental engineers use to supply water, dispose of waste, and control pollution. The student is expected to:

(A) describe methods of population projection for sizing water and wastewater facilities;

(B) describe water quality standards using prescribed units of measure;

(C) research and explain regulations for water quantity design requirements by jurisdiction;

(D) research and explain regulations for wastewater quantity design requirements by jurisdiction;

(E) research and describe methods of water and wastewater treatment;

(F) research and describe methods of solid waste management;

(G) research and describe methods of controlling hazardous waste; and

(H) research and describe methods of measuring and managing air quality.

§127.416. Civil Engineering II (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisites: Geometry and Civil Engineering I. Recommended prerequisite: Introduction to Computer-Aided Design and Drafting. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students in Civil Engineering II apply the principles and practices essential to various subdisciplines within civil engineering. Throughout this course, students develop knowledge and skills essential to the design development and construction of a civil engineering project. The students explore the impacts and constraints on the design of a project. They also delve into the functional mathematics crucial to the profession. Additionally, the course emphasizes the

importance of effective project document structure and project management, ethical considerations, and the impact of civil engineering on the natural and built environment.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers;~~]

[~~(K) identify the components of a safety plan and why a safety plan is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(1) [~~(2)~~] The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(2) [~~(3)~~] The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(3) [~~(4)~~] The student recognizes project stakeholders and industry organizations in civil engineering. The student is expected to:

(A) describe the roles and objectives of project stakeholders, including engineer, owner, architect, contractor, subcontractors, project manager, end users, regulatory agencies, and the public; and

(B) describe the mission and membership benefits of industry organizations such as the American Society of Civil Engineers, the National Society of Professional Engineers, and the Society of Women Engineers.

(4) [~~(5)~~] The student explores various disciplines within civil engineering. The student is expected to:

(A) describe the essential technical knowledge and functions in a variety of civil engineering subdisciplines, including environmental, geotechnical, transportation, structural, water resources, and construction;

(B) explain how different types of projects within civil engineering subdisciplines, including public works, transportation, urban development, water resources, and utility projects, impact the built environment; and

(C) identify and describe types of civil engineering projects.

(5) [~~(6)~~] The student explores how codes, regulations, and plats impact a civil engineering project. The student is expected to:

(A) research and describe regulations established by the American Disabilities Act relevant to site design;

(B) identify local codes and regulations for a civil engineering project;

(C) describe the potential impacts of local codes and regulations on civil engineering projects; and

(D) describe the purpose of a plat and easements for a civil engineering project.

(6) [~~(7)~~] The student develops a proposal for a civil engineering project such as a park, a parking lot, or a storm drain. The student is expected to:

(A) analyze or develop a feasibility report for a civil engineering project;

(B) develop and analyze the scope of work document for a civil engineering project;

(C) calculate monetary value for engineering efforts on a given project;

(D) revise and archive the draft project proposal for scope of work changes;

(E) develop a client deliverable package that contains a fee proposal, project schedule, organizational chart, exclusions, and an engineering contract;

(F) communicate effectively a final proposal for a civil engineering project; and

(G) identify and evaluate lessons learned from the project proposal process.

(7) [~~(8)~~] The student develops a civil engineering project schedule. The student is expected to:

(A) identify and prioritize project tasks to determine the critical path of a project;

(B) create a project critical path diagram;

(C) evaluate project tasks and the critical path to develop a project schedule;

(D) create a Gantt chart for all the project activities in a project; and

(E) assess a project schedule for opportunities to improve project efficiencies.

(8) [~~(9)~~] The student develops a civil engineering design for a project site. The student is expected to:

(A) create a concept site plan using existing schematics, survey data, and regulatory design manuals;

(B) identify existing and proposed utility providers, including electric, water, sewer, gas, and telecommunications providers, at a project site;

(C) research and identify existing plats and easements for a project site; and

(D) revise and finalize a project site plan to reflect analyzed site data, including utilities, geotechnical, right-of-way, water resources, environmental, survey, and transportation data.

(9) [~~(10)~~] The student explores concepts and calculations for storm water events used by water resources engineers. The student is expected to:

(A) describe storm event probability based on historical models;

(B) describe methods used, including Rational method, Natural Resources Conservation Service (NRCS), Soil Conservation Service (SCS), and unit hydrograph, to calculate flow rate;

(C) analyze existing topography at the project site to determine drainage patterns;

(D) delineate existing and proposed drainage areas impacting a project site to determine the change in stormwater runoff generated by a project design;

(E) research and describe methods of stormwater mitigation and water quality treatment;

(F) calculate the existing flow rates for a 5-year and a 100-year storm event for a project site using the Rational method;

(G) analyze and calculate the proposed flow rates for a 5-year and a 100-year storm event for a project design;

(H) determine the required stormwater remediation techniques for a 100-year storm event by comparing existing and proposed runoff quantities;

(I) describe methods of stormwater conveyance, including channel, culvert, and pipe;

(J) calculate the hydraulics of a stormwater conveyance using the continuity equation, energy equation, and Bernoulli's equation;

(K) design a conveyance system such as a pipe, culvert, or open channel to convey stormwater runoff for a 100-year storm event using the calculated data;

(L) create a plan and profile sheet of a drainage system, including surface elevations, slopes, conveyance system dimensions, material, and pipe invert elevations; and

(M) describe potential impacts of a drainage analysis for a project.

(10) [~~(11)~~] The student explores concepts and calculations used by geotechnical engineers. The student is expected to:

(A) identify and explain the components of a geotechnical report, including boring samples and logs, soil types and classifications, pavement recommendations, foundations recommendations, and soil preparations;

(B) identify and determine the soil classifications at a project site using the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS);

(C) calculate the plasticity index of soil from a project site;

(D) research and describe methods of soil preparation;

(E) research and explain how geotechnical results impact pavement recommendations used in civil engineering projects;

(F) research and select the most effective pavement section for a project; and

(G) describe the impact of a geotechnical analysis for a project.

(11) [~~(12)~~] The student explores concepts and calculations used by structural engineers. The student is expected to:

(A) identify and analyze the various types of building foundations, including raft, monolithic slab, slab on grade, pier and beam, spread footing, mat footing, drilled piers, pylons, waffle slab, and post-tension slab;

(B) describe the forces common to structural engineering calculations, including gravity, tension, compression, flexure, and torsion;

(C) describe the loads common to structural engineering calculations, including dead load, live load, environmental loads, and other loads such as lateral and concentrated loads;

(D) diagram and explain how applied loads and forces are resisted in a structure and transferred to the Earth;

(E) diagram a simply supported beam subjected to loading conditions to determine reaction forces;

(F) sketch diagrams to determine the maximum shear and moment resulting in the beam;

(G) identify the different types of trusses, including simple, planar, and space frame trusses;

(H) diagram a truss subjected to loading conditions to determine reaction forces and identify the zero force members;

(I) explain why design loads are dictated by building codes; and

(J) describe potential impacts of a structural analysis for a project.

(12) [~~(13)~~] The student explores concepts and calculations used by transportation engineers. The student is expected to:

(A) identify and describe various types of transportation engineering specializations such as rail, aviation, roadway, highway, and marine;

(B) research and explain the benefits of having a professional transportation engineering certification;

(C) research and explain the benefits of membership in a transportation engineering organization such as Institute for Transportation Engineers (ITE), American Society of Highway Engineers (ASHE), American Association of State Highway and Transportation Officials (AASHTO), and WTS International;

(D) determine stopping sight distance of a roadway given the design speed and grade;

(E) research and describe the impacts of transportation design elements, including grades, superelevation, design speed, friction factor, lane widths, vertical curves, horizontal curves, roadway classification, acceleration, and deceleration;

(F) analyze the level of service of a roadway to determine if operating conditions are adequate;

(G) identify and explain the components of a traffic impact analysis (TIA), including data collection summary, trip analysis, turn lane analysis, project phasing, and sight visibility analysis;

(H) research and identify methods of traffic data collection;

(I) collect and calculate traffic count data at a project site and analyze the results of the traffic count to determine peak hour trips and traffic mitigation;

(J) determine the peak hour trips generated by a given land use from a ITE Trip Generation Manual;

(K) research and describe traffic level of service for various roadways;

(L) determine if a turn lane is warranted based on peak hour trips and traffic volume; and

(M) describe potential impacts of a transportation analysis for a project.

(13) [~~(14)~~] The student develops construction documents for a civil engineering project. The student is expected to:

(A) develop project construction documents that includes design plans, specifications, and a cost estimate for a civil engineering project;

(B) develop the analysis reports for a civil engineering project;

(C) generate a demolition sheet that contains existing topography, property lines, easements, utilities, rights-of-way, drainage infrastructure, and structures, and identifies items to be demolished;

(D) develop a fire protection plan for a project;

(E) generate a paving plan that shows the limits and types of pavement necessary for a project;

(F) generate a site plan that labels proposed improvements for a project;

(G) generate a site dimensional control plan containing measurements for all site improvements for a project;

(H) generate a grading plan that documents proposed elevations and topography in comparison to existing topography for a project;

(I) generate drainage plans that document the existing drainage patterns, proposed drainage plan, and drainage infrastructure for a project;

(J) generate a utility plan that documents existing and proposed utility types, locations, and materials for a project;

(K) generate an erosion control plan that identifies erosion control best management practices (BMP) defined by the Texas Commission on Environmental Quality (TCEQ) for a project; and

(L) explain the importance of a quality control review and complete a quality control review of the construction documents of the project.

(14) [~~(15)~~] The student develops documents for support of the construction bid. The student is expected to:

(A) identify components of a bid tabulation, including item description, material quantity, unit measure, unit price, and total price;

(B) compare a project bid tabulation with corresponding construction documents to verify all items are included;

(C) create a project bid tabulation; and

(D) identify and compile the parts of civil engineering project manual.

(15) [~~(16)~~] The student works as an individual and a team member to complete projects. The student is expected to:

(A) track team goals to verify completion of project milestones;

(B) explain various methods to resolve conflict within a project team;

(C) explain how leadership impacts project outcomes and team members; and

(D) evaluate team member performance and effectiveness in a project.

(16) [~~(17)~~] The student researches and understands the code of ethics pertaining to civil engineering. The student is expected to:

(A) research and describe the impact of the State of Texas Engineering Practice Act [~~and Rules~~] ; and

(B) analyze and discuss ethical case studies using Texas Administrative Code, Title 22, Part 6, Chapter 137, Subchapter C (relating to Professional Conduct and Ethics).

(17) [~~(18)~~] The student understands the fundamental sustainable design approaches and practices in civil engineering projects. The student is expected to:

(A) research and describe sustainable building materials and methods;

(B) identify and explain the programs and certifications that establish design criteria for engineering projects such as Leadership in Energy and Environmental Design (LEED);

(C) explain how sustainable programs and certifications potentially impact the design elements and costs of a project;

(D) explain how design choices potentially impact human health, the environment, and the cost of a project; and

(E) explain how elements of the construction process potentially impact human health and the environment.

§127.417. Engineering Project Management (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: Algebra I. Recommended prerequisite: English II. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Engineering Project Management develop cursory knowledge and essential skills to lead an engineering team through the development and construction of a project. Students assess project documentation for compliance with best management practices. They engage in project planning, risk management, team management, and stakeholder communication to ensure project completion, adherence to safety guidelines, and continuous improvement.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student discusses ethics pertaining to engineering. The student is expected to identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) describe teamwork, group dynamics, and conflict resolution and how they can impact the collective outcome;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences;~~]

[~~(D) identify time management skills such as prioritizing tasks, following schedules, and tending to goal-relevant activities and how these practices optimize efficiency and results;~~]

[~~(E) define work ethic and discuss the characteristics of a positive work ethic, including punctuality, dependability, reliability, and responsibility for reporting for duty and performing assigned tasks;~~]

[~~(F) identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(K) describe the roles and responsibilities of managers.~~]

(2) The student understands that there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define ideation and conceptualization and discuss the role these processes play in innovation and problem solving;

(D) explain the processes of selecting an idea or concept for detailed prototype design, development, and testing;

(E) describe the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the process of relevant experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) describe the purpose of effective communication of the engineering solution as obtained through the engineering design process to various audiences.

(3) The student explores and develops skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

(4) The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities;

(C) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(D) identify and explain the appropriate use of types of personal protective equipment used in industry;

(E) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(F) describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace;

(G) analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(H) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace;

(I) describe the elements of a safety and health program, including management leadership, worker participation, and education and training;

(J) explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel;

(K) explain the components of a hazard communication program; and

(L) explain and give examples of safety and health training requirements specified by standard setting organizations.

(5) The student explores the methods and aspects of project management in relation to engineering projects. The student is expected to:

(A) identify and prioritize engineering tasks for an engineering project plan;

(B) identify and outline the critical path of a set of tasks in an engineering project;

(C) develop a project budget based on billable hours and engineering tasks in a project;

(D) track and maintain time spent on engineering tasks for a given project;

(E) generate a Gantt chart for an engineering project, including project tasks, time to complete tasks, critical path, and schedule of tasks;

(F) develop and implement a systematic folder structure for organizing project documents considering factors such as project phase, discipline, and document type;

(G) apply naming conventions consistently to all project documents to facilitate efficient identification and retrieval;

(H) research and describe best management practices such as quality control and quality assurance, risk management, and project management plan for an engineering project;

(I) evaluate an engineering project for adherence to local, state, and federal regulations;

(J) evaluate an engineering project for adherence to best management practices; and

(K) evaluate an engineering project for implementation of sustainable practices.

(6) The student explores processes involved in the construction phase of an engineering project. The student is expected to:

(A) identify parts of an engineering project manual associated with a construction bid, including bid schedule, bid tabulation, construction plan set, and material specifications;

(B) explain the bid process for a project, including timeline, value engineering, request for information (RFI), request for qualifications (RFQ), request for price (RFP), interview process, bid opening, bid evaluations, and bid award;

(C) develop a quantity take-off for an engineering project; and

(D) identify applicable materials based on the engineering project specifications to conduct a material quantity take-off.

(7) The student researches and identifies methods and divisions of project documentation. The student is expected to:

(A) compare shop drawings and construction documents to identify and rectify variances;

(B) identify and justify applicable material specifications for a given project;

(C) compile and organize material specifications to create a submittal log;

(D) analyze a construction drawing to develop applicable design questions and create an RFI document;

(E) identify and explain the permitting process for an engineering project;

(F) identify permitting stakeholders and explain stakeholder roles in the permitting process;

(G) identify permitting entities and create a permit request;

(H) identify and explain the purpose and parts of a change order for a project;

(I) develop a method of documentation to track project changes, including field changes, design changes, and change orders, and analyze cost and schedule impacts of project changes; and

(J) identify and draft applicable completion documents, including certificate of occupancy, temporary certificate of occupancy, field changes, as-built or plan of record documents, and engineer's certification of substantial completion.

(8) The student explores applicable federal, state, and local regulations as they pertain to engineering projects. The student is expected to:

(A) research federal regulatory agencies and describe the role federal regulatory agencies serve in relation to engineering projects such as the Environmental Protection Agency (EPA), Federal Aviation Administration (FAA), and Army Corps of Engineers;

(B) research state regulatory agencies such as the Texas Department of Transportation (TxDOT), Texas Commission on Environmental Quality (TCEQ), and the Texas Railroad Commission (TRC) and describe the role these agencies serve in relation to engineering projects;

(C) research local regulatory agencies such as cities and counties and describe the role local regulatory agencies serve in relation to engineering projects; and

(D) describe local codes and ordinances affecting construction and development activities.

(9) The student explores methods of risk management and the effects on engineering projects. The student is expected to:

(A) identify and describe various methods of risk management related to engineering projects;

(B) identify and analyze the potential risks in a project with respect to the project stakeholders;

(C) develop and communicate a job hazard analysis (JHA) for a given project task;

(D) identify factors of contingency related to an engineering project;

(E) create a contingency estimate analyzing events that can cause potential losses to a project; and

(F) present a risk management plan for a given project.

(10) The student examines components of value engineering practices in relation to an engineering project. The student is expected to:

(A) describe value engineering;

(B) identify and analyze common areas of engineering projects that are susceptible to value engineering;

(C) analyze an existing project design and cost estimate to identify potential cost saving areas;

(D) describe an opinion of probable cost (OPC) associated with an engineering project;

(E) generate an OPC for an engineering project, including construction mobilization, material cost, material quantities, waste disposal, contingency, and total price; and

(F) create a cost-benefit analysis of an engineering project that compares the monetary cost of the project to the benefit to end user.

(11) The student demonstrates effective leadership and communications skills necessary to manage engineering projects. The student is expected to:

(A) identify and describe the various team roles for an engineering project;

(B) research and describe various project management methodologies;

(C) create a schedule of roles for team members in an engineering project;

(D) conduct an effective kick-off meeting to communicate the project management plan for a given engineering project;

(E) evaluate how project team dynamics impact the successful completion of a project;

(F) prepare and document effective meeting agendas;

(G) record, prepare, and distribute clear and accurate meeting minutes;

(H) research and describe effective leadership qualities;

(I) research and identify examples of effective leadership styles;

(J) identify and describe personal leadership styles and strengths; and

(K) evaluate how student leadership styles impact the success of the project team.

§127.418. Architectural Engineering (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: Civil Engineering I. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Architectural Engineering use principles of engineering and design tools to create innovative, functional, and sustainable buildings. Students develop cursory knowledge and essential skills to understand the design of buildings, including the mechanical, electrical, plumbing, and structural systems, while also planning the construction process. They engage in project planning, building and system analysis, site investigation, and the integration of sustainable design and construction practices for an architectural engineering project.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how to implement an engineering design process to develop a product or solution. The student is expected to:

(A) describe and implement the stages of an engineering design process to construct a model;

(B) explain how factors, including complexity, scope, resources, ethics, regulations, manufacturability, maintainability, and technology, impact stages of the engineering design process;

(C) explain how stakeholders impact an engineering design process; and

(D) analyze how failure is often an essential component of the engineering design process.

(3) The student explores the methods and aspects of project management in relation to projects. The student is expected to:

(A) research and explain the process and phases of project management, including initiating, planning, executing, and closing;

(B) explain the roles and responsibilities of team members, including project managers and leads;

(C) research and evaluate methods and tools available for managing a project;

(D) discuss the importance of developing and implementing a system for the organization of project documentation such as file naming conventions, document release control, and version control;

(E) describe how project requirements, constraints, and deliverables impact the project schedule and influence and are influenced by an engineering design;

(F) explain how a project budget, including materials, equipment, and labor, is developed and maintained; and

(G) describe the importance of management of change (MOC) and how MOC applies to project planning.

(4) The student explores the origin and application of basic building types. The student is expected to:

(A) identify and describe the fundamental parts of a building, including foundations, floors, walls, roof, and utility systems;

(B) identify and describe the visual design elements of various building types, including residential, commercial, institutional, and industrial buildings; and

(C) research and describe the evolution of the built space and development of building forms.

(5) The student understands the properties of common building materials and construction methods. The student is expected to:

(A) identify and describe common building materials such as wood, masonry, concrete, metal, glass, aggregate, and plastic;

(B) identify and describe common roofing materials such as thatch, wood, metal, sod, and asphalt;

(C) describe traditional construction methods such as wood framing, tilt-wall, masonry, and steel;

(D) describe contemporary construction methods such as prefabricated, modular, and additive construction (3D printing);

(E) identify and describe standard building methods such as casting, cutting, drilling, driving, and fastening for the construction of buildings;

(F) research and describe resilient [~~sustainable~~] building materials, methods, and costs; and

(G) describe how building material selection is impacted influenced by certifications such as Leadership in Energy and Environmental Design (LEED) or Energy Star.

(6) The student understands the application of codes and regulations to building projects. The student is expected to:

(A) explain the purpose of local building codes, including public health and safety, structural, and utility codes;

(B) describe land use regulations to identify zoning ordinances and allowable uses of real property;

(C) describe how zoning regulations are used to control land use and development;

(D) identify standard accessibility features such as ramps, elevators, parking, handrails, and fire alarm horn strobe as specified in codes and regulations such as the American Disability Act (ADA) and the Texas Accessibility Standards (TAS);

(E) explain how codes and building regulations constrain aspects of building design, including the structure, site design, utilities, and building usage;

(F) explain how codes and building regulations constrain aspects of building construction, including the structure, site construction, utilities, and building usage; and

(G) classify a building according to its use type, occupancy, and construction type using the International Building Code.

(7) The student explores the various building systems. The student is expected to:

(A) identify and describe various building envelopes such as tilt-wall, glazing, brick, and Exterior Insulation Finishing System (EIFS);

(B) describe the components of building envelopes, including foundation, walls, wall openings, roofs, roof penetrations, insulation, and building membranes;

(C) research and describe different types of insulating materials;

(D) describe different types of windows and doors;

(E) identify the main components and describe the purpose of mechanical systems within a building, including heating ventilation and air conditioning (HVAC), air handler, boiler, fire protection and suppression, lift, chilled water equipment, and emergency power systems;

(F) describe how programs and certifications such as LEED potentially impact the selection of building systems;

(G) identify the main components and describe the purpose of electrical systems within a building, including meters, panels, lighting, receptacles, transformers, generators, and low-voltage systems; and

(H) identify the main components and describe the purpose of plumbing systems within a building, including meters, main supply lines, branch lines, sewer lines, traps, risers, fire suppression, appurtenances, and fixtures.

(8) The student examines building foundations and structures. The student is expected to:

(A) identify and analyze the various types of building foundations, including slab on grade, pier and beam, spread footing, mat footing, drilled piers, pylons, waffle slab, and post-tension slab;

(B) classify a soil sample according to grain size and plasticity;

(C) calculate the plasticity index of a soil sample;

(D) determine the united soil classification system designation from a site soil sample analysis;

(E) describe the forces common to structural engineering calculations, including gravity, tension, compression, flexure, and torsion;

(F) describe the loads common to structural engineering calculations, including dead load, live load, environmental, and other load paths such as lateral and concentrated;

(G) diagram and explain how applied loads and forces are resisted in a structure and transferred to the Earth;

(H) diagram a simply supported beam subjected to loading conditions to determine reaction forces;

(I) sketch diagrams to determine the maximum shear and moment resulting in the beam;

(J) identify the different types of trusses, including simple, planar, and space frame trusses;

(K) diagram a truss subjected to loading conditions to determine reaction forces and identify the zero force members;

(L) explain why design loads are dictated by building codes;

(M) identify the composition and describe the ratios of ingredients in different concrete mixtures;

(N) describe the purpose of various concrete admixtures, including air entrainer, reducer, retarder, and accelerator;

(O) explain why various admixtures are selected for a project such as curing time, ambient climate, and permeability;

(P) conduct concrete compression and splitting-tension tests and compare strength and failures in a concrete mixture; and

(Q) analyze a concrete mixture by performing a slump test.

(9) The student designs and develops plans for the building systems. The student is expected to:

(A) develop a stormwater management system for a building that includes roof drainage calculations, roof drain design, and downspout sizing and location;

(B) design ingress and egress for a building that complies with local, state, and federal codes and regulations;

(C) develop building design and engineering plans that incorporate energy conservation techniques;

(D) recommend and defend an appropriate foundation design for a building type;

(E) design, modify, and plan structures using 3D software;

(F) construct building drawings using advanced computer-aided design drafting skills;

(G) create three-dimensional views of a building design;

(H) create three-dimensional solid models of the building;

(I) design and present a final effective building design for critique;

(J) develop preliminary drawings of a building or structural design;

(K) develop a site plan using maximum orientation of the building relative to views, sun, and wind direction;

(L) draw schematic site plans, floor plans, roof plans, building elevations, sections, and perspectives using design development techniques;

(M) draw scaled wall thickness plans, interior elevations, and sections;

(N) develop details, floor and wall sections, ceiling and roof sections, door and window sections, and other sections as required within a building design;

(O) review and revise draft construction documents to incorporate results from structural analysis such as beam, truss, and foundation calculations conducted for the project; and

(P) review and revise draft construction documents to incorporate results from building system analysis such as mechanical, electrical, and plumbing calculations conducted for the project.

(10) The student designs and develops plans for the building site. The student is expected to:

(A) identify and describe various site constraints, including utilities, grading, drainage, transportation access, environmental, regulatory requirement, and rights-of-way constraints;

(B) explain the purpose of low impact development techniques in site development such as to reduce the impact on stormwater runoff quantity and quality;

(C) develop preliminary drawings of a building site design;

(D) develop building site design and engineering plans that integrate solutions to site constraints as appropriate;

(E) describe how soil characteristics impact building design;

(F) determine the type, sizing, and placement of site features, including parking lots, entrance and exits road, pedestrian and handicap access, and storm water facilities, that comply with local codes and regulations;

(G) evaluate a site to appropriately locate and orient a building or structure;

(H) develop site drawings using advanced computer-aided design drafting skills; and

(I) design and present a final effective site design for critique.

(11) The student explores construction phase processes for a building design project. The student is expected to:

(A) calculate quantities of building components such as the total square units of wall covering, the total cubic units of concrete, linear units of wire, and doors and windows;

(B) develop a material quantity take-off for a building project;

(C) develop an Opinion of Probable Cost (OPC) for a building project;

(D) document elements of the building construction that comply with design criteria such as those outlined in LEED;

(E) identify components of a bid tabulation, including item description, material quantity, unit measure, unit price, and total price;

(F) compare a project bid tabulation with corresponding construction documents to verify all items are included;

(G) create a project bid tabulation;

(H) identify and describe the parts of a construction project manual, including invitation to bidders, instruction for bidders, project information, construction contracts, bid tabulation, maintenance bonds, performance bonds, payment bonds, specifications, insurance certificates, and legal requirements; and

(I) develop an organizational chart and Gantt chart for the construction of a project.

§127.419. Surveying and Geomatics (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: Algebra I. Recommended prerequisites: Geometry and Introduction to Computer-Aided Design and Drafting. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Students enrolled in Surveying and Geomatics are introduced to the principles and practices essential to the field of surveying. Throughout this course students investigate different tools, applications, and techniques used to capture and process geospatial data. They also use functional mathematics crucial to the profession. Additionally, the course emphasizes the importance of visual representations of data in multiple mediums, ethical considerations, and the legal or regulatory impact of surveying on the community and society.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) describe teamwork, group dynamics, and conflict resolution and how they can impact the collective outcome;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences;~~]

[~~(D) identify time management skills such as prioritizing tasks, following schedules, and tending to goal-relevant activities and how these practices optimize efficiency and results;~~]

[~~(E) define work ethic and discuss the characteristics of a positive work ethic, including punctuality, dependability, reliability, and responsibility for reporting for duty and performing assigned tasks;~~]

[~~(F) identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(K) describe the roles and responsibilities of managers.~~]

(1) [~~(2)~~] The student understands that there are different stages of the engineering design process and the importance of working through each stage as part of an iterative process. The student is expected to:

(A) explain the importance of defining an engineering problem as an initial step in the engineering design process;

(B) describe the research stage of the engineering design process;

(C) define ideation and conceptualization and discuss the role these processes play in innovation and problem solving;

(D) explain the processes of selecting an idea or concept for detailed prototype design, development, and testing;

(E) describe the purpose of non-technical drawings, technical drawings, models, and prototypes in designing a solution to an engineering problem;

(F) describe the process of relevant experimental design, conducting tests, collecting data, and analyzing data to evaluate potential solutions;

(G) explain how the engineering design process is iterative and the role reflection plays in developing an optimized engineering solution; and

(H) describe the purpose of effective communication of the engineering solution as obtained through the engineering design process to various audiences.

(2) [~~(3)~~] The student explores and develops skills to solve problems, make decisions, and manage a project. The student is expected to:

(A) discuss strategies for managing time, setting deadlines, and prioritizing to accomplish goals;

(B) identify constraints and describe the importance of planning around constraints, including budgets, resources, and materials;

(C) define milestones and deliverables and explain the advantages of dividing a large project into smaller milestones and deliverables;

(D) identify different types of communication and explain how different types of communication lead to successful teamwork on a shared project in a professional setting; and

(E) identify strategies to solve problems and describe how problem solving is utilized to accomplish personal and team objectives.

(3) [~~(4)~~] The student understands the foundations of occupational safety and health. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities;

(C) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(D) identify and explain the appropriate use of types of personal protective equipment used in industry;

(E) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(F) describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace;

(G) analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(H) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace;

(I) describe the elements of a safety and health program, including management leadership, worker participation, and education and training;

(J) explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel;

(K) explain the components of a hazard communication program; and

(L) explain and give examples of safety and health training requirements specified by standard setting organizations.

(4) [~~(5)~~] The student examines the functional mathematics of surveying. The student is expected to:

(A) calculate central tendencies of a given data set, including mean, median, and mode;

(B) calculate standard deviation of a given data set;

(C) identify parts of a normal distribution curve;

(D) define the Empirical Rule and analyze the distribution of a data set using the Empirical Rule;

(E) define systematic and random error;

(F) identify and describe the relationship between accuracy and precision;

(G) identify the types and properties of various polygons;

(H) solve for the parts of a triangle, including Pythagorean theorem, sine, cosine, tangent, arcsine, arccosine, and arctangent;

(I) identify the properties of circles;

(J) solve for the parts of a unit circle, including diameter, radius, circumference, area, chord, arclength, delta, and tangent;

(K) identify and solve for linear functions, including standard form, slope-intercept form, point-slope form, and the distance between two points, on a Cartesian Coordinate System; and

(L) identify and solve for volumetric calculations of three-dimensional shapes, including a cylinder, sphere, rectangular prisms, trapezoidal prisms, and triangular prisms.

(5) [~~(6)~~] The student researches and understands global positioning systems (GPS) used in surveying. The student is expected to:

(A) identify and explain data terminology related to GPS such as latitude, longitude, datum, ellipsoid, geoid, orthometric height, World Geodetic System 1984, Earth Centered Earth Fixed (ECEF), 3D coordinate geometry, and state plane coordinate system;

(B) explain the different types and applications of GPS surveying, including static, differential, and real-time kinematic (RTK);

(C) tie down a point and derive a geographic latitude and longitude coordinate using GPS;

(D) identify and explain GPS components, including the space segment, control segment, and the user segment;

(E) describe the functions of a GPS satellite;

(F) describe the functions of GPS ground stations;

(G) describe the functions of GPS receivers; and

(H) generate a map using geodetic coordinates.

(6) [~~(7)~~] The student researches and understands the industry standard methods and means of collecting various topographical data used in the civil engineering and construction professions. The student is expected to:

(A) research and explain the components of optomechanical equipment, including vertical and horizontal plates and optics;

(B) explain the types of optomechanical equipment, including theodolite, level, and total station, and their application;

(C) explain methods of remote sensing, including unmanned aerial vehicle (UAV), light detection and ranging (LiDAR), sonar, ground penetrating radar, underwater remotely operated vehicle (ROV), photogrammetry, and gravity satellite;

(D) identify the tools used to make distance measurements, including steel tape, electric distance meter, pacing, odometer, stadia, and estimating;

(E) explain the various methods to measure the distance between two points on the surface of the Earth;

(F) measure the distance between two points on the surface of the Earth using different methods and tools;

(G) compare the data collected from different methods used to measure the distance between two points on the surface of the Earth for accuracy;

(H) identify the tools used to make angular measurements, including protractor, compass, theodolite, total station, and estimating;

(I) explain the various methods to measure the angle between two vectors;

(J) measure the angle between two vectors using different methods and tools;

(K) compare the data collected from different methods used to measure the angles between two vectors for accuracy;

(L) describe the use of control points and National Geodetic Survey (NGS) monuments;

(M) identify the tools used to measure elevation, including level, theodolite, total station, barometer, and estimating;

(N) measure and calculate the height of an object using a theodolite;

(O) establish the elevation of a point assuming the elevation of a relative point is zero using various methods and tools;

(P) compare the data collected from different methods used to measure elevation between two points for accuracy;

(Q) identify and adhere to regulations of UAV piloting and control specified by the Federal Aviation Administration Small UAS Rule (Part A107); and

(R) explain the purposes of specialized surveys used in engineering, including engineering topographic, control, construction, boundary, hydrographic, optical tooling, American Land Title Association (ALTA), photogrammetric, and as-built survey.

(7) [~~(8)~~] The student records meta-data associated with surveying measurements and data collection. The student is expected to:

(A) create and maintain field notes within a comprehensive field book that includes a cover page and field data;

(B) describe the necessary components of a field book cover page, including weather data, project site data, personnel data, equipment data, and type of survey conducted; and

(C) record surveying information in a field book, including differential level notes, collected horizontal and vertical angles, site sketches, and topographic data.

(8) [~~(9)~~] The student researches and understands the industry standard methods and means of analyzing various topographical data used in the civil engineering and construction professions. The student is expected to:

(A) explain the process to generate a control survey;

(B) identify and explain symbols found on survey drawings; and

(C) identify and describe software used to create drawings and analyze survey data.

(9) [~~(10)~~] The student develops and communicates visual representations of topographical data used in civil engineering and construction documentation and presentations. The student is expected to:

(A) explain the process of drafting a construction document to scale;

(B) determine and demonstrate which scale best fits a standard size drawing sheet;

(C) explain the relationship between a construction document's specifications, plans, legend, and scale;

(D) explain the difference between grid and surface distances;

(E) identify the local scale factor that transforms collected grid distances to surface distances for a given survey;

(F) generate a scaled topography map using collected field data;

(G) create a surface profile from a baseline drawn on a topographic map; and

(H) stake out points from design files, maps, or real-property descriptions.

(10) [~~(11)~~] The student explores how a practicing surveyor follows in the footsteps of the original surveyor. The student is expected to:

(A) explain why and how surveyors defer to the work of existing surveys;

(B) define boundary monumentation;

(C) research and explain natural and artificial monuments;

(D) explain the methods to adjust real-property boundaries for the change in natural monuments over time, including riparian and littoral boundaries;

(E) interpret a legal description of a real property;

(F) identify an original survey boundary by conducting land record research using the Texas General Land Office (GLO);

(G) explain the historical significance of land grants in Texas;

(H) explain how a boundary survey protects the public;

(I) create a property boundary drawing using collected field data; and

(J) explain the dignity of calls, including natural objects, artificial objects, courses, distances, and acreage, as specified in Texas Administrative Code, Title 31, Part 1, Chapter 7, §7.5 (relating to Dignity of Calls).

(11) [~~(12)~~] The student understands the different methods of measurements and associated errors. The student expected to:

(A) define the different units of linear measurement, including U.S. feet, international feet, chains, rod, mile, fathom, furlong, varas, and metric units, commonly used in the surveying and civil engineering industry;

(B) define the different units of angular measurement, including vertical angles, horizontal angles, bearings, azimuths, degrees-minutes-seconds, decimal degrees, seconds of arc, and gradians;

(C) define the different units of volumetric measurement, including cubic feet, cubic yards, tons, and acre-feet;

(D) calculate and define area measurements such as acre, hectare, square feet, square mile, league, or sitio;

(E) convert linear, angular, and area measurements between different units;

(F) determine a change in elevation between two or more points by performing a differential level loop;

(G) measure the distance between two or more points using industry acceptable methods such as taping, electronic distance meter, total station, pacing, odometer, tacheometry, GPS, and stadia;

(H) compare the errors from two or more methods of calculating the distance between two or more points; and

(I) calculates various types of errors associated with survey data.

(12) [~~(13)~~] The student researches and understands surveying and geomatics throughout history. The student is expected to:

(A) explain how Eratosthenes first derived the circumference of the Earth;

(B) research and describe the change in methods and precision used to calculate the circumference of the Earth; and

(C) describe the surveying that contributed to great works of civil engineering before and after the Age of Exploration.

(13) [~~(14)~~] The student researches and understands the code of ethics pertaining to civil engineering and surveyors. The student is expected to:

(A) research and identify the legal definitions and descriptions surveyors use to delineate and report survey data; and

(B) research and identify engineering ethics established by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying [~~organizations such as the American Society of Civil Engineers, the National Society of Professional Engineers, the Texas Board of Professional Engineers and Land Surveyors, the National Council of Examiners for Engineering and Surveying, and the National Institute of Engineering Ethics~~] .

§127.452. Practicum in Engineering (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grade 12. Prerequisites: Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering Career Cluster.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Practicum in Engineering is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories. To prepare for careers in engineering, students must attain academic knowledge and skills, acquire technical knowledge and skills related to the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how a professional engineer serves the local and global community. The student is expected to:

(A) research and identify student and professional engineering organizations and the benefits of membership such as networking platforms, training and educational opportunities, and participating in community initiatives;

(B) explain an engineer's role and how various engineering roles serve the organization, community, and society; and

(C) evaluate how the work of student or professional engineering organizations impact the local or global community such as recommended practices and issuing standards.

(3) The student uses critical thinking and problem solving in the work-based learning experience. The student is expected to:

(A) conduct technical research to gather information, identify gaps, and make decisions in the work-based learning experience;

(B) develop creative and innovative solutions to problems in the work-based learning experience;

(C) analyze and compare alternative designs for an effective solution to a problem in the work-based learning experience; and

(D) evaluate and present solutions to problems in the work-based learning experience.

(4) The student understands and demonstrates how effective leadership and teamwork skills enable the accomplishment of goals and objectives. The student is expected to:

(A) analyze leadership characteristics such as trustworthiness, positive attitude, integrity, and work ethic;

(B) explain and demonstrate effective characteristics of teamwork;

(C) explain and demonstrate responsibility for shared group and individual work tasks in the work-based learning experience;

(D) describe and analyze how strategies such as meeting deadlines, showing respect for all individuals, and communicating clearly and timely contribute to effective working relationships and accomplishing objectives; and

(E) research and identify opportunities to participate in extracurricular engineering activities.

(5) The student demonstrates oral and written communication skills in delivering and receiving information and ideas. The student is expected to:

(A) apply appropriate content knowledge, technical concepts, and vocabulary to analyze information and follow directions;

(B) use professional communication skills such as using technical terminology, email etiquette, and following the organization or team communication plan and hierarchy when delivering and receiving information in the work-based learning experience;

(C) identify and analyze information contained in informational texts, internet sites, or technical materials in the work-based learning experience;

(D) describe and analyze verbal and nonverbal cues and behaviors such as body language, tone, and interrupting to enhance communication in the work-based learning experience; and

(E) apply active listening skills to receive and clarify information in the work-based learning experience.

(6) The student reflects on the work-based learning experience to prepare for postsecondary and employment success. The student is expected to:

(A) assess and evaluate personal strengths and weaknesses in knowledge and skill proficiency and contributions to a project related to the work-based learning experience;

(B) develop and maintain a professional portfolio to include:

(i) attainment of technical skill competencies;

(ii) licensures or certifications;

(iii) recognitions, awards, and scholarships;

(iv) extended learning experiences such as community service and active participation in career and technical student organizations and professional organizations;

(v) abstract of key points of the practicum;

(vi) resume;

(vii) samples of work; and

(viii) evaluation from the practicum supervisor; and

(C) present the professional portfolio to interested stakeholders.

(7) The student develops a presentation describing the culmination of skills and knowledge gained from the work-based learning experience. The student is expected to:

(A) develop a professional presentation to display and communicate the work-based learning experience, including goals and objectives, levels of achievement, skills and knowledge gained, areas for improvement and personal growth, challenges encountered throughout the experience, and a plan for future goals;

(B) identify an appropriate audience and coordinate the presentation of findings related to the work-based learning experience;

(C) present findings in a professional manner using concise language, engaging content, relevant media, and clear speech; and

(D) analyze feedback received from a presentation.

§127.453. Extended Practicum in Engineering (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grade 12. The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Engineering Career Cluster. Prerequisites: Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering Career Cluster. This course must be taken concurrently with Practicum in Engineering and may not be taken as a stand-alone course. Students shall be awarded one credit for successful completion of this course. A student may repeat this course once for credit provided that the student is experiencing different aspects of the industry and demonstrating proficiency in additional and more advanced knowledge and skills.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Engineering Career Cluster focuses on planning, designing, testing, building, and maintaining machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and mapping technician.

(3) Extended Practicum in Engineering is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student researches and describes ethics pertaining to engineering. The student is expected to explain how engineering ethics as defined by the Texas Board of Professional Engineers and Land Surveyors apply to engineering practice.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site;~~]

[~~(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;~~]

[~~(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions in the design process;~~]

[~~(D) use time management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;~~]

[~~(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain how engineering ethics as defined by professional organizations such as the National Society of Professional Engineers apply to engineering practice;~~]

[~~(G) demonstrate respect for differences in the workplace;~~]

[~~(H) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;~~]

[~~(I) identify consequences relating to discrimination and harassment;~~]

[~~(J) analyze elements of professional codes of conduct or creeds in engineering such as the National Society of Professional Engineers Code of Ethics for Engineers and how they apply to the knowledge and skills of the course and the engineering profession;~~]

[~~(K) identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~]

[~~(L) compare skills and characteristics of managers and leaders in the workplace.~~]

(2) The student understands how a professional engineer serves the local and global community. The student is expected to:

(A) research and identify student and professional engineering organizations and the benefits of membership such as networking platforms, training and educational opportunities, and participating in community initiatives;

(B) explain an engineer's role and how various engineering roles serve the organization, community, and society; and

(C) evaluate how the work of student or professional engineering organizations impact the local or global community such as recommended practices and issuing standards.

(3) The student uses critical thinking and problem solving in the work-based learning experience. The student is expected to:

(A) conduct technical research to gather information, identify gaps, and make decisions in the work-based learning experience;

(B) develop creative and innovative solutions to problems in the work-based learning experience;

(C) analyze and compare alternative designs for an effective solution to a problem in the work-based learning experience; and

(D) evaluate and present solutions to problems in the work-based learning experience.

(4) The student understands and demonstrates how effective leadership and teamwork skills enable the accomplishment of goals and objectives. The student is expected to**:**

(A) analyze leadership characteristics such as trustworthiness, positive attitude, integrity, and work ethic;

(B) explain and demonstrate effective characteristics of teamwork;

(C) explain and demonstrate responsibility for shared group and individual work tasks in the work-based learning experience;

(D) describe and analyze how strategies such as meeting deadlines, showing respect for all individuals, and communicating clearly and timely contribute to effective working relationships and accomplishing objectives; and

(E) research and identify opportunities to participate in extracurricular engineering activities.

(5) The student demonstrates oral and written communication skills in delivering and receiving information and ideas. The student is expected to:

(A) apply appropriate content knowledge, technical concepts, and vocabulary to analyze information and follow directions;

(B) use professional communication skills such as using technical terminology, email etiquette, and following the organization or team communication plan and hierarchy when delivering and receiving information in the work-based learning experience;

(C) identify and analyze information contained in informational texts, internet sites, or technical materials in the work-based learning experience;

(D) describe and analyze verbal and nonverbal cues and behaviors such as body language, tone, and interrupting to enhance communication in the work-based learning experience; and

(E) apply active listening skills to receive and clarify information in the work-based learning experience.

(6) The student reflects on the work-based learning experience to prepare for postsecondary and employment success. The student is expected to:

(A) assess and evaluate personal strengths and weaknesses in knowledge and skill proficiency and contributions to a project related to the work-based learning experience;

(B) develop and maintain a professional portfolio to include:

(i) attainment of technical skill competencies;

(ii) licensures or certifications;

(iii) recognitions, awards, and scholarships;

(iv) extended learning experiences such as community service and active participation in career and technical student organizations and professional organizations;

(v) abstract of key points of the practicum;

(vi) resume;

(vii) samples of work; and

(viii) evaluation from the practicum supervisor; and

(C) present the professional portfolio to interested stakeholders.

(7) The student develops a presentation describing the culmination of skills and knowledge gained from the work-based learning experience. The student is expected to:

(A) develop a professional presentation to display and communicate the work-based learning experience, including goals and objectives, levels of achievement, skills and knowledge gained, areas for improvement and personal growth, challenges encountered throughout the experience, and a plan for future goals;

(B) identify an appropriate audience and coordinate the presentation of findings related to the work-based learning experience;

(C) present findings in a professional manner using concise language, engaging content, relevant media, and clear speech; and

(D) analyze feedback received from a presentation.

ATTACHMENT I
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter C. Agriculture, Food, and Natural Resources

§127.59. Geographic Information Systems for Agriculture (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisites: Principles of Agriculture, Food, and Natural Resources. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Agriculture, Food, and Natural Resources career cluster focuses on the essential elements of life, food, water, land, and air. This career cluster includes occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

(3) Geographic Information Systems for Agriculture is a course designed to provide students with the academic and technical knowledge and skills that are required to pursue a career as a precision agriculture specialist, a crop specialist, an independent crop consultant, a nutrient management specialist, a physical scientist, a precision agronomist, a precision farming coordinator, a research agricultural engineer, or a soil fertility specialist. Students will learn to use computers to develop or analyze maps of remote sensing to compare physical topography with data on soils, fertilizer, pests, or weather.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) identify career and entrepreneurship opportunities for a chosen occupation in the field of agriculture and develop a plan for obtaining the education, training, and certifications required for the chosen occupation;~~]

[~~(B) model professionalism by continuously exhibiting appropriate work habits, solving problems, taking initiative, communicating effectively, listening actively, and thinking critically;~~]

[~~(C) model appropriate personal and occupational safety and health practices and explain the importance of established safety and health protocols for the workplace;~~]

[~~(D) analyze and interpret the rights and responsibilities, including ethical conduct and legal responsibilities, of employers and employees; and~~]

[~~(E) analyze the importance of exhibiting good citizenship and describe the effects of good citizenship on the development of home, school, workplace, and community.~~]

(1) [~~(2)~~] The student develops a supervised agriculture experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agriculture experience as an experiential learning activity;

(B) use appropriate record-keeping skills in a supervised agricultural experience;

(C) participate in youth agricultural leadership opportunities;

(D) review and participate in a local program of activities; and

(E) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(2) [~~(3)~~] The student explains the current applications of geographic information system (GIS) in agriculture, food, and natural resources and identifies the future need for GIS in precision agriculture. The student is expected to:

(A) research and compare current and emerging careers related to GIS in agriculture and natural resource fields;

(B) identify and analyze applications of GIS technologies in agriculture, food, and natural resources;

(C) explain GIS data as it pertains to agriculture; and

(D) describe the types of licensing, certification, and credentialing requirements related to GIS occupations.

(3) [~~(4)~~] The student analyzes geographic information and spatial data types in agriculture, food and natural resources. The student is expected to:

(A) identify the uses of GIS in agriculture;

(B) identify the GIS terminology used in agriculture applications, such as spatial analysis, remote sensing, georeferencing, geostatistics, and geocoding;

(C) identify GIS models and representations in precision agriculture;

(D) explain GIS representations of geographic phenomena in soil types, topography, and farming management;

(E) organize and describe spatial data in yield monitoring for crop planning; and

(F) analyze GIS data sources and ethics in agriculture.

(4) [~~(5)~~] The student uses agriculture, food, and natural resources GIS tools. The student is expected to:

(A) identify hardware and software for agriculture data management and processing;

(B) explain spatial data capture and preparation, spatial data storage and maintenance, spatial query and analysis, and spatial data presentation for agriculture; and

(C) describe remote sensing tools and technologies used in precision farming, including unmanned aerial support (UAS), unmanned aerial vehicles (UAV), and global positioning satellite (GPS).

(5) [~~(6)~~] The student integrates spatial referencing and global positioning techniques in agriculture, food, and natural resources. The student is expected to:

(A) explain spatial referencing systems and projections for capturing and displaying agricultural data; and

(B) identify uses for satellite-based positioning to increase agriculture proficiency.

(6) [~~(7)~~] The student evaluates applications for spatial data entry and preparation for agricultural analysis. The student is expected to:

(A) analyze agricultural GIS spatial data; and

(B) explain and analyze data accuracy and precision related to using GIS in agriculture.

(7) [~~(8)~~] The student performs agricultural spatial data analysis. The student is expected to:

(A) analyze GIS maps of agricultural fields to determine variables that would impact maximum crop yields;

(B) compare vector and raster-based data for agricultural analysis; and

(C) explain types of GIS analysis used in natural resource management.

(8) [~~(9)~~] The student creates spatial data visualizations and cartographic models. The student is expected to:

(A) identify types of GIS maps used in agriculture;

(B) develop GIS maps for various types of agricultural data;

(C) identify and explain the purpose of cartographic symbols used in precision farming; and

(D) analyze visual data and explain how the data is used in agricultural decision making.

§127.61. Beekeeping and Honey Processing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisites: Principles of Agriculture, Food, and Natural Resources. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Agriculture, Food, and Natural Resources career cluster focuses on the essential elements of life, food, water, land, and air. This career cluster includes occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

(3) Beekeeping and Honey Processing is a course designed to provide students with the academic and technical knowledge and skills that are required to pursue a career related to beekeeping, apiary operations, honey harvesting, and related industries. Beekeeping and honey processing is a vital part of the United States agricultural economy. To prepare for success in Beekeeping and Honey Processing, students need opportunities to learn, reinforce, experience, apply, and transfer their knowledge and skills in a variety of settings.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career

development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) identify career and entrepreneurship opportunities for a chosen occupation in the field of agriculture and develop a plan for obtaining the education, training, and certifications required for the chosen occupation;~~]

[~~(B) model professionalism by continuously exhibiting appropriate work habits, solving problems, taking initiative, communicating effectively, listening actively, and thinking critically;~~]

[~~(C) model appropriate personal and occupational safety and health practices and explain the importance of established safety and health protocols for the workplace;~~]

[~~(D) analyze and interpret the rights and responsibilities, including ethical conduct and legal responsibilities, of employers and employees; and~~]

[~~(E) analyze the importance of exhibiting good citizenship and describe the effects of good citizenship on the development of home, school, workplace, and community.~~]

(1) [~~(2)~~] The student develops a supervised agriculture experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agriculture experience as an experiential learning activity;

(B) use appropriate record-keeping skills in a supervised agricultural experience;

(C) participate in youth agricultural leadership opportunities;

(D) review and participate in a local program of activities; and

(E) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(2) [~~(3)~~] The student explores the biology of bee behavior. The student is expected to:

(A) identify different types and life spans of bees;

(B) explain the different roles assumed by the different types of honeybees, including the queen, drones, and workers; and

(C) describe honeybee development, castes, behavior, division of labor, and the bee life cycle, including larval, pupal, and adult stages.

(3) [~~(4)~~] The student analyzes beehive design and development. The student is expected to:

(A) identify the site characteristics required for successful beehive production;

(B) analyze factors such as climatic characteristics and food sources to determine the suitability of a beehive site for honey harvesting and pollination;

(C) research and compare the conditions of successful beehives in other parts of the world with similar local conditions; and

(D) develop a beehive design and installation plan, including consideration of sunlight, access to water, wind, topography, human and animal habitation, and good neighbor policy.

(4) [~~(5)~~] The student evaluates technology and best practices for weatherizing a beehive. The student is expected to:

(A) explain the environmental conditions that lead to bee colonies adapting to extremes in climate conditions;

(B) compare seasonal strategies for proper beehive management and describe why best management practices change based on the seasons, including spring, summer, autumn, and winter; and

(C) explain practices for winterizing hives.

(5) [~~(6)~~] The student demonstrates beehive management techniques. The student is expected to:

(A) identify the tools of an apiarist and demonstrate safe and proper usage of tools;

(B) demonstrate inspection of a beehive and describe necessary equipment, including a bee suit, a smoker, and a comb replacement;

(C) explain beehive training techniques, including diagnosing the brood pattern, adding brood comb to the nest, switching colonies, feeding bees, providing water, removing old combs, extracting honey, and caging queens;

(D) identify safety precautions in the field while handling live bees, caring for the colonies in the hives, and extracting honey and honeycomb;

(E) explain the proper methods of bee handling to prevent harm to handlers and others; and

(F) describe personal protective equipment used to reduce the risk of accidents.

(6) [~~(7)~~] The student develops an integrated pest management plan for beehives. The student is expected to:

(A) identify the major insect pests and diseases of honeybees;

(B) compare the components of honeybee integrated pest management; and

(C) describe the safe usage of pesticides in honeybee hives.

(7) [~~(8)~~] The student examines honey harvesting and the use of proper equipment and tools. The student is expected to:

(A) describe the tools and equipment used in honey production, including a bee brush, fume board, honey drip tray, nectar detector, escape board, and extractor;

(B) explain the safe use of honey harvesting tools;

(C) explain the use of technology in modern honey production systems; and

(D) explain the appropriate procedures used to extract honey.

(8) [~~(9)~~] The student identifies procedures and regulations for sanitation and safety in the food industry. The student is expected to:

(A) identify food industry inspection standards, including hazard analysis and critical control points;

(B) identify the appropriate chemicals used in the food industry, specifically in honey processing;

(C) identify safety and governmental regulations involved in the processing and labeling of foods, including honey;

(D) explain the procedures relating to the safe manufacture of foods through hygienic food handling and processing;

(E) develop and maintain sanitation schedules; and

(F) identify food safety laws that impact the bee industry.

(9) [~~(10)~~] The student demonstrates an in-depth understanding of [~~a~~] beekeeping , bee hauling, and honey processing businesses [~~business~~] , including production, processing, marketing, sales, and distribution. The student is expected to:

(A) describe the roles of an entrepreneur in [~~a~~] beekeeping , bee hauling, and honey processing operations [~~operation~~] ;

(B) differentiate between small, medium, and large-sized bee and honey businesses;

(C) create a list of tools and equipment needed to start a beekeeping operation and develop a budget to start a beekeeping business; and

(D) develop a business model for beekeeping, honey production, and honey processing.

(10) [~~(11)~~] The student completes the process for development, implementation, and evaluation of a marketing plan and a financial forecast for beekeeping. The student is expected to:

(A) identify and explain the target market for honey-related products;

(B) create and conduct a customer survey;

(C) analyze the customer survey results;

(D) identify modification recommendations based on customer survey results;

(E) complete a detailed honey-related products market analysis;

(F) analyze and explain different types of marketing strategies;

(G) describe a social media marketing campaign for honey-processed products; and

(H) develop and explain a projected income statement, cash budget, balance sheet, and projected sources and uses of funds statement.

(11) [~~(12)~~] The student explains the scope and nature of distribution of honey-related products. The student is expected to:

(A) explain effective distribution activities, including transportation, storage, product handling, and inventory control;

(B) explain how distribution can add value to goods and [~~,~~] services, which can be protected by [~~and~~] intellectual property; and

(C) analyze distribution costs for honey-related products.

ATTACHMENT II
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter F. Business, Marketing, and Finance

§127.262. Marketing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisite: Principles of Business, Marketing, and Finance. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

(3) The Marketing course explores the seven core functions of marketing, which include marketing planning -- why target marketing and industry affect businesses; marketing-information management -- why market research is important; pricing -- how prices maximize profit and affect the perceived value; product/service management -- why products live and die; promotion -- how to inform customers about products; channel management -- how products reach the final user; and selling -- how to convince a customer that a product is the best choice. Students will demonstrate knowledge through hands-on projects that may include conducting research, creating a promotional plan, pitching a sales presentation, and introducing an idea for a new product or service.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student defines marketing and identifies the seven core functions of marketing. The student is expected to:

(A) define marketing and explain the marketing concept; and

(B) identify the seven core functions of marketing, including marketing planning, marketing-information management, pricing, product/service management, promotion, channel management, and selling.

(2) The student knows the interrelationship and purpose of the marketing mix or 4P's of marketing: product, price, promotion, and place. The student is expected to:

(A) identify and describe the four elements of the marketing mix, including product, price, place, and promotion;

(B) explain how each component of the marketing mix contributes to successful marketing;

(C) analyze the interdependence of each element of the marketing mix with the other three elements;

(D) develop and present an idea for a new product or service and the marketing mix for the new product or service; and

(E) investigate and explain how to determine the feasibility of a new product or service proposal.

(3) The student knows how a company considers internal and external factors to understand the current market. The student is expected to:

(A) explain the internal and external factors that influence marketing planning;

(B) define a marketing plan and describe each step in the plan;

(C) identify and explain market position and market share;

(D) explain how a business can use a strengths, weaknesses, opportunities, and threats (SWOT) analysis to plan for opportunities in the market;

(E) conduct a SWOT analysis; and

(F) analyze the data from a SWOT analysis to make informed business decisions.

(4) The student applies the concepts of market and market identification to make informed business decisions. The student is expected to:

(A) define the term market;

(B) identify the target market for a product or service;

(C) define niche marketing, identify examples of niche marketing, and compare niche marketing to other marketing strategies;

(D) analyze an appropriate target market within a specific industry;

(E) compare types of markets, including business to business and business to consumer; and

(F) identify real-life scenarios of effective markets and explain what makes a market effective.

(5) The student understands the concept of market segmentation. The student is expected to:

(A) define the term market segmentation;

(B) explain the commonly used types of market segmentation, including demographic segmentation, geographic segmentation, psychographic segmentation, and behavioral segmentation;

(C) analyze the impact of culture on buying decisions; and

(D) describe how market segmentation concepts apply to real-world situations.

(6) The student understands the purpose and importance of gathering and evaluating information for use in making business decisions. The student is expected to:

(A) describe marketing information and how it influences marketing decisions;

(B) use marketing-research tools to gather primary and secondary data;

(C) compare primary and secondary research data;

(D) define analytics;

(E) identify sources of data and information that can be analyzed to make business decisions;

(F) identify key business metrics that are used to make business decisions or evaluate outcomes of business decisions; and

(G) analyze data and make recommendations for improving business operations.

(7) The student explains concepts and strategies used in determining and adjusting prices to maximize return and meet customers' perceptions of value. The student is expected to:

(A) investigate and describe how businesses make pricing decisions;

(B) identify and explain goals for pricing, including profit, market share, and competition;

(C) analyze factors affecting price, including supply and demand, perceived value, costs, expenses (profit margin), and competition;

(D) explain the economic principle of break-even point;

(E) explain key pricing terms, including odd/even pricing, loss leaders, prestige pricing, penetration pricing, price bundling, price lining, and everyday low pricing; and

(F) explain how supply and demand affect price.

(8) The student explains the role of product or service management as a marketing function. The student is expected to:

(A) explain the concept of product mix, including product lines, product width, and product depth;

(B) explain the importance of generating new product ideas;

(C) analyze the product mix for a current business;

(D) identify and discuss the components of the product life cycle, including introduction, growth, maturity, and decline; and

(E) identify the impact of marketing decisions made in each stage of the product life cycle.

(9) The student knows the process and methods to communicate information about products to achieve a desired outcome. The student is expected to:

(A) explain the role of promotion as a marketing function;

(B) identify and describe elements of the promotional mix, including advertising, public relations, personal selling, and sales promotion;

(C) describe and demonstrate effective ways to communicate features and benefits of a product to a potential client; and

(D) analyze and evaluate websites for effectiveness in achieving a desired outcome.

(10) The student identifies promotional channels used to communicate with the targeted audiences. The student is expected to:

(A) create advertising examples using various media, including print media such as outdoor, newspapers, magazines, and direct mail; digital media such as email, apps, and social media; and broadcast media such as television and radio, to communicate with target audiences;

(B) describe various public-relations activities such as a press releases and publicity management;

(C) analyze and compare examples of sales promotions such as coupons, loyalty programs, rebates, samples, premiums, sponsorship, and product placement; and

(D) explain the role of marketing ethics in promotional strategies.

(11) The student explores the role of channel members and methods of product transportation. The student is expected to:

(A) define channel of distribution;

(B) describe the roles of intermediaries, including manufacturer, agent, wholesaler/industrial distributor, retailer, and consumer/industrial user, and explain how the roles may impact business decisions and the success of a business;

(C) identify and discuss the methods of transportation for products, including road, air, maritime, rail, and intermodal; and

(D) analyze and explain the impact of the distribution channel on price.

(12) The student demonstrates how to determine client needs and wants and responds through planned and personalized communication. The student is expected to:

(A) explain the role of personal selling as a marketing function;

(B) explain the role of customer service as a component of selling relationships;

(C) explain the importance of preparing for the sale, including gaining knowledge of product features and benefits, identifying the target market and their needs, and overcoming common objections; and

(D) identify and explain ways to determine needs of customers and their buying behaviors, including emotional, rational, or patronage.

(13) The student demonstrates effective sales techniques. The student is expected to:

(A) describe the steps of the selling process such as approaching the customer, determining needs, presenting the product, overcoming objections, closing the sale, and suggestive selling;

(B) explain effective strategies and techniques for various sales situations; and

(C) develop and pitch a sales presentation for a product or service using the steps of the sales process such as addressing customers' needs, wants, and objections and negotiating the sale.

(14) The student implements a marketing plan. The student is expected to:

(A) identify a key target audience;

(B) develop an appropriate message and select a medium to attract customers;

(C) create a promotional plan that includes target market, promotional objective, advertising media selection, promotional schedule, and budget;

(D) develop and present a marketing plan to an audience; and

(E) analyze various marketing plans for effectiveness.

(15) The student knows the nature and scope of project management. The student is expected to:

(A) investigate and describe the various tools available to manage a project such as a Gantt chart; and

(B) define and explain the components of a project plan, including project goals schedule, timeline, budget, human resources, quality management, risk management, monitoring, and controlling a project.

(16) The student knows the nature and scope of ethics in marketing. The student is expected to:

(A) analyze and explain the role and use of ethics in marketing;

(B) research and discuss how ethics has affected a company's profitability; and

(C) describe how marketing ethics can be effectively applied to the decision-making process.

§127.263. Retail Management (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Business, Marketing, and Finance Career Cluster. Recommended prerequisite: Principles of Business, Marketing, and Finance. Students shall be awarded one credit for the successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current professions.

(2) The Business, Marketing, and Finance Career Cluster focuses on planning, managing, and performing marketing activities to reach organizational objectives.

(3) Retail Management is designed as a comprehensive introduction to the principles and practices of retail management. The course explores the process of promoting greater sales and customer satisfaction by gaining a better understanding of the consumers of the goods and services provided by a company. The course provides an overview of the strategies involved in the retail process such as distributing finished products created by the business to consumers and determining what buyers want and require from the retail market.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student uses self-development techniques and interpersonal skills to accomplish retail management objectives. The student is expected to:

(A) describe and demonstrate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers;

(B) create a self-development plan that includes improving leadership and interpersonal skills and that identifies opportunities to participate in leadership and career development activities; and

(C) identify and describe employability skills needed to be successful in the retail marketing industry.

(2) The student explores features of excellent customer service. The student is expected to:

(A) discuss the importance of and demonstrate effective communication skills such as active listening, evaluating nonverbal signals, and use of appropriate grammar, vocabulary, and tone;

(B) present written and oral communication, including email, traditional letter writing, face-to-face conversations, and phone conversation, in a clear, concise, and effective manner for a variety of purposes and audiences;

(C) discuss how company policy impacts an employee's interactions with consumers and a consumer's interactions with the retail establishment; and

(D) analyze how attitude impacts a consumer's experience with the retailer.

(3) The student creates professional documents required for employment. The student is expected to:

(A) develop a professional portfolio or resume;

(B) write appropriate business correspondence such as a letter of intent and a thank you letter;

(C) complete sample job applications accurately and effectively; and

(D) explain protocol for identifying and asking for references.

(4) The student analyzes non-store retailing modalities, including direct selling, telemarketing, online retailing, automatic vending, direct marketing, and e-tailing. The student is expected to:

(A) investigate and evaluate the effectiveness of marketing and selling through online platforms such as mobile apps and software applications;

(B) analyze and explain the disadvantages of non-store retailing such as security concerns, inability to interact with the customer, delay in customer receipt of the product, less ease of return for unwanted items, and the lack of social interaction between customers and retailers; and

(C) analyze and explain the advantages of non-store retailing such as unlimited access for customers to view the inventory, the ability for customers to purchase 24 hours per day/7 days a week, lower overhead cost, and a larger inventory of items than is housed in a brick-and-mortar facility.

(5) The student analyzes marketing research to make changes to business strategies or operations. The student is expected to:

(A) synthesize and analyze data collected through surveys, interviews, group discussions, and internal records to create data reports;

(B) explain how data reports are used to make decisions to improve a retailer's practices and improve overall operations;

(C) analyze and evaluate the effective use of surveys to gather data needed by the retailer to make effective operational decisions;

(D) disaggregate and analyze internal data such as sales data, shipping data, finance reports, inventory reports, and customer and personnel feedback collected by the retailer to make effective operational decisions;

(E) disaggregate and analyze marketing data based on indicators such as age, gender, education, employment, income, family status, and ethnicity to identify and evaluate products based on the retailers' target market; and

(F) identify and analyze how the product, price, promotion, and placement of the product impacts the retail market.

(6) The student understands the role and responsibilities of a buyer in retail management and understands the purpose of analyzing the target market to interpret consumer needs and wants based on data. The student is expected to:

(A) define and describe various merchandising categories such as staple, fashion, seasonal, and convenience;

(B) describe merchandise plans and their components, including planned sales, planned stock, planned stocked reductions, and planned retail purchases;

(C) analyze and discuss each stage of a product's life cycle, including introduction, growth, maturity, and decline, and explain how each stage relates to the target market; and

(D) develop a budget based on financial goals.

(7) The student applies inventory management strategies to effectively create and manage reliable tracking systems to schedule purchases, calculate turnover rate, and plan merchandise and marketing decisions. The student is expected to:

(A) describe the process of purchasing inventory and executing a purchase order, transporting orders, and receiving orders;

(B) explain inventory management practices, including ordering, storing, producing, and selling merchandise;

(C) differentiate between perpetual and periodic inventory tracking methods and describe how point-of-sale software, universal product codes, radio frequency identification, stock shrinkage, and loss prevention impact a retailer's inventory management; and

(D) analyze and describe how stock turnover rates impact inventory.

(8) The student evaluates retailer pricing strategies based on factors such as competition, the economy, and supply and demand to maximize sales and profit. The student is expected to:

(A) analyze how uncontrollable factors such as competition, the economy, and supply and demand impact pricing;

(B) explain how controllable factors such as company goals, operating expenses, and product life cycles impact pricing;

(C) differentiate between demand-based pricing, competition-based pricing, and cost-based pricing and explain how each pricing method is used to determine the base price for a product;

(D) identify and describe how market share impacts pricing of products; and

(E) create price points using keystone pricing, industry benchmarks, and industry surveys.

(9) The student explores effective promotional activities, including advertising, sales promotion, public relations, and personal selling, that retail managers use to inform, persuade, and remind customers of products that will meet consumer needs. The student is expected to:

(A) explain the six elements of effective communication, including source, message, channel, environment, context, and feedback;

(B) demonstrate effective written, verbal, and nonverbal communication;

(C) analyze and evaluate promotional communication techniques used to inform or motivate consumers to invest in products or services;

(D) differentiate between techniques used for advertising, public relations, personal selling, and sales promotion; and

(E) investigate and evaluate technology applications that promote items using online advertising, web presence, social media, email campaigns, and other modes of electronic promotions.

(10) The student analyzes and applies personal selling elements needed in retail management to determine how to generate sales. The student is expected to:

(A) explain sales generating techniques, including prospecting, solution development, buyer qualification, opportunity qualification and control, negotiation, and account management and follow-up;

(B) describe how ethical behaviors of a sales associate impacts the retail market;

(C) demonstrate effective selling techniques needed in the retail market;

(D) analyze and describe best practices in product training for sales associates;

(E) explain how determining the needs, presenting the product, handling objections, closing the sale, and following up with customers increases sales for the retailer; and

(F) identify effective questions and questioning techniques sales associates use with consumers to gain a competitive advantage or increase sales and discuss the importance of strategically selecting questions and techniques based on the product or service and target market.

(11) The student explores how to effectively use visual merchandising. The student is expected to:

(A) analyze and describe how a retailer's storefront, store layout, store interior, centralized visual merchandising, and interior displays impact sales and a consumer's experience with the business; and

(B) develop a visual merchandising plan using proper design elements such as mannequins, props, lighting, color, signage, and graphics.

(12) The student understands the role of the retail manager for recruiting, hiring, training, supervising, and terminating employees as well as maintaining the everyday operation of a business to ensure that it functions efficiently and meets established goals. The student is expected to:

(A) identify and describe effective methods of recruiting employees externally;

(B) explain effective methods of recruiting employees internally;

(C) describe how to recruit a diverse pool of talent for employment consideration;

(D) explain the importance of the Equal Employment Opportunity Commission guidelines on the recruitment process;

(E) explain the benefits of training employees to learn new skills and technologies and comply with new laws and regulations;

(F) develop an employee appraisal program;

(G) explain an effective employee performance evaluation system and the importance of including supervisors and managers, peers, customers or clients, and subordinates in the process; and

(H) identify leadership and career development activities such as involvement with appropriate student and local management associations and create a personal development plan that includes participation in leadership and career development activities.

(13) The student understands the importance of effective teams and how effective leaders implement group development strategies. The student is expected to:

(A) explain the process of forming, storming, norming, performing, and adjourning;

(B) analyze and discuss effective interpersonal and team-building skills involving situations with coworkers, supervisors, and subordinates;

(C) investigate and analyze personal integrity and its effects on relationships in the workplace;

(D) describe characteristics of successful working relationships such as teamwork, conflict resolution, self-control, and the ability to accept criticism;

(E) discuss the importance of showing respect to all people and explain how showing respect to all people impacts the success of a business;

(F) identify employer expectations and discuss how meeting employer expectations impacts the success of a business; and

(G) explain and demonstrate productive work habits and attitudes.

(14) The student explores the practice of risk management, including identifying, assessing, and reducing risk through proper planning. The student is expected to:

(A) differentiate between natural, human, market, economic, and market risks;

(B) differentiate between controllable and uncontrollable risks;

(C) investigate and explain effective strategies for identifying, assessing, and reducing risks; and

(D) analyze how financial losses from human, physical, and natural risk factors can be minimized through the use of insurance.

ATTACHMENT III
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter J. Health Science [~~Hospitality and Tourism~~]

§127.510. Speech and Language Development (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Recommended prerequisites: Principles of Health Science, Anatomy and Physiology, and Introduction to Speech Pathology and Audiology. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development.

(3) The Speech and Language Development course provides advanced knowledge and skills related to speech and language acquisition and growth of developing children. Understanding healthy development and speech, language, and communication developmental milestones is a prerequisite for studying communication disorders. This course provides students with the knowledge and skills necessary to pursue further education, possibly culminating in a bachelor's degree and subsequent master's degree in communication sciences and disorders.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of and demonstrate clear, concise, and effective verbal and non-verbal communication; and~~]

[~~(B) describe and demonstrate effective teamwork skills, including cooperation, contribution, and collaboration.~~]

(1) [~~(2)~~] The student understands basic human communication processes, including the biological, neurological, psychological, developmental, linguistic, and cultural processes. The student is expected to:

(A) differentiate between communication, speech, language, and hearing;

(B) summarize the structural bases of speech production and hearing;

(C) compare anatomy and physiology of the speech mechanism;

(D) examine and describe the anatomy and physiology of the auditory system;

(E) identify and describe healthy verbal and nonverbal communication development;

(F) describe the developmental building blocks and prerequisites for healthy speech and language development;

(G) identify and define terminology related to human communication such as speech sound production, fluency (stuttering), voice, language, hearing, hearing loss, breathing, swallowing, pragmatics, and cognition; and

(H) explain social-interactive and psychological bases of communication and the influences it has on interpersonal communication, including linguistic and cultural influences.

(2) [~~(3)~~] The student gains knowledge and understanding of various theoretical perspectives of healthy speech and language acquisition. The student is expected to:

(A) investigate and explain the major theories of language acquisition;

(B) compare the major theories of speech sound production; and

(C) research and explain the connections between language development and speech development as they relate to phonological awareness in learning to read.

(3) [~~(4)~~] The student understands the healthy development of speech sound production in children. The student is expected to:

(A) describe articulatory phonetics and explain how articulatory phonetics relate to the respiratory system, including the larynx, vocal tract, articulators (velopharynx, tongue, lips, and jaw), and air flow;

(B) analyze the foundation for speech acquisition in relation to auditory perception before birth and in infants;

(C) describe early vocal development in infants as a prerequisite for speech;

(D) explain how the use of vowels by infants and young children is important for the development of speech;

(E) illustrate ways to categorize or describe vowel and diphthong production;

(F) research and describe the development of consonant inventories in young English-speaking children;

(G) describe and differentiate between models for describing consonant production;

(H) summarize progression in speech development for combining sounds into syllable shapes and words; and

(I) analyze the linguistic and cultural influences of the heritage/native language on the development of speech sound production in English.

(4) [~~(5)~~] The student understands the components of a developing language system and how language skills develop in children. The student is expected to:

(A) identify and explain the components of a language system, including phonology, phonetics, morphology, syntax, semantics, and pragmatics;

(B) explain the components of a developing language system in terms of vocabulary, grammar, and social and interpersonal communication;

(C) describe the prerequisite skills for developing language;

(D) differentiate between language delay, language disorders, and language difference;

(E) outline the milestones of healthy language development from birth through age five years related to comprehension and expression;

(F) summarize healthy language development from Kindergarten (age 5) through Grade 5 (age 10 or 11) and describe factors that influence age-appropriate development of language;

(G) describe healthy continuing language development in adolescence for each component of a developing language system; and

(H) compare cultural and ethnic differences in language development.

(5) [~~(6)~~] The student explores the healthy development of verbal fluency skills in children. The student is expected to:

(A) define and differentiate between verbal fluency, disfluencies, and stuttering;

(B) identify and explain common disfluencies and periods of expected disfluencies;

(C) explain the development of speech and language skills;

(D) differentiate between and discuss variables that may affect verbal fluency; and

(E) describe ways to measure verbal fluency for English language learners and evaluate the effectiveness of each method.

(6) [~~(7)~~] The student explores parameters of voice production in children and adults. The student is expected to:

(A) describe the physical and physiological parameters of voice production;

(B) describe the components of healthy voice production, including voice quality, pitch, loudness, resonance, and duration;

(C) explain causes or etiologies of variations in voice production;

(D) describe how parameters of voice production change throughout the span of life;

(E) analyze environmental variables that may affect voice production;

(F) explain the practice of speech-language pathology and allowable services; and

(G) analyze the ethical considerations for the speech-language pathologist in dealing with individuals with a possible voice disorder and the requirement for ongoing work with a physician.

(7) [~~(8)~~] The student understands the development of effective language and communication skills needed to demonstrate high levels of achievement in elementary and secondary school. The student is expected to:

(A) research and describe the milestones of communication development and literacy development;

(B) compare milestones of communication development to the milestones of literacy development;

(C) differentiate between interpersonal language used for conversational interaction and more formal, literate language used for learning academic content;

(D) define and provide examples of tier 1, tier 2, and tier 3 vocabulary as it relates to language development and meeting grade level expectations of academic vocabulary across subject areas;

(E) explain the development of language used for oral and written narratives and demonstrate how story grammar can be used as a bridge between conversational language and academic language;

(F) analyze the development of pragmatic-language skills and the types of verbal, nonverbal, and written communication skills needed to do well in school; and

(G) define emergent literacy and analyze the language base necessary for the development of reading skills.

(8) [~~(9)~~] The student explores healthy and unhealthy speech and language development. The student is expected to:

(A) describe the role of the speech-language pathologist in determining healthy speech and language development and speech sound disorders and language disorders;

(B) explain the purpose of and describe techniques for screening speech and language skills in children;

(C) explain the purpose of and describe techniques for evaluating speech and language skills in children;

(D) analyze the Response to Intervention (RtI) method for accurately identifying a speech or language disorder in school-age children; and

(E) discuss the role of the speech-language pathologist in referral, counseling, and providing basic information when there are concerns about a child's speech or language development.

(9) [~~(10)~~] The student demonstrates effective verbal and nonverbal communication skills. The student is expected to:

(A) describe and demonstrate appropriate communication skills when interacting with elementary age students, classroom teachers, speech-language pathologists, principals, and parents in various situations;

(B) identify and demonstrate verbal and nonverbal communication techniques that should be used when communicating with children who have sensory loss, language barriers, cognitive impairment, and other learning disabilities;

(C) identify and evaluate electronic communication and technology devices that may be used when interacting with children with communication disorders; and

(D) differentiate between oral interpretation and translation skills from English to a second language.

(10) [~~(11)~~] The student explores the influence of dialects of Standard American English or native language on the development of speech and language skills in English and on the production of English. The student is expected to:

(A) provide examples of how a common phrase may be expressed across Standard American English and three different dialects;

(B) describe how speech and language patterns vary as a function of language, age, socioeconomic status, and geography;

(C) analyze the characteristics of American English dialects in terms of speech sound production and language use;

(D) explain the influence of heritage language on the speech sound production and grammar development of English in emergent bilingual students; and

(E) analyze speech and language patterns of English language learners in terms of expected speech and language development.

§127.511. Speech Communication Disorders (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: at least one credit in a course from the Health Science Career Cluster. Recommended prerequisites: Principles of Health Science, Anatomy and Physiology, Introduction to Speech-Language Pathology and Audiology, Speech and Language Development, and Human Growth and Development. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development.

(3) The Speech Communication Disorders course is designed to provide for the development of advanced knowledge and skills related to an overview of communication disorders that occur in children and adults in the areas of speech sound production, stuttering, voice disorders, and the language areas of semantics, syntax, pragmatics, phonology, and metalinguistics. An overview of treatment for hearing loss and deafness will also be provided.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; and~~]

[~~(B) demonstrate the ability to cooperate, contribute, and collaborate as a member of a team.~~]

(1) [~~(2)~~] The student demonstrates knowledge of the nature of speech, language, hearing, and communication disorders and differences. The student is expected to:

(A) identify the anatomy and describe the function of the peripheral and central auditory pathways;

(B) describe the physical and psychological attributes of sound;

(C) differentiate between the different types of hearing loss and their causes;

(D) describe the impact of hearing loss on speech and language development;

(E) compare the processes of speech, language, and hearing in people of various cultures;

(F) identify and relate disorder differences in relationship to communication skills;

(G) explain the concepts of speech, language, hearing, and communication disorders across the human lifespan; and

(H) explain potential barriers and solutions that an interpreter or translator must consider when communicating with a child with a communication disorder.

(2) [~~(3)~~] The student demonstrates knowledge of the etiologies, characteristics, and anatomical/physical, acoustic, psychological, developmental, linguistic, and cultural correlates of communication disorders across the human lifespan. The student is expected to:

(A) compare common causes of hearing impairment in children and adults;

(B) analyze the causes of speech, language, and hearing disorders across the lifespan;

(C) identify common communication and hearing disorders, their typical symptoms, etiologies, characteristics, and associated correlates;

(D) evaluate the impact of communication disorders on the individual; and

(E) compare cultural variations in how communication disorders are perceived.

(3) [~~(4)~~] The student describes the types of communication disorders most commonly seen in children and the services provided by professionals in this field to provide habilitation or rehabilitation. The student is expected to:

(A) analyze speech sound disorders of the child's phonological system and describe the production of speech sounds such as place, manner, voicing, and distinctive feature analysis;

(B) describe and organize evidence-based treatment approaches for speech sound disorders;

(C) summarize fluency disorders, including secondary characteristics;

(D) analyze evidence-based treatment approaches for stuttering;

(E) identify voice disorders in terms of vocal quality, pitch, volume, resonance, and duration;

(F) develop a plan for an evidence-based treatment for voice disorders and the required interface with a physician;

(G) explain language disorders in terms of the child's use of syntax, morphology, semantics, pragmatics, phonology, and metalinguistics; and

(H) compare current evidence-based treatment approaches for language disorders in preschool and elementary-age children.

(4) [~~(5)~~] The student demonstrates effective verbal and nonverbal communication skills. The student is expected to:

(A) demonstrate communication skills appropriate to the situation when interacting with elementary age students, classroom teachers, speech-language pathologists, principals, and parents with communication disorders;

(B) demonstrate knowledge of verbal and nonverbal communication techniques that should be used when communicating with children that have sensory loss, language barriers, cognitive impairment, and other learning disabilities; and

(C) employ electronic communication and technology devices when interacting with children with communication disorders with appropriate supervision in a school setting.

(5) [~~(6)~~] The student demonstrates sensitivity and understanding of cultural and linguistic influences on an individual's communication patterns and describes how cultural and linguistic influences must be considered when working with children with communication disorders and their families. The student is expected to:

(A) analyze how speech and language patterns vary as a function of language, age, socioeconomic status, and geography;

(B) prepare a simulated interview with the parent or family member of a child referred for a hearing or communication evaluation;

(C) identify patterns of communication that are common for individuals from different cultural and linguistic backgrounds such use of eye contact, personal space, and gestures;

(D) apply design strategies for culturally sensitive family-centered practices for children with communication disorders; and

(E) explain the terms language disorder, language delay, language difference, heritage language, and dialect for describing the communication patterns of a young child.

(6) [~~(7)~~] The student identifies screening, evaluation, and diagnosis procedures that are used to identify hearing loss/deafness, speech sound production disorders, stuttering, voice impairment, and language disorders in children. The student is expected to:

(A) explain principles related to different audiometric test procedures;

(B) participate in a basic audiometric test (screening procedure) and interpret a variety of test results regarding whether the individual passed or failed the screening;

(C) interpret principles related to screening speech sound production, fluency, voice, and language skills in young children;

(D) evaluate developmental screening activities that include screening speech and language development; and

(E) synthesize the components of a comprehensive diagnostic report of findings inclusive of speech sound production, fluency (stuttering), voice production, and receptive, expressive, and social language skills to explain the test results.

(7) [~~(8)~~] The student identifies research-based and evidence-based practices in speech-language pathology and audiological service delivery. The student is expected to:

(A) define evidence-based practice (EBP) and differentiate EBP from scientifically-based research in the fields of speech-language pathology and audiology;

(B) define the set of Evidence Levels used by the American Speech-Language-Hearing Association as a protocol to evaluate research evidence;

(C) correlate research studies to the Evidence Levels used by the American Speech-Language-Hearing Association;

(D) analyze the role of expert opinion and clinical experience in evidence-based practice; and

(E) design and present an action research project in the field of communication disorders.

(8) [~~(9)~~] The student demonstrates knowledge and understanding of a variety of treatment approaches used with children with communication disorders. The student is expected to:

(A) compare two treatment approaches for speech sound disorders;

(B) compare two treatment approaches for fluency disorders;

(C) describe and practice treatment approaches for voice disorders in the areas of vocal quality, pitch, loudness, resonance, and duration;

(D) compare two treatment approaches for language disorders in preschool children;

(E) compare two treatment approaches for language disorders in elementary school-age children; and

(F) identify treatment approaches for language disorders with children with disabilities such as autism, intellectual disability, cleft palate, or cerebral palsy.

ATTACHMENT IV
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter K. Hospitality and Tourism

§127.569. Foundations of Restaurant Management (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisite: Principles of Hospitality and Tourism. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events, and travel-related services.

(3) Foundations of Restaurant Management provides students with a foundation to understand basic culinary skills and food service management, along with current food service industry topics and standards. Building on prior instruction, this course provides introductory insight into critical thinking, financial analysis, industry technology, social media, customer or client awareness, and leadership in the food service industry. Students will gain an understanding of restaurant operations and the importance of communicating effectively to diverse audiences for different purposes and situations in food service operations and management. Students will learn how the front of the house and the back of the house of restaurant management operate and collaborate and will obtain value-added certifications in the industry to help launch themselves into food service careers.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

(1) The student demonstrates professional standards as required by the food service industry. The student is expected to:

(A) explain the importance of and demonstrate effective oral and written communication;

(B) describe professional grooming, hygiene, and appropriate uniform standards for various food service positions and scenarios;

(C) describe how punctuality and time-management skills are critical to the success of employees and businesses in the food service industry;

(D) describe what demonstrating self-respect and respect for others looks like;

(E) analyze and demonstrate effective teamwork strategies and leadership styles;

(F) describe initiative, adaptability, and problem-solving techniques and discuss how each may be used in the food service industry; and

(G) identify opportunities to participate in community leadership and teamwork activities that enhance professional skills.

(2) The student develops academic knowledge and skills required to pursue the full range of career and postsecondary education opportunities within the food service industry. The student is expected to:

(A) use information management methods and tools to organize oral and written information;

(B) create a variety of written documents such as job descriptions, menus, presentations, and advertisements;

(C) calculate numerical concepts such as weights, measurements, pricing, and percentages;

(D) identify how scientific principles used in the food service industry affect customer service and profitability; and

(E) explain how to operate a profitable restaurant using mathematics and science knowledge and skills.

(3) The student uses verbal and nonverbal communication skills to create, express, and interpret information to establish a positive work environment. The student is expected to:

(A) develop and deliver business presentations;

(B) identify and create various marketing strategies used by the food service industry to increase customer or client traffic and profitability;

(C) plan and facilitate new staff member training;

(D) explain how interpersonal communications such as verbal and nonverbal cues enhance communication with coworkers, employees, managers, and customers or clients; and

(E) explain how active listening skills can affect employee morale and customer service.

(4) The student solves problems using critical thinking, innovation, and creativity independently and in teams. The student is expected to:

(A) develop ideas to increase customer service, employee morale, and profitability; and

(B) describe how employing critical-thinking and interpersonal skills can help resolve conflicts with individuals such as coworkers, customers or clients, and employers.

(5) The student uses information technology tools specific to restaurant management to access, manage, integrate, and interpret information. The student is expected to:

(A) identify information technology tools and applications used to perform workplace responsibilities and explain how the tools and applications may be used to increase productivity;

(B) describe how business financial statements may be evaluated to increase profitability;

(C) analyze customer service scenarios and make recommendations for improvements;

(D) explain how point-of-sale systems are used to evaluate business outcomes and provide customer service; and

(E) design Internet resources for business profitability.

(6) The student understands the various roles and responsibilities within teams, work units, departments, organizations, and the larger environment of the food service industry. The student is expected to:

(A) compare the roles and responsibilities of food service operations staff, including back-of-the-house, front-of-the-house, and support roles, and explain how each impact profitability of business operations;

(B) explain how developing strategic work schedules impacts effective customer service and profitability;

(C) investigate quality-control standards and practices and analyze how those standards and practices affect restaurant profitability;

(D) analyze various styles of restaurant services such as table, buffet, fast food, fast casual, and quick service for cost and level of profitability;

(E) describe how various place settings impact the customer service experience and profitability of the business; and

(F) explain how proper service techniques in food service operations contribute to the customer or client experience.

(7) The student understands the importance of health, safety, and environmental management systems in organizations and their impact on organizational performance, profitability, and regulatory compliance. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities;

(C) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(D) research and discuss sources of food-borne illness and determine ways to prevent them;

(E) identify and explain the appropriate use of types of personal protective equipment used in industry;

(F) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(G) describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace;

(H) analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(I) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace;

(J) describe the elements of a safety and health program, including management leadership, worker participation, and education and training;

(K) explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel;

(L) explain the components of a hazard communication program; and

(M) explain and give examples of safety and health training requirements specified by standard setting organizations.

(8) The student explores professional ethics and legal responsibilities within the food service industry. The student is expected to:

(A) research and describe laws and guidelines affecting operations in the restaurant industry; and

(B) explain the reasons for liability insurance in the restaurant industry.

(9) The student understands the importance of developing skills in time management, decision making, and prioritization. The student is expected to:

(A) identify and explain delegation of tasks related to the effective operation of a food service establishment;

(B) describe the relationships between scheduling, payroll costs, and sales forecasting; and

(C) analyze various steps in determining the priority of daily tasks to be completed in a food service establishment.

(10) The student investigates the skills, training, and educational requirements needed to successfully gain and maintain employment in the food service industry and explores local and regional opportunities in the industry. The student is expected to:

(A) describe effective strategies for seeking employment in the food service industry;

(B) identify the required training and educational requirements that lead to a career in the food service industry;

(C) select educational and work history highlights to include in a career portfolio;

(D) create and update a personal career portfolio;

(E) describe and demonstrate effective interviewing techniques for gaining employment in the food service industry;

(F) create a personal training plan for obtaining employment in a specific occupation such as Texas Alcoholic Beverage Commission training and Food Safety and Sanitation training in the food service industry;

(G) research and analyze the local and regional labor market to determine opportunities in the food service industry;

(H) investigate professional development opportunities to keep current on relevant trends and information within the food service industry; and

(I) identify and discuss entrepreneurship opportunities within the food service industry.

(11) The student explores factors that have shaped the food service industry. The student is expected to:

(A) research and describe the history and growth of the food service industry;

(B) explain how culture and globalization influence the food service industry; and

(C) analyze current trends affecting the food service industry.

(12) The student understands factors that affect the profitability of a food service business. The student is expected to:

(A) explain the importance of effectively managing inventory to maintain profitability of the food service business;

(B) describe and demonstrate effective stewarding processes and procedures such as establishing thorough cleaning schedules and proper dishwashing techniques;

(C) describe how proper food storage techniques affect the profitability of an establishment;

(D) explain how pricing and controlling costs such as labor and supplies affect the profitability of a food service business; and

(E) analyze how customer service and customer or client loyalty affect the profitability of a food service business and compare strategies for building and maintaining customer loyalty.

§127.571. [~~Introduction to~~] Event and Meeting Planning (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Hospitality and Tourism Career Cluster. Recommended prerequisite: Principles of Hospitality and Tourism, Hotel Management, or Travel and Tourism Management. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events, and travel-related services.

(3) [~~Introduction to~~] Event and Meeting Planning introduces students to the concepts and topics necessary to understand the meetings, events, expositions, and conventions (MEEC) industry. The course will review the roles of the organizations and people involved in the businesses that comprise the MEEC industry.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) explain the importance of developing personal and professional skills such as punctuality, initiative, leadership, respect for all people, conflict management, work ethic, and adaptability;~~]

[~~(B) explain how critical thinking, innovation, and creativity are essential to the problem-solving process;~~]

[~~(C) describe appropriate professional grooming, hygiene, and appearance for the workplace;~~]

[~~(D) identify effective teamwork and conflict management skills and explain how using effective teamwork and conflict management skills leads to the achievement of collective goals;~~]

[~~(E) explain how planning and time management skills and tools can be used to enhance results and complete work tasks;~~]

[~~(F) identify and describe essential workplace skills necessary for obtaining employment and developing a career;~~]

[~~(G) prepare and complete employment related documents such as paper and electronic job applications and I-9 and W-4 forms;~~]

[~~(H) compare effective stress management techniques and explain the importance of using effective stress management techniques;~~]

[~~(I) explain the various steps in the decision-making process; and~~]

[~~(J) describe and demonstrate effective interview techniques for gaining employment in various positions and at various businesses in the MEEC industry.~~]

(1) [~~(2)~~] The student recognizes the importance of and uses oral and written communication skills in creating, expressing, and interpreting information and ideas. The student is expected to:

(A) explain the importance of using verbal and non-verbal communication skills effectively with customers or clients and colleagues;

(B) summarize information formally and informally;

(C) synthesize information from various sources and determine how to prioritize and convey relevant information to customers or clients and colleagues;

(D) explain how to use active listening skills to obtain and clarify information;

(E) develop and deliver different types of presentations such as informative, instructional, persuasive, and decision making;

(F) identify interpersonal skills used to maintain internal and external customer or client satisfaction and describe how effectively using those interpersonal skills impacts customer or client relationships; and

(G) identify and use technical vocabulary related to the meeting and event planning industry.

(2) [~~(3)~~] The student applies academics with career-readiness skills. The student is expected to:

(A) explain how applying mathematical skills to business transactions such as sales forecasting, service pricing, and planning for profitability are essential to operating a successful business;

(B) calculate and interpret key ratios, financial statements, and budgets related to the hospitality event and meeting planning industry;

(C) identify opportunities in the hospitality industry to use advanced reading, writing, and mathematics skills;

(D) analyze and summarize data from tables, charts, and graphs to estimate and find solutions to problems and identify opportunities for increased profitability; and

(E) identify and use industry standards for budgeting and forecasting to maximize profit and growth.

(3) [~~(4)~~] The student explores career opportunities available within the meeting and event planning segment of the hospitality industry. The student is expected to:

(A) compile a list of professional organizations that support the professionals in the convention, meeting, and event planning industry;

(B) develop a personal training plan to keep current on relevant trends and information within the meeting and event planning industry; and

(C) identify occupational opportunities for meeting and event planning for hospitality businesses and corporate businesses.

(4) [~~(5)~~] The student explores the history of and current trends and career opportunities in the meeting and event planning industry. The student is expected to:

(A) describe how the meeting and event planning industry has evolved;

(B) analyze and describe current trends in the meeting and event planning industry;

(C) describe the varied occupations related to meeting and event planning such as meeting planning and management, conference planning and management, trade show planning and management, social event planning and management, association and non-profit meeting planning and management, corporation meeting planning and management, convention and visitor bureau planning and management, and destination management planning and organization;

(D) describe how a professional mentor can be beneficial to a career and identify potential mentors in the meeting and event planning industry; and

(E) create a career plan to achieve the desired career position in the meeting and event planning industry.

(5) [~~(6)~~] The student explores how varying needs of customers or clients impact the event planning industry. The student is expected to:

(A) explain the importance of meeting the varying needs of customers or clients for the successful operation of a business;

(B) explain how a business plan and business activities may be modified to meet the varying needs of customers or clients; and

(C) describe how understanding diversity such as differences in social etiquette, dress, and behaviors may positively impact event and meeting planning.

(6) [~~(7)~~] The student uses information technology tools in event and meeting planning to access, manage, integrate, and create information. The student is expected to:

(A) research and compare event planning software and technology tools such as tools that manage attendee engagement or provide marking services that help perform workplace tasks and meet business objectives;

(B) create complex multimedia publications and presentations for clients and colleagues;

(C) explain how point-of-sale systems are used in the meeting and event planning industry;

(D) explain how Internet resources can promote industry growth;

(E) investigate and evaluate current and emerging technologies used to improve guest services; and

(F) use electronic tools to produce appropriate communication for planning and selling meetings and events.

(7) [~~(8)~~] The student understands the professional, ethical, and legal responsibilities in event and meeting planning services. The student is expected to:

(A) explain ethical conduct such as maintaining client confidentiality and privacy of sensitive content when interacting with others;

(B) identify different components of a meeting or event contract;

(C) investigate and describe applicable rules, laws, and regulations related to event and meeting planning;

(D) discuss the reasons for providing event security;

(E) compare options for event insurance; and

(F) explain the reasons for event insurance.

(8) [~~(9)~~] The student understands the importance of health, safety, and environmental management systems and their impact on organizational performance and regulatory compliance. The student is expected to:

(A) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;

(B) explain and discuss the importance of Occupational Safety and Health Administration (OSHA) standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities;

(C) explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic;

(D) research and discuss sources of food-borne illness and determine ways to prevent them;

(E) identify and explain the appropriate use of types of personal protective equipment used in industry;

(F) discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace;

(G) describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace;

(H) analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace;

(I) identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace;

(J) describe the elements of a safety and health program, including management leadership, worker participation, and education and training;

(K) explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel;

(L) explain the components of a hazard communication program; and

(M) explain and give examples of safety and health training requirements specified by standard setting organizations.

(9) [~~(10)~~] The student explores marketing strategies and how effective marketing strategies are used in the meeting and event planning industry. The student is expected to:

(A) develop effective marketing strategies for meetings and events;

(B) create promotional packages for meetings and events;

(C) design an effective, comprehensive menu;

(D) analyze the state of the economy to plan effective meeting and event services; and

(E) develop a meeting and events business plan.

(10) [~~(11)~~] The student understands and demonstrates appropriate professional customer service skills required by the meeting and event planning industry. The student is expected to:

(A) create a detailed plan or process to provide maximum customer service;

(B) describe and demonstrate how critical-thinking and interpersonal skills are effectively used to resolve conflicts with individuals such as coworkers, employers, guests, and clients; and

(C) analyze customer or client feedback to formulate improvements in services and products.

(11) [~~(12)~~] The student explores different business segments and stakeholders within the event and meeting planning industry. The student is expected to:

(A) compare roles and responsibilities of various departments in the larger lodging environment, including food and beverage services;

(B) differentiate between meeting and event planning operations for different clients such as business, leisure, professional organizations, and students; and

(C) identify the various stakeholders in the MEEC industry.

(12) [~~(13)~~] The student understands the roles and responsibilities within teams, work units, departments, organizations, and the larger environment of the meeting and event planning industry. The student is expected to:

(A) differentiate between the roles and responsibilities of meeting and event planning staff and lodging property staff;

(B) describe the responsibilities of an event manager or planner;

(C) identify and explain how operating procedures can contribute to profitable operations; and

(D) identify and explain how inventory management systems used in the meeting and event planning industry can contribute to profitable operations.

(13) [~~(14)~~] The student knows how to create a functional and aesthetic meeting and event plan to meet the customer or client requirements. The student is expected to:

(A) describe how to conduct a pre-meeting or pre-event meeting with potential clients to identify the meeting or event requirements;

(B) discuss the importance of a meeting venue floorplan specification chart and appropriate meeting room set-up;

(C) compare various meeting room set-up options and describe the benefits of each option;

(D) describe how meeting room set-up options vary based on the venue;

(E) develop a meeting room set-up for a planned event;

(F) calculate the square footage required for an event based on the number of anticipated attendees for the event;

(G) identify and design effective traffic patterns for a specific event;

(H) explain and demonstrate proper table rotations; and

(I) develop a staffing guide to schedule various staff for a meeting or event.

(14) [~~(15)~~] The student understands the importance of collaborating with various companies to provide an all-inclusive successful meeting or event. The student is expected to:

(A) identify the various entities involved in the meeting and event planning industry such as convention and visitors' bureaus, group travel companies, entertainers, recreations,

amusements, attractions, florists, caterers, and venues and differentiate between the roles each entity plays in planning the meeting or event;

(B) differentiate between event sponsors, organizers, and producers and the events that are coordinated by each;

(C) explain and demonstrate how to effectively plan and negotiate with various entities to deliver a successful meeting or event;

(D) compare products and services from related industries; and

(E) explain how the meeting and event planning process differs based on the venue such as hotels and resorts, convention and visitors' centers, event centers, and destination venues and describe the pros and cons of convening a meeting or event at various venues.

§127.604. Practicum in Event and Meeting Planning (Two Credits), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: a minimum of two credits with at least one credit in a Level 2 or higher course from the Hospitality and Tourism Career Cluster. Recommended prerequisite: [~~Introduction to~~] Event and Meeting Planning. Students shall be awarded two credits for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events, and travel-related services.

(3) The Practicum in Event and Meeting Planning course will reinforce the concepts and topics necessary for the comprehensive understanding of the meetings, events, expositions, and conventions (MEEC) industry. The central focus of this course is to integrate academic education with local MEEC businesses to prepare students for success in the work force and/or postsecondary education. Students will benefit from a combination of classroom instruction and a work- based learning experience. Students will learn employability skills, communication skills, customer service skills, and other activities related to job acquisition. The course is recommended for students who have completed the required prerequisites.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates proficiency in professional standards/employability skills as required by the meeting and event planning industry. The student is expected to:~~]

[~~(A) participate in a paid or unpaid, laboratory or work-based application of previously-studied knowledge and skills related to event meeting and planning;~~]

[~~(B) demonstrate proper interview techniques for event and meeting planning occupations;~~]

[~~(C) complete employment-related documents such as job applications (written and electronic formats), a resume, and I-9 and W-4 forms;~~]

[~~(D) exhibit suitable grooming and appearance standards appropriate for the workplace and planned events;~~]

[~~(E) demonstrate productive work habits and a positive attitude;~~]

[~~(F) model knowledge of personal and occupational safety practices in the workplace; and~~]

[~~(G) integrate verbal, nonverbal, and written communication skills in a variety of settings.~~]

(1) [~~(2)~~] The student applies professional advancement skills and strategies in the meeting and event planning industry. The student is expected to:

(A) develop strategies to enhance career advancement and promote lifelong industry learning;

(B) describe historical events that have affected the event and meeting planning industry;

(C) formulate plans to address current events that have an effect on the event and meeting planning industry;

(D) document in manual and electronic format acquired technical knowledge and skills needed for success in the meeting planning industry;

(E) produce and present a professional portfolio, including a current resume, documentation of skill attainment or technical competencies, recognitions, awards, scholarships, community service activities, student organization participation, evaluations, letters of recommendation, and cover letters;

(F) evaluate employment options by comparing salaries and benefits offered by different companies and occupations within the industry; and

(G) develop a personal budget based on career choice using effective money management and financial planning techniques.

(2) [~~(3)~~] The student demonstrates the ethics and etiquette necessary for the meeting and event planning workplace. The student is expected to:

(A) practice appropriate business and personal etiquette in the workplace;

(B) display appropriate electronic communication techniques and etiquette;

(C) exhibit the behaviors that align with the hospitality code of ethics and ethical standards; and

(D) determine the most ethical behavior or course of action in response to various situations experienced in the meeting and event planning industry.

(3) [~~(4)~~] The student develops and demonstrates the interpersonal and customer service skills needed for success in the meeting and event planning environment. The student is expected to:

(A) exhibit essential workplace characteristics such as organization, perseverance, motivation, dependability, punctuality, initiative, self-control, and the ability to accept and act on criticism;

(B) demonstrate effective team-building skills such as collaboration, planning, conflict resolution, rapport-building, decision-making, problem-solving, and persuasion and influencing techniques;

(C) identify and respond to customer or client needs, including resolving customer dissatisfaction;

(D) exercise leadership by anticipating and proactively diffusing potential event issues; and

(E) negotiate to resolve conflicts in the workplace and with customers by using strategies such as active listening, "I" messages, negotiation, and offering win-win solutions.

(4) [~~(5)~~] The student demonstrates the industry-based knowledge and skills required for a successful career in the event and meeting planning industry. The student is expected to:

(A) employ job-specific technical vocabulary with accuracy and fluency;

(B) explain event planning procedures designed to ensure client needs are met such as Banquet Event Orders, rate assignment, event organization, client relations, and determination of payment methods;

(C) assess meeting or event company structures and traits that lead to profitability and business success;

(D) determine the correct procedures for the execution of client events and contracts;

(E) identify and organize tasks for daily operation;

(F) describe societal events that have shaped the event and meeting planning industry both in the past and present; and

(G) interpret the role of the convention and visitors' bureau in the event and meeting planning industry.

(5) [~~(6)~~] The student develops and practices awareness of varying needs of customers or clients understands the impact of diversity on the industry. The student is expected to:

(A) assesses how varying needs of customers or clients impacts the event planning industry both from a planning and profitability aspect;

(B) demonstrate respect for individual differences;

(C) explain the importance of meeting the varying needs of customers or clients for the successful operation of a business;

(D) develop business plans and activities to meet the varying needs of customers or clients; and

(E) describe differences in social etiquette, dress, and behaviors and explain how differences affect the event planning process.

(6) [~~(7)~~] The student uses information technology tools in event and meeting planning to access, manage, integrate, and create information. The student is expected to:

(A) evaluate current and emerging technologies that improve client services;

(B) evaluate and incorporate event planning software and technology tools that help to perform workplace tasks and meet business objectives;

(C) create and present multi-level (complex) multimedia presentations to clients;

(D) use and problem-solve issues with point-of-sale systems;

(E) design a plan for using Internet resources to maximize company profitability; and

(F) use appropriate electronic communication tools for planning and selling meetings and events.

(7) [~~(8)~~] The student differentiates between and adapts to various roles, types of events, and functions. The student is expected to:

(A) differentiate between the types of event sponsors, organizers, and producers and their events such as trade shows, conferences, social events, and corporate meetings;

(B) identify various suppliers for different event planning needs and explain how they service different events;

(C) describe the importance of sales coordinators to events and meetings regardless of organization or type of event;

(D) evaluate and modify different types of catering options and menus based on the needs of the event or organization;

(E) evaluate and modify different types of meeting room set-ups (banquet, classroom, theater, and reception) based on the needs of the event or organization; and

(F) determine and organize staff and resources according to the specific needs of the organization and event.

(8) [~~(9)~~] The student collaborates within departments, organizations, and the larger environment of the meeting and event planning industry. The student is expected to:

(A) analyze the roles and responsibilities of each level of the management structure of a venue;

(B) identify the advantages and disadvantages of different event destinations and facilities and their effects on profitability and customer satisfaction;

(C) analyze the roles and responsibilities of an in-house event manager or planner as compared to independent professionals; and

(D) define specific roles and responsibilities when interfacing with destination venues.

(9) [~~(10)~~] The student understands and can articulate the factors that contribute to a successful and profitable event. The student is expected to:

(A) analyze the expenses associated with the planning and production of a meeting or event;

(B) analyze and evaluate how marketing techniques impact operation and profitability related to an event;

(C) calculate costs of supplies and evaluate how costs affect profitability;

(D) evaluate the impact of payroll expenses on profitability;

(E) analyze and modify operating procedures to result in more profitable or cost-effective operations;

(F) research and create a marketing plan for various markets such as weddings, government and military groups, professional and educational organizations, family or social gatherings, and geography;

(G) identify profit margins associated with various markets; and

(H) evaluate the importance of conducting pre-and post-event evaluations for continuous improvement.

(10) [~~(11)~~] The student demonstrates knowledge of potential liability situations that can affect business reputation and profitability. The student is expected to:

(A) compare and contrast different levels of insurance and liability limits for events;

(B) analyze customer-provided insurance options for events;

(C) identify and explain legal, health, and safety obligations related to event planning;

(D) assess the implications and responsibilities associated with providing or allowing alcohol at an event; and

(E) research law enforcement requirements for events and meetings.

ATTACHMENT V
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter M. Information Technology [~~Law and Public Service~~]

§127.689. Advanced Cloud Computing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite [~~Recommended Prerequisites~~] : At least one credit from a [~~in a Level 2 or higher~~] course in computer science, programming, software development, or networking systems. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) The Advanced Cloud Computing course is an exploration of cloud computing. In this course, students explore cloud computing services, applications, and use cases. Students study cloud computing best practices and learn how cloud computing helps users develop a global infrastructure to support use case at scale while also developing and using innovative technologies.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) demonstrate and explain positive workplace behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work;~~]

[~~(B) demonstrate and explain positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills;~~]

[~~(C) describe and demonstrate effective reading and writing skills;~~]

[~~(D) use critical thinking skills to solve cloud computing problems; and~~]

[~~(E) demonstrate and explain leadership skills and how to function effectively as a team member.~~]

(1) [~~(2)~~] The student understands the impact of cloud computing technology and compares the major services offered by cloud computing providers. The student is expected to:

(A) describe the benefits and risks of cloud computing and the reasons for switching from on-premises computing to cloud computing;

(B) identify and describe the major types of cloud computing;

(C) generate sample cloud usage plans for a business case study, including a description of how each of the services can be used to improve the business;

(D) explain the purpose of a region, availability zone, and edge location; and

(E) compare the major services offered by cloud computing providers.

(2) [~~(3)~~] The student demonstrates how to store and share content in the cloud. The student is expected to:

(A) identify features and functions of commonly used cloud services;

(B) locate and use common services found in cloud computing consoles;

(C) analyze how cloud services are used in real-world industries;

(D) explain the functions of a domain name system (DNS);

(E) create an object storage bucket;

(F) explain benefits and uses of a content delivery network;

(G) configure web content distribution via edge locations and attach it to a website;

(H) identify the benefits, features, and use cases of different types of block storage;

(I) analyze a use case and recommend the best type of virtual storage for the particular situation;

(J) create a block storage volume or physical record;

(K) attach a block storage volume to a virtual computing instance; and

(L) create a virtual computing instance that hosts a simple website.

(3) [~~(4)~~] The student applies cloud security best practices in relation to identity and access management (IAM). The student is expected to:

(A) identify best practices for IAM;

(B) analyze the cultural and societal impacts of cloud security;

(C) differentiate between a role, user, and policy in cloud security;

(D) identify and use a process to resolve vulnerabilities in a web server;

(E) describe cloud security best practices and explain steps to fix security lapses;

(F) identify the best cloud security service for a given scenario;

(G) demonstrate the use of an IAM system to set up a text alert event; and

(H) compare monitoring and logging services.

(4) [~~(5)~~] The student describes when to use various databases, the benefits of caching data, and how to build a virtual private cloud (VPC). The student is expected to:

(A) compare online transactional processing and online analytical processing;

(B) describe the benefits of caching data;

(C) explain and demonstrate how a load balancer is attached to a webpage;

(D) describe features and benefits of load balancing;

(E) evaluate the performance of a load balancer;

(F) create an application using a platform as a service (PaaS); and

(G) demonstrate the use of a template infrastructure as code to build a VPC.

(5) [~~(6)~~] The student understands the landscape of emerging technologies in the cloud. The student is expected to:

(A) define machine learning and discuss its impacts on society, business, and technology;

(B) identify potential use cases for emerging technology in the cloud;

(C) assess value propositions of using cloud technology;

(D) identify cloud services that can analyze and protect data and manage networks;

(E) define blockchain technology and explain its benefits;

(F) explain the infrastructure of cloud development kits or services; and

(G) demonstrate the use of a software development framework to model and provision a cloud application.

(6) [~~(7)~~] The student resolves common security alerts, diagrams instance states and transitions, and explains how to choose the most cost-efficient instance type. The student is expected to:

(A) describe the shared responsibility security model;

(B) identify security responsibility for cloud resources;

(C) analyze how the shared security model accounts for common threats to the cloud computing model;

(D) identify the steps required to resolve an automated security alert;

(E) describe the six instance states, including pending, running, stopping, stopped, shutting down, and terminated;

(F) identify and diagram the transitions between instance states from launch to termination;

(G) explain instance usage billing for each instance state; and

(H) determine the most cost-efficient instance state for a given situation.

(7) [~~(8)~~] The student differentiates between dynamic and static websites. The student is expected to:

(A) describe and demonstrate the process for setting up a static website;

(B) compare static and dynamic websites;

(C) create a content delivery network distribution to increase the speed of a website;

(D) demonstrate the process to launch a dynamic web server;

(E) create a serverless compute function using a serverless compute console;

(F) describe the main functions of auto scaling;

(G) create a launch template and an auto scaling group; and

(H) develop a plan for monitoring an auto scaling instance or group.

(8) [~~(9)~~] The student demonstrates the benefits and risks of using big data. The student is expected to:

(A) define big data and identify use cases for it within various industries;

(B) identify and evaluate the benefits and risks of big data;

(C) explain how blockchain ensures the validity and immutability of transactions, particularly in the cloud; and

(D) evaluate the benefits and risks of blockchain business applications.

§127.690. Foundations of User Experience (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 9-12. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) In Foundations of User Experience (UX), students analyze and assess current trends in a career field that creates meaningful, approachable, and compelling experiences for users of an array of products, services, and/or initiatives of companies, governments, and organizations. Students gain knowledge of introductory observation and research skills, basic design thinking and applied empathy methodologies, collaborative problem-solving and ideation, and interaction design and solution development. The knowledge and skills acquired from this course enable students to identify real-world problems through research and data-driven investigation and to design solutions while participating in collaborative problem solving. Students are introduced to agile practices and methodologies to develop skills to take solutions from conceptual sketch to digital designs using professional software tools. Students explore how to improve the quality of user interactions and perceptions of products, experiences, and any related services.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills in the IT field with a focus in the area of UX. The student is expected to:~~]

[~~(A) identify job opportunities in UX and accompanying job duties and tasks;~~]

[~~(B) describe and use effective verbal and nonverbal communication skills;~~]

[~~(C) create resumes and portfolios for UX professions;~~]

[~~(D) use critical thinking skills and creativity to present a solution to a user problem; and~~]

[~~(E) work collaboratively in a team to devise and present an efficiency or enhancement solution to a user issue within a given timeline, while incorporating empathy methodology, agile, and design principles.~~]

(1) [~~(2)~~] The student applies professional communications strategies. The student is expected to:

(A) revise presentations for audience, purpose, situation, and intent;

(B) interpret and clearly communicate information, data, and observations;

(C) apply active listening skills to obtain and clarify information;

(D) identify multiple viewpoints of potential diverse users; and

(E) define and exhibit public relations skills that are used by UX designers.

(2) [~~(3)~~] The student describes the field of UX and common elements in user-centered design. The student is expected to:

(A) analyze the current trends and challenges of the UX field;

(B) analyze and describe the diversity of roles and career opportunities across the UX field;

(C) define terminology associated with UX, including user, user experience, human-centered design, design thinking, persona, user journey, empathy map, mind maps, roadmaps, wireframes, prototypes, and portfolios;

(D) identify and explain the differences between relevant, friendly, and useful experience design;

(E) identify and explain the connection between psychology and behavior with regard to usability;

(F) explain the components of the design thinking methodology for ideation, iteration, co-creation, development, and execution; and

(G) explain how UX design affects everyday lives.

(3) [~~(4)~~] The student discusses and applies the legal and ethical practices that UX designers follow when working with technology, designs, and clients. The student is expected to:

(A) identify and explain ethical use of technology;

(B) explain intellectual property laws, including copyright, trademarks, and patents, and consequences of violating each type of law;

(C) identify violations of intellectual property laws;

(D) explain the consequences of plagiarism; and

(E) demonstrate ethical use of online resources, including using proper citations and avoiding plagiarism.

(4) [~~(5)~~] The student identifies and demonstrates introductory observation and research methods. The student is expected to:

(A) describe the difference between qualitative and quantitative data;

(B) conduct user interviews to gather insights into what users think about a site, an application, a product, or a process;

(C) organize ideas and user data using software tools;

(D) analyze and draw conclusions from qualitative user data collection;

(E) observe and document how users perform tasks through task analysis observations;

(F) define affinity and explain the benefits of affinity and customer journey maps;

(G) use data summaries from user interviews to create personas; and

(H) create a report or presentation, including user interview and observation data summaries, data analysis, and additional findings, for a target audience.

(5) [~~(6)~~] The student applies an understanding of psychological principles used in user-centered design. The student is expected to:

(A) identify and define design principles;

(B) describe how visceral reactions inform the creation of a positive user experience;

(C) select colors to influence human behavior, the human mind, and reactions toward an intended outcome;

(D) explain recognition and scanning patterns and their importance in user-centered design;

(E) define Hick's Law and Weber's Law and explain their impact on UX design decisions;

(F) describe sensory adaptation phenomenon and perceptual set; and

(G) explain the stages of human information processing, including sensing, perceiving, decision-making, and acting.

(6) [~~(7)~~] The student creates effective, accessible, usable, and meaningful solutions for the end user by using UX design principles. The student is expected to:

(A) identify end-user problems and needs in real-world environments;

(B) identify principles of accessibility such as perceivable, operable, understandable, and robust (POUR);

(C) identify and discuss the differences and connections between UX Design, Visual Design, and User Interaction in regard to usability;

(D) communicate potential solutions and ideas with a storytelling approach;

(E) sketch and refine designs within wire-framing and prototypes; and

(F) implement iterations for a design solution using structured testing protocols.

(7) [~~(8)~~] The student collaborates with others to apply UX project management methods. The student is expected to:

(A) identify the relationship between UX research and design-thinking methods; and

(B) explain three different stages and roles of UX project management methods such as agile methods.

(8) [~~(9)~~] The student applies UX design practices and uses technology to create digital assets. The student is expected to:

(A) use design elements such as typeface, color, shape, texture, space, and form to create a visual narrative;

(B) implement design principles such as unity, harmony, balance, scale, novelty, hierarchy, alignment, and contrast to create visual narratives;

(C) identify and explain common elements of Hyper Text Markup Language (HTML) such as tags, style sheets, and hyperlinks;

(D) apply UX design techniques in order to:

(i) create effective user interfaces for browser-based, native, and hybrid mobile applications;

(ii) demonstrate proper use of vector and raster-based design software;

(iii) explain the difference between back-end and front-end development in UX; and

(iv) create a web page containing links, graphics, and text using appropriate design principles;

(E) demonstrate basic sketching skills;

(F) create wireframes using design software;

(G) explain how design fidelity, from sketch to wireframe to prototype to visuals, aligns with and supports agile methodology; and

(H) produce digital assets.

§127.691. Advanced User Experience Design (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. [~~Students shall be awarded one credit for successful completion of this course.~~] This course is recommended for students in Grades 10-12. Prerequisite [~~Required prerequisite course~~] : Foundations of User Experience. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, digital interactions, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) The Advanced User Experience (UX) Design course allows students to apply skills in science and art to integrate technology as a useful, meaningful, memorable, and accessible source for all users. Students will use knowledge from the Foundations of User Experience course to expand the research, design process, testing, and communication skills essential for success in this user-focused career field.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills in the IT field with a focus in the area of UX. The student is expected to:~~]

[~~(A) identify job opportunities in UX and individual skills and abilities needed to apply;~~]

[~~(B) describe and use effective interpersonal and communication skills;~~]

[~~(C) identify and practice the skills associated with at least one UX professional certification;~~]

[~~(D) create a resume and portfolio for a UX position; and~~]

[~~(E) demonstrate adaptability and flexibility by adjusting project outcomes from peer review and critique.~~]

(1) [~~(2)~~] The student understands and demonstrates legal and ethical procedures for UX designers as they apply to the use of information technology. The student is expected to:

(A) identify intellectual property violations within given scenarios; and

(B) formulate and communicate visually, orally, or in writing the ramifications and consequences of plagiarism and copyright infringement within a business context.

(2) [~~(3)~~] The student connects and applies UX design conceptual foundations with real-world scenarios. The student is expected to use proper terms and professional language for UX design context, both orally and in written form.

(3) [~~(4)~~] The student uses different options of project management to produce a successful UX design. The student is expected to:

(A) identify different stages of the UX design process, including research, identification of problem, ideation, prototyping, and testing, and apply these stages to refine or create products;

(B) test partial products during the UX design process and analyze results to inform the refinement phase;

(C) explain the conceptual design, content strategy, and ways to get feedback from various users and stakeholders in the project; and

(D) demonstrate effective time-management and planning to complete project tasks.

(4) [~~(5)~~] The student collects and interprets data through the use of UX tools and protocols. The student is expected to:

(A) create templates for questionnaires, data collection, and summary reports;

(B) analyze data and create a summary of project conclusions that include insights into affordances and constraints of the project design;

(C) distinguish differences in qualitative research methods such as user interviews, ethnography, field studies, focus groups, and usability testing; and

(D) identify and use quantitative methods such as A/B testing, card sorting, heat maps, analytics, and user surveys.

(5) [~~(6)~~] The student creates and analyzes prototypes for UX design products. The student is expected to:

(A) identify a UX problem and list potential solutions;

(B) evaluate potential solutions and create an action plan to address a problem based on desired features and requirements for a UX design product;

(C) create a presentable content strategy and develop conceptual designs and symbolic messages for a UX design prototype;

(D) generate possible solutions with ideation methods such as unstructured discussion, storyboards, brainstorming, role playing, game storming, mind mapping, teamwork games, and sketching;

(E) refine and select ideas for prototyping with a people-centered rationale for the decision;

(F) create low-fidelity prototypes, including sketches, paper models, and click-through prototypes; and

(G) create mockups and high-fidelity prototypes, including digital and physical versions.

(6) [~~(7)~~] The student structures solutions while applying UX design principles. The student is expected to:

(A) explain how the connected layouts, blocks of content, visual designs, and navigation requirements enhance user experience;

(B) explain how the distinguishing of channels and formats during website development impacts usability across different devices;

(C) develop and implement design activities for co-creation, peer-review, and collaborative feedback;

(D) test and evaluate navigation experiences and compare results with current competitors; and

(E) incorporate best practices for references, including adding the designer's voice and signature.

(7) [~~(8)~~] The student describes best practices and plans for a usability test. The student is expected to:

(A) create a usability test plan that includes cognitive, perceptual, emotional, and cultural information about users, data collection requirements, and user testing methods;

(B) execute testing methodologies and collect data for analysis purposes; and

(C) present conclusions and recommendations that apply design principles, communication, and creative skills.

§127.695. Information Technology Troubleshooting (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Information Technology Career Cluster. Recommended prerequisites: Principles of Information Technology and Computer Maintenance/Lab. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry-level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) The Informational Technology Troubleshooting course is about applying logic over technical components to identify and resolve problems. The course focuses on developing a methodical approach in IT troubleshooting and leveraging those skills in a workplace environment. In this course, students learn and use proven troubleshooting methods and apply those in a collaborative workplace setting. Students develop personal success skills, including time management and personal accountability measures, strategies for collaboration and teamwork, and effective written and verbal communication skills. The knowledge and skills acquired in the course enables students to use IT resources and data safely, ethically, and within legal guidelines. Students work within a service level model that helps them to interpret, clarify, and diagnose issues with hardware, software, and networking.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) describe the benefits of effective time management and explain how to manage the use of one's time efficiently;~~]

[~~(B) describe and demonstrate the behaviors of an effective team member;~~]

[~~(C) explain the importance of emotional intelligence in the role of an IT support specialist;~~]

[~~(D) describe and apply strategies to resolve conflicts;~~]

[~~(E) identify and employ active listening skills, including paraphrasing and asking questions for clarification;~~]

[~~(F) communicate effectively orally and in writing when communicating with others, including team members, clients/customers, and others;~~]

[~~(G) identify and apply best practices for email communications;~~]

[~~(H) interpret technical language, documents, and diagrams and translate them into lay terminology;~~]

[~~(I) demonstrate the use of proper grammar and spelling and capture complete thoughts in communications and documentation; and~~]

[~~(J) investigate and discuss potential IT pathways for IT support specialists.~~]

(1) [~~(2)~~] The student develops and models customer-service skills. The student is expected to:

(A) identify and model the characteristics of excellent customer service;

(B) list and demonstrate the steps for opening and greeting a contact;

(C) explain the benefits of using a client's name;

(D) identify habits and situations to avoid when interacting with a client;

(E) explain the importance of keeping clients informed of status changes;

(F) list and demonstrate the steps for putting a client on hold or transferring a call;

(G) identify and demonstrate techniques and strategies for handling difficult calls and situations; and

(H) document all client communications and outcomes clearly and appropriately.

(2) [~~(3)~~] The student applies procedures for various support interaction types. The student is expected to:

(A) describe the primary responsibilities and skills of an IT support specialist and how to deliver consistent, quality service;

(B) explain and demonstrate safety procedures for unpacking, handling, and repacking replacement parts;

(C) describe when to use various support delivery methods and technologies such as in-person, email, phone, web, and remote access;

(D) demonstrate the use of various support delivery models, including in-person, email, phone, web, and remote access technologies, to troubleshoot an issue; and

(E) describe the purpose and value of the security management process and the IT support specialist's role in that process.

(3) [~~(4)~~] The student implements proven troubleshooting methods and strategies within the context of a service level model. The student is expected to:

(A) implement and explain a troubleshooting process for diagnosing issues with hardware, software, and the network;

(B) explain the importance of clearly documenting progress throughout the troubleshooting process;

(C) describe activities common to help desk service level model and incident management processes;

(D) interpret and clarify different types of incidents, problems, and events submitted in the help desk service model or trouble ticketing system;

(E) describe an operational level agreement (OLA) and the role of the IT support specialist in an OLA;

(F) describe what is meant by escalation and the reasons an incident may be escalated;

(G) identify and apply relevant system updates for supported devices; and

(H) describe service and support center metrics, including a service level target and the IT support specialist's role in monitoring and reviewing data related to these metrics.

(4) [~~(5)~~] The student describes and applies best practices for the safe, ethical, and legal use of resources and information. The student is expected to:

(A) demonstrate and describe positive digital citizenship and acceptable use policy when using digital resources;

(B) describe best practices for creating passwords such as increasing password length and password complexity, enforcing password blacklists, resetting passwords, limiting password entry attempts, and using multi-factor authentication;

(C) examine, describe, and demonstrate the use of guidelines for using media, information, and applications protected by copyright;

(D) compare and explain copyright, fair use, public domain, and Creative Commons licensing;

(E) identify and apply licensing guidelines for software, media, and other resources;

(F) explain the importance and uses of encryption;

(G) describe and demonstrate best practices for handling confidential information;

(H) analyze cyber threats and social engineering vulnerabilities and discuss ways to prevent them;

(I) describe various types of security policies and summarize the importance of physical security and logical security measures;

(J) explain the importance of reporting security compromises such as addressing prohibited content and activity; and

(K) identify and demonstrate appropriate data destruction and disposal methods relevant to a given scenario.

(5) [~~(6)~~] The student applies foundational knowledge and skills for the installation, configuration, operation, and maintenance of desktops and workstations. The student is expected to:

(A) explain the procedure used to install and configure motherboards, central processing units (CPUs), and add-on cards relevant to a given scenario such as a custom personal computer configuration to meet customer specifications;

(B) describe how to implement security best practices to secure a workstation, including software-based computer protection tools such as software firewalls, antivirus software, and anti-spyware;

(C) demonstrate how to identify symptoms or error codes, including no power, no POST, no BOOT, and no video, that indicate device issues and explain how to troubleshoot symptoms or error codes;

(D) describe the process used to install, troubleshoot, and replace random-access memory (RAM) types and data storage;

(E) describe how to troubleshoot, clean, repair, or replace internal components, including heat sink units and thermal paste, exhaust vents and fans, power supply units, power adapters, batteries, wireless elements, and wireless wide area network (WWAN) components;

(F) explain the importance of conducting periodic maintenance, including both physical and electronic cleaning, disk checks, routine reboots, data dumps, and testing; and

(G) describe and demonstrate how to prevent, detect, and remove malware using appropriate tools and methods.

(6) [~~(7)~~] The student applies foundational knowledge and skills about the installation, configuration, operation, and maintenance of operating systems (OS) and software. The student is expected to:

(A) describe and demonstrate the use of OS features and tools relevant to given scenarios;

(B) describe and demonstrate the use of OS utilities relevant to given scenarios;

(C) execute OS command-line tools such as ipconfig, netstat, dir, nbtstat;

(D) troubleshoot and document OS problems relevant to a given scenario;

(E) demonstrate how to use features and tools of various operating systems properly;

(F) troubleshoot and document problems in various operating systems; and

(G) explain database concepts and the purpose of a database.

(7) [~~(8)~~] The student installs, configures, operates, maintains, and troubleshoots issues related to peripheral devices relevant to a given scenario. The student is expected to:

(A) explain and demonstrate how to install, configure, maintain, and troubleshoot storage devices;

(B) explain and demonstrate how to install, configure, maintain, and troubleshoot printers, copiers, and scanners, including small office home office (SOHO) multifunction devices and printers;

(C) explain and demonstrate how to install, configure, maintain, and troubleshoot video projectors and video displays; and

(D) explain and demonstrate how to install, configure, maintain, and troubleshoot multimedia devices such as sound cards, speakers, microphones, and webcams.

(8) [~~(9)~~] The student monitors current issues related to the installation, configuration, operation, and maintenance of laptops, tablets, and other mobile devices, including internet of things (IoT) devices. The student is expected to:

(A) explain and demonstrate how to install and configure laptop and netbook hardware to meet customer specifications;

(B) explain and demonstrate how to install components within the display of a laptop;

(C) explain and demonstrate how to connect and configure accessories and ports of mobile devices;

(D) analyze and apply methods used to secure mobile devices;

(E) configure mobile device network connectivity and application support;

(F) demonstrate proper methods to perform mobile device synchronization such as synchronizing information to a laptop or desktop computer; and

(G) explain and demonstrate how to troubleshoot issues relevant to mobile devices, OS, and applications.

(9) [~~(10)~~] The student troubleshoots issues with wired and wireless networks and cloud computing resources. The student is expected to:

(A) explain and demonstrate how to install, configure, and secure a wired network;

(B) explain and demonstrate how to install, configure, and secure a wireless network;

(C) compare wireless security protocols and authentication methods;

(D) analyze, describe, and troubleshoot wired and wireless network problems;

(E) demonstrate the use of appropriate networking tools to fix network issues safely;

(F) explain how computing devices such as laptops and cell phones connect and share data;

(G) describe the components of cloud-computing architectures and features of cloud-computing platforms; and

(H) analyze, describe, and troubleshoot cloud computing resources.

§127.696. Engineering Applications of Computer Science Principles (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 9-12. Prerequisite: Algebra I and at least one credit in a course from the Information Technology Career Cluster . Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialists and network analysts.

(3) Engineering Applications of Computer Science Principles teaches rigorous engineering design practices, engineering habits of mind, and the foundational tools of computer science. Students apply core computer science principles to solve engineering design challenges that cannot be solved without such knowledge and skills. Students use a variety of computer software and hardware applications to complete projects.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) cooperate, contribute, and collaborate as a member of a group to attain agreement and achieve a collective outcome;~~]

[~~(B) present written and oral communication in a clear, concise, and effective manner;~~]

[~~(C) demonstrate time-management skills in prioritizing tasks, following schedules, and performing goal-relevant activities in a way that produces efficient results;~~]

[~~(D) identify tasks and complete tasks with the highest standards to ensure quality products and services; and~~]

[~~(E) analyze cost savings by using a simulation to run experiments before committing more resources.~~]

(1) [~~(2)~~] The student applies concepts of critical thinking and problem solving to engineering applications in computer science. The student is expected to:

(A) identify, analyze, and discuss elements of an engineering problem to develop creative and innovative solutions;

(B) identify, analyze, and discuss the elements and structure of a programming problem to develop creative and innovative solutions;

(C) identify and discuss pertinent information from a customer and existing program for solving a problem;

(D) compare and discuss alternatives to a solution using a variety of problem-solving and critical-thinking skills; and

(E) conduct research to gather technical information necessary for decision making.

(2) [~~(3)~~] The student conducts computer science and engineering laboratory activities using safe and environmentally appropriate practices. The student is expected to:

(A) identify and demonstrate safe practices during hands-on cutting and building activities during computer science and engineering laboratory activities;

(B) identify and demonstrate safe use and storage of electrical components; and

(C) identify and demonstrate appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.

(3) [~~(4)~~] The student applies ethical considerations in designing solutions. The student is expected to:

(A) define and evaluate constraints pertaining to a problem;

(B) identify safety considerations in designing engineering solutions with respect to the system, engineer, and user; and

(C) investigate and explain the importance and application of relevant legal and ethical concepts in computer science such as intellectual property, use of open-source software, attribution, patents, and trademarks.

(4) [~~(5)~~] The student demonstrates an understanding of the structured methods used to collect and analyze information about customer needs. The student is expected to:

(A) analyze information provided by the customer to identify customer needs;

(B) create a process flow diagram based on customer needs to generate ideas for potential user actions, product functions, and design opportunities;

(C) develop a flowchart for a program using the results of a process flow diagram;

(D) create a target specifications table;

(E) identify and describe similar existing solutions; and

(F) construct a functional model based on customer needs to generate ideas for potential user actions, product functions, and design opportunities.

(5) [~~(6)~~] The student develops a user interface and supplemental instructions. The student is expected to:

(A) identify essential tasks to be completed by the user;

(B) identify points of potential confusion or unexpected input by the user;

(C) design a software or user interface that clearly communicates to the user how to complete desired tasks;

(D) develop supplemental user instructions to inform the user of items that cannot be incorporated into an interface such as how to start the program or frequently asked questions;

(E) test a program and the program instructions with an individual who is not familiar with the project;

(F) evaluate and discuss feedback and results from new user testing;

(G) improve and refine a program and the program instructions based on feedback and results of testing; and

(H) re-test a program and the program instructions as necessary after modifications have been made in response to testing and identify any next steps.

(6) [~~(7)~~] The student systematically reverse engineers a product, examines ways to improve the product, and identifies the type of redesign required to make that improvement. The student is expected to:

(A) write or [~~and~~] perform tests, including break testing, for an existing program to determine functionality;

(B) describe unexpected findings from deconstructing existing code;

(C) examine and discuss relevant software libraries to determine their uses and functionality;

(D) construct a flowchart for an existing program;

(E) compare a program's current functionality to the customer's needs;

(F) identify and add missing customer specifications or needs to a program's flowchart;

(G) develop and explain new code that includes customer specifications or improves a product; and

(H) compare and discuss the predicted versus actual functionality of a product to generate ideas for redesign.

(7) [~~(8)~~] The student applies concept generation and selection skills. The student is expected to:

(A) create and explain a black box and functional model of a system;

(B) implement brainstorming, mind mapping, concept sketching, and gallery walk activities to produce new ideas; and

(C) apply concept selection techniques such as a Pugh chart or a weighted decision matrix to design decisions.

(8) [~~(9)~~] The student develops and applies engineering design process skills. The student is expected to:

(A) select and use appropriate tools and techniques to support design activities;

(B) report information about software design solutions in an engineering notebook;

(C) develop, test, and refine programming concepts throughout the development process;

(D) interpret and use an electrical diagram to build a circuit;

(E) create a circuit using a microcontroller, a breadboard, and multiple components;

(F) explain and apply the design process from different starting points by beginning with a baseline design;

(G) use a model or simulation which represents phenomena and mimics real-world events to develop and test hardware;

(H) critique and explain the usefulness and limitations of certain models;

(I) develop a prototype solution; test the prototype solution against requirements, constraints, and specifications; and refine the prototype solution; and

(J) report and describe a product's final design after the prototyping phase.

(9) [~~(10)~~] The student applies mathematics and algorithms in programs. The student is expected to:

(A) apply mathematical concepts from algebra, geometry, trigonometry, or [~~and~~] calculus to calculate the angle of a joint;

(B) apply mathematical calculations cyclically in a program using algorithms; and

(C) evaluate and verify algorithms for appropriateness and efficiency.

(10) [~~(11)~~] The student develops computer programs to support design solutions. The student is expected to:

(A) design and explain software interfaces that communicate with hardware;

(B) identify and apply relevant concepts from computer science, science, and mathematics such as functions, electricity, and mechanics; and

(C) employ abstraction in a program by representing numerical sensor readouts [~~distance and brightness ranges~~] in more intuitive variables and functions.

(11) [~~(12)~~] The student develops and applies computer science skills. The student is expected to:

(A) integrate small discrete programs into a larger complete program solution using systems-thinking skills;

(B) use intuitive variable names correctly and add comments to code to improve readability;

(C) employ abstraction in a program by representing images as data arrays and representing numerical tone frequencies as variables;

(D) convert image information into the correct data type necessary for given library functions;

(E) develop an algorithm that includes logic such as "while" and "if" to accept user trackbar input and display image changes in real time;

(F) develop flowcharts, pseudocode, and commented code to document and explain software design solutions;

(G) design software interfaces that communicate with users and hardware;

(H) employ abstraction to program [~~to~~] an interface, treating imported code as a "black box";

(I) employ abstraction by representing a joint as four points in a plane; and

(J) select and apply correct programming vocabulary and programming skills during program development.

(12) [~~(13)~~] The student develops and uses computer programs to process data and information to gain insight and discover connections to support design solutions. The student is expected to:

(A) explain how to organize complex image and video data for processing;

(B) analyze complex data to make decisions and instruct users; and

(C) develop programs that use incoming data and algorithms to create output data, information, and commands.

§127.697. Geographic Information Systems (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisites: Principles of Art, Audio/Video Technology, Principles of Information Technology, Physics for Engineers, or Principles of Applied Engineering. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) The Geographic Information Systems (GIS) course employs an analytic process using industry standard software to find trends and patterns in collected data. Whether collecting data first-hand or from reputable websites, GIS aims to use scientific methods to find solutions to various problems and issues.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) produce effective written and oral communication;~~]

[~~(B) describe and demonstrate appropriate verbal and nonverbal communication skills;~~]

[~~(C) describe employers' expectations, appropriate work habits, and good citizenship skills;~~]

[~~(D) identify career development and opportunities in the GIS industry and related industries;~~]

[~~(E) identify and apply competencies related to resources, information, and systems of operation in the geographical information technology industry;~~]

[~~(F) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;~~]

[~~(G) identify and explain the appropriate use of types of personal protective equipment used in the GIS industry; and~~]

[~~(H) explain and give examples of safety and health training requirements specified by standard setting organizations.~~]

(1) [~~(2)~~] The student demonstrates knowledge and appropriate use of computer hardware components and software programs and examines how hardware and software are interrelated. The student is expected to:

(A) use operating systems, software applications, and communication and networking components appropriately;

(B) compare and appropriately use various input, processing, output, and primary/secondary storage devices;

(C) evaluate and select software based on quality, appropriateness, effectiveness, and efficiency; and

(D) solve digital file format and cross platform connectivity compatibility issues.

(2) [~~(3)~~] The student uses data input skills. The student is expected to:

(A) incorporate into a product and use a variety of input devices such as keyboard, scanner, or mouse appropriately; and

(B) use digital keyboarding standards for the input of data.

(3) [~~(4)~~] The student demonstrates knowledge and understanding of what GIS is and the use of GIS technology in different career fields. The student is expected to:

(A) identify historical and contemporary developments in GIS;

(B) describe the basic components of GIS; and

(C) identify appropriate application of GIS technologies in different career fields.

(4) [~~(5)~~] The student demonstrates knowledge and appropriate use of database software. The student is expected to:

(A) design and construct a relational database from a geographic data model using a database software;

(B) use joins, hyperlinks, and relational linking appropriately within a database;

(C) convert data into a data depiction using classifications; and

(D) transfer data from different sources into a database for storage and retrieval.

(5) [~~(6)~~] The student demonstrates knowledge and appropriate use of spatial databases and sources. The student is expected to:

(A) identify and use appropriately various spatial databases and sources such as digital terrain models, digital orthophoto quadrangles, geographic databases, land use and land cover data, digital imagery, hydrographic spatial data, and demographic data; and

(B) describe and demonstrate appropriate use of spatial analysis.

(6) [~~(7)~~] The student demonstrates knowledge and appropriate use of GIS software. The student is expected to:

(A) determine the appropriate software tool from GIS to use for a given task or project;

(B) create queries and spatial queries for finding features, borders, centroids, and networks and determining distance, length, and surface measurements and shapes;

(C) describe characteristics of maps and spatial data; and

(D) identify and use geographical scales, coordinates, and specific map projections.

(7) [~~(8)~~] The student demonstrates knowledge and appropriate use of GIS data collection devices. The student is expected to:

(A) plan and conduct supervised GIS and Global Positioning System (GPS) experiences;

(B) initialize and prepare a GPS receiver for data collection;

(C) collect geographical coordinates from a GPS receiver; and

(D) transfer data from a GPS device to a personal computer.

(8) [~~(9)~~] The student acquires electronic information in a variety of formats. The student is expected to:

(A) collect electronic information in various formats, including text, audio, video, and graphics; and

(B) gather authentic data from a variety of electronic sources to use for individual and group GIS projects.

(9) [~~(10)~~] The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:

(A) explain project management guidelines for designing and developing GIS projects; and

(B) design solutions for a project using visual organizers such as flowcharts or schematic drawings.

(10) [~~(11)~~] The student produces a product using a variety of media. The student is expected to:

(A) publish information in a variety of formats, including hard copies and digital formats; and

(B) prepare a presentation of GIS information using graphs, charts, maps, and presentation software.

(11) [~~(12)~~] The student examines GIS maps, reports, and graphs. The student is expected to:

(A) explain industry-standard legends used in GIS;

(B) describe symbols, scaling, and other map elements used in GIS;

(C) generate GIS reports and graphs; and

(D) create maps using a variety of map display types such as choropleth, heat maps, dot density maps, topographic maps, or graduated symbols maps.

§127.698. Raster-Based Geographic Information Systems (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisite: Geographic Information Systems. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) In Raster-Based Geographic Information Systems (GIS), students study local problems; acquire information, including images or aerial photographs; process the acquired data; and merge the acquired data with vector data. Students plan, conduct, and present solutions for locally based problems.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) produce effective written and oral communication;~~]

[~~(B) describe and demonstrate appropriate verbal and nonverbal communication skills;~~]

[~~(C) describe and demonstrate various workplace expectations, including proper work attire and professional conduct;~~]

[~~(D) describe time-management skills, including prioritizing tasks, following schedules, and tending to goal-relevant activities to optimizes efficiency and results;~~]

[~~(E) explain the importance of punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;~~]

[~~(F) explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace;~~]

[~~(G) identify and explain the appropriate use of types of personal protective equipment used in the GIS industry; and~~]

[~~(H) explain and give examples of safety and health training requirements specified by standard setting organizations.~~]

(1) [~~(2)~~] The student demonstrates knowledge of the GIS field and related careers. The student is expected to:

(A) identify employment and career opportunities in GIS-related fields;

(B) identify and explore career preparation learning experiences, including job shadowing, mentoring, apprenticeship training, and preparation programs;

(C) identify industry certifications for GIS-related careers, including careers related to raster-based GIS; and

(D) discuss and analyze ethical issues related to GIS and technology and incorporate proper ethics in submitted projects.

(2) [~~(3)~~] The student explores various roles in team projects. The student is expected to:

(A) explain the importance of teamwork in the field of GIS;

(B) describe principles of effective teamwork, including collaboration and conflict resolution; and

(C) explain common characteristics of strong team leaders and team members.

(3) [~~(4)~~] The student investigates the history and use of aerial photography. The student is expected to:

(A) explain fundamental principles of cameras and lenses as they pertain to GIS and aerial photography;

(B) research and explain the history of aerial photography, including aerial platforms;

(C) explain various uses of aerial photography;

(D) compare vertical and oblique aerial photography; and

(E) identify cities, bridges, shorelines, roads and other important features in aerial photos.

(4) [~~(5)~~] The student develops an understanding of electromagnetic and thermal radiation. The student is expected to:

(A) explain how forms of radiation propagate through space and interact with matter;

(B) research and describe the behavior of waves, including refraction, scattering, absorption, and reflection, in relation to radiation;

(C) describe the properties and laws of thermal radiation;

(D) compare the particle and wave models of electromagnetic energy;

(E) differentiate maps based on electromagnetic versus thermal radiation imagery; and

(F) evaluate whether electromagnetic or thermal radiation imagery is appropriate based on the conditions.

(5) [~~(6)~~] The student explores active and passive microwave remote sensing. The student is expected to:

(A) compare active and passive microwave remote sensing;

(B) explain geographic characteristics, including surface roughness, moisture content, vegetation, backscatter and biomass, and urban structures, detected by remote sensing images; and

(C) provide a detailed analysis of radar images.

(6) [~~(7)~~] The student learns the functions and applications of the tools, equipment, and materials used in GIS and raster-based analysis. The student is expected to:

(A) describe how to use raster-based software;

(B) download spatial data and raster images and re-project the data and images to match the Digital Orthophoto Quadrangle (DOQ) or Digital Orthophoto Quarter Quadrangle (DOQQ);

(C) identify remote sensing equipment and describe the difference between the Global Positioning System (GPS) and the Global Navigation Satellite System (GLONASS);

(D) describe GPS measurements and perform measurements with handheld GPS devices using GPS or GLONASS systems; and

(E) compare the advantages, disadvantages, and limitations of remote or unmanned sensing.

(7) [~~(8)~~] The student uses scientific practices in imagery analysis. The student is expected to:

(A) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology;

(B) collect GIS data;

(C) organize, analyze, evaluate, make inferences, and predict trends from GIS data; and

(D) communicate valid conclusions using appropriate GIS vocabulary, supportive maps, summaries, oral reports, and technology-based reports.

(8) [~~(9)~~] The student uses project-management skills to research and analyze locally based problems. The student is expected to:

(A) identify and collect data necessary to evaluate a local problem, including defining the problem and identifying locations of the concern;

(B) develop a plan and project schedule for completion of a project developed to address a local concern using raster-based GIS technology;

(C) create a GIS map to illustrate a problem using remote sensing images gathered from sites such as the National Aeronautics and Space Administration, National Oceanic and Atmospheric Administrations, and United States Geological Survey;

(D) evaluate GIS map features to identify solutions to a problem;

(E) develop solutions to minimize, reverse, or solve problem using raster-based GIS technology; and

(F) organize and present findings related to a local problem in a final report or portfolio with data and solutions generated using raster-based GIS technology.

§127.699. Spatial Technology and Remote Sensing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Information Technology Career Cluster. Recommended prerequisites:

Geographic Information Systems and Raster-Based Geographic Information Systems. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Information Technology career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from software developer and programmer to cybersecurity specialist and network analyst.

(3) In Spatial Technology and Remote Sensing, students receive instruction in industry standard geospatial extension software and geospatial tools, including global positioning systems (GPS), and training in project management and problem solving related to geographic information systems (GIS).

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:~~]

[~~(A) produce effective written and oral communication;~~]

[~~(B) describe and demonstrate effective verbal and nonverbal communication skills;~~]

[~~(C) describe workplace expectations, including appropriate work attire and professional conduct;~~]

[~~(D) describe and demonstrate principles of effective teamwork, including collaboration and conflict resolution;~~]

[~~(E) describe and demonstrate effective use of time management skills, including prioritizing tasks, following schedules, and tending to goal-relevant activities to optimize efficiency and results;~~]

[~~(F) explain the importance of punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks with little or no direction; and~~]

[~~(G) identify consequences and appropriate actions related to discrimination, harassment, and inequality in the workplace.~~]

(1) [~~(2)~~] The student demonstrates knowledge of the GIS field and GIS-related careers. The student is expected to:

(A) identify employment and career opportunities in spatial technology and remote sensing related GIS fields;

(B) describe and explore career preparation learning experiences, including job shadowing, mentoring, apprenticeship training, and preparation programs;

(C) identify industry certifications for GIS-related careers, including careers that use or benefit from spatial technology; and

(D) analyze and discuss ethical issues related to the field of spatial technology and remote sensing technology and spatial technology and remote sensing technology projects.

(2) [~~(3)~~] The student applies basic GIS software knowledge and skills to explore the use of various geographic projections in GIS software. The student is expected to:

(A) identify and use Mercator map projection;

(B) identify and use Albers conic map projection; and

(C) research and explain the evolution of and need for different map projections.

(3) [~~(4)~~] The student explores the application of GPS technology. The student is expected to:

(A) define and use data terminology related to GPS;

(B) identify and use appropriately GPS receiver components;

(C) describe various applications of GPS coordinates such as locating fire hydrants, extinguishers, lighting, and parking lots; and

(D) compare the accuracy of GPS coordinates from different receivers such as smartphones, tablets, and GPS handheld devices.

(4) [~~(5)~~] The student demonstrates knowledge and understanding of the types and components of unmanned remote sensing platforms. The student is expected to:

(A) identify major components of aerial, terrestrial, and submersible remote sensing platforms;

(B) determine the most appropriate remote sensing platform to use based on various conditions;

(C) differentiate the types of sensing systems used by each type of platform, including active, passive, spectrometer, radar, LiDAR, scatter meter, and laser altimeter platforms; and

(D) compare situations in which different unmanned remote sensing platforms and sensing systems might be used.

(5) [~~(6)~~] The student demonstrates skills related to GIS data analysis. The student is expected to:

(A) evaluate findings and potential problems using GIS data;

(B) create models that represent collected GIS data;

(C) create, query, map, and analyze cell-based raster data; and

(D) analyze density, distance, and proximity of various data points using spatial analyst tools.

(6) [~~(7)~~] The student analyzes geospatial socioeconomic data to create three-dimensional maps to demonstrate findings. The student is expected to:

(A) identify key sources of and gather and organize geospatial socioeconomic data;

(B) plan, organize, and create thematic maps;

(C) convert two-dimensional themes to a three-dimensional map to demonstrate features, distributions, and themes; and

(D) interpret, draw conclusions about, and justify findings related to geospatial socioeconomic data.

(7) [~~(8)~~] The student uses spatial technology to develop and analyze a location map. The student is expected to:

(A) identify and collect data using GPS and unmanned systems and identify the boundaries and topography of a location;

(B) analyze how the location of a community impacts resources and hardships such as jobs or traffic in the community;

(C) create a map of a location that includes buildings and facilities, adjacent streets, and transportation sites using GIS software; and

(D) develop a map that includes categories for a facility's features such as restrooms, spaces allocated for core activities, emergency equipment, and excavation routes.

(8) [~~(9)~~] The student documents spatial technology knowledge and skills. The student is expected to:

(A) create a spatial technology and remote sensing portfolio that includes attainment of technical skill competencies and samples of work such as location maps and spatial technology and remote sensing-based reports; and

(B) present a portfolio to peers or interested stakeholders.

ATTACHMENT VI
Text of Proposed New 19 TAC

Chapter 127. Texas Essential Knowledge and Skills for Career Development and Career and Technical Education

Subchapter N. Law and Public Service

§127.773. Legal Research and Writing (One Credit), Adopted 2025.

(a) Implementation.

(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills, Adopted 2025) as an integral part of this course.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Law and Public Service Career Cluster. Recommended prerequisite: Court Systems and Practices. Students shall be awarded one credit for successful completion of this course.

(c) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Law and Public Service Career Cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical support services.

(3) Legal Research and Writing provides an introduction to the study and practice of legal writing and research. This course is designed to introduce students to the methods and tools used to conduct legal research, develop and frame legal arguments, produce legal writings such as briefs, memorandums, and other legal documents, study U.S. Constitutional law, and prepare for appellate argument(s).

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations [~~leadership or extracurricular organizations~~] .

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(d) Knowledge and skills.

[~~(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to achieve business and industry employability skills standards such as attendance, on-time arrival, meeting deadlines, working toward personal and team goals every day, and ethical use of technology.~~]

(1) [~~(2)~~] The student conducts legal research. The student is expected to:

(A) plan a legal research strategy;

(B) access print and online research materials to find and analyze case law;

(C) describe the difference between mandatory and persuasive authority;

(D) research mandatory and persuasive case history using online databases such as Lexis-Nexis;

(E) explain how to shepardize case law;

(F) critique other's legal writing(s) to determine whether cited case law and other legal sources were correctly referenced and relied upon for precedential holdings;

(G) evaluate and apply concepts found in Bluebook citation rules to one's writing.

(2) [~~(3)~~] The student prepares , drafts, and defends legal arguments. The student is expected to:

(A) read and analyze case law;

(B) read and analyze case procedural history;

(C) apply legal precedent to current legal issues; and

(D) develop arguments based on research, relevant case law, statutes, and public policy [~~supported by case law research~~] .

(3) [~~(4)~~] The student understands , prepares, and drafts [~~and prepares~~] legal documents. The student is expected to:

(A) use and interpret legal reference documents such as the Bluebook to follow and apply requirements for legal writing and citations;

(B) prepare and draft legal briefs that include standard elements, including an introduction , [~~and~~] table of authorities , brief answer, introduction, argument, counter-argument, and conclusion ;

(C) prepare and draft memoranda [~~memorandums~~] that follow a standard legal format; and

(D) prepare and draft other legal documents such as demand letters and pleadings.

(4) [~~(5)~~] The student studies and analyzes U.S. Constitutional law. The student is expected to:

(A) analyze the relationship between the U.S. Constitution, Common Law, [~~and~~] state law(s), and local law(s);

(B) analyze the legal, social, and historical implications of court decisions affecting the interpretation of the U.S. Constitution;

(C) predict possible outcomes of future cases and frame arguments in ways that are likely to garner the support of the judiciary;

(D) critique cases related to U.S. Constitutional law and other current legal issues such as free exercise clause, establishment clause, due process, and equal protection; and

(E) critique cases related to current legal issues.

(5) [~~(6)~~] The student participates in a class moot court simulation. The student is expected to:

(A) research and evaluate case law on a current legal issue;

(B) read and evaluate appellant, respondent, and amici briefs associated with the chosen case;

(C) write an appellate brief; and

(D) prepare an oral argument and respond to questions during the presentation of the argument.

ATTACHMENT
Text of Proposed Amendment to 19 TAC

Chapter 74. Curriculum Requirements

Subchapter A. Required Curriculum

§74.3. Description of a Required Secondary Curriculum.

(a) (No change.)

(b) Secondary Grades 9-12.

(1) A school district that offers Grades 9-12 must provide instruction in the required curriculum as specified in §74.1 of this title. The district must ensure that sufficient time is provided for teachers to teach and for students to learn the subjects in the required curriculum. The school district may provide instruction in a variety of arrangements and settings, including mixed-age programs designed to permit flexible learning arrangements for developmentally appropriate instruction for all student populations to support student attainment of course and grade level standards.

(2) A [~~The~~] school district must offer [~~the~~] courses listed in subparagraphs (A)-(J) of this paragraph , unless selection from a list of courses is specified, and maintain evidence that students have the opportunity to take these courses:

(A) English language arts--English I, II, III, and IV and at least one additional advanced English course;

(B) mathematics--Algebra I, Algebra II, Geometry, Precalculus, and Mathematical Models with Applications;

(C) science--

(i) Integrated Physics and Chemistry, Biology, Chemistry, Physics ; [~~,~~] and

(ii) at least two additional science courses selected from Aquatic Science, Astronomy, Earth Systems Science [~~Earth and Space Science~~] , Environmental Systems, Advanced Animal Science, [~~Advanced Biotechnology,~~] Advanced Plant and Soil Science, Anatomy and Physiology, Physics for Engineering, Biotechnology I, Biotechnology II, Engineering Design and Problem Solving, Food Science, Forensic Science, Medical Microbiology, Pathophysiology, Scientific Research and Design, [~~and~~] Engineering Science , Fluid Mechanics, Mechanics of Materials, and advanced level biology, chemistry, physics, and environmental science courses offered as dual credit as referenced in §74.11(i) of this title (relating to High School Graduation Requirements) or a course selected from §74.12(b)(3)(A) or (B) of this title (relating to Foundation High School Program) [~~, Advanced Placement (AP) Biology, AP Chemistry, AP Physics 1: Algebra Based, AP Physics 2: Algebra Based, AP Environmental Science, AP Physics C: Electricity and Magnetism, and AP Physics C: Mechanics. The requirement to offer two additional courses may be reduced to one by the commissioner of education upon application of a school district with a total high school enrollment of less than 500 students. Science courses shall include at least 40% hands-on laboratory investigations and field work using appropriate scientific inquiry~~] ;

(D) social studies--United States History Studies Since 1877, World History Studies, United States Government, World Geography Studies, Personal Financial Literacy, Economics with Emphasis on the Free Enterprise System and Its Benefits, and Personal Financial Literacy and Economics [~~. The requirement to offer both Economics with Emphasis on the Free Enterprise System and Its Benefits and Personal Financial Literacy and~~

~~Economics may be reduced to one by the commissioner of education upon application of a school district with a total high school enrollment of less than 500 students~~] ;

(E) physical education--at least two courses selected from Lifetime Fitness and Wellness Pursuits, Lifetime Recreation and Outdoor Pursuits, or Skill-Based Lifetime Activities;

(F) fine arts--courses selected from at least two of the four fine arts areas (art, music, theatre, and dance)--Art I, II, III, IV; Music I, II, III, IV; Theatre I, II, III, IV; or Dance I, II, III, IV;

(G) career and technical education-- three or more career and technical education courses for four or more credits with at least one advanced course aligned with a specified number of Texas Education Agency-designated programs of study determined by enrollment as follows:

(i) one program of study for a district with fewer than 500 students enrolled in high school;

(ii) two programs of study for a district with 501-1,000 students enrolled in high school;

(iii) three programs of study for a district with 1,001-2,000 students enrolled in high school;

(iv) four programs of study for a district with 1,001-5,000 students enrolled in high school;

(v) five programs of study for a district with 5,001-10,000 students enrolled in high school; and

(vi) six programs of study for a district with more than 10,000 students enrolled in high school.

(H) languages other than English--Levels I, II, and III or higher of the same language;

(I) computer science--one course selected from Fundamentals of Computer Science, Computer Science I, or another advanced computer science course [~~AP~~] [~~Advanced Placement (AP)~~] [~~Computer Science Principles~~] ; and

(J) speech--Communication Applications.

(3) The following requirements may be reduced to one by the commissioner of education upon application of a school district with a total high school enrollment of less than 500 students:

(A) the requirement to offer two additional science courses; and

(B) the requirement to offer both Economics with Emphasis on the Free Enterprise System and Its Benefits and Personal Financial Literacy and Economics.

(4) [~~(3)~~] Districts may offer additional courses from the complete list of courses approved by the State Board of Education to satisfy graduation requirements as referenced in this chapter.

(5) [~~(4)~~] A [~~The~~] school district must provide each student the opportunity to participate in each course the district is required to offer or selects to offer as specified [~~all courses listed~~] in subsection (b)(2) of this section. The district must provide students the opportunity each year to select courses in which they intend to participate from a list that includes all courses required to be offered in subsection (b)(2) of this section. If the school district will not offer the required courses every year, but intends to offer particular courses only every other year, it must notify all enrolled students of that fact. A school district must teach a course that is specifically required for high school graduation at least once in any two consecutive school years. For a subject that has an end-of-course assessment, the district must either teach the course every year or employ options described in Subchapter C of this chapter (relating to Other Provisions) to enable students to earn credit for the course and must maintain evidence that it is employing those options.

[~~(5) For students entering Grade 9 beginning with the 2007-2008 school year, districts must ensure that one or more courses offered in the required curriculum for the recommended and advanced high school programs include a research writing component.~~]

(c) (No change.)

Minutes

State Board of Education Committees

April 7-10, 2025

Report of the State Board of Education
Committee of the Full Board
Monday, April 7, 2025

The State Board of Education Committee of the Full Board met at 1:05 p.m. on Monday, April 7, 2025, in room #2.034 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Aaron Kinsey, chair; Evelyn Brooks; Staci Childs; LJ Francis; Brandon Hall; Will Hickman; Keven Ellis (participating remotely); Pam Little; Tom Maynard; Gustavo Reveles; Julie Pickren; Audrey Young; Tiffany Clark

Absent: Marisa B. Perez-Diaz, Rebecca Bell-Metereau

Public Testimony

The Committee of the Full Board heard public testimony on agenda item #3. Information regarding the individuals who presented public testimony is included in the discussion of that item.

ACTION ITEMS

1. Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills
(First Reading and Filing Authorization)
(Board agenda page I-1)
[Official agenda item #3]

Monica Martinez, associate commissioner for standards and programs, explained that based on the January committee discussion, the proposed employability skills were based on the proposed engineering employability skills standards. Ms. Martinez explained that the proposal would establish one set of employability standards for level 1 and 2 career and technical education (CTE) courses and a different set for level 3 and 4 CTE courses.

Additionally, Ms. Martinez noted that the board would have the opportunity to include cross references to the proposed new employability skills standards in CTE courses as part of three additional agenda items at this meeting.

MOTION: *It was moved by Mrs. Little, and seconded by Mr. Maynard, that the Committee of the Full Board recommend that the State Board of Education approve for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025.*

Education approve for first reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education,

Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025.

MOTION: *It was moved by Mr. Francis and seconded by Mr. Maynard to recommend that the State Board of Education add new §127.15(1)(I) to read:*

"demonstrate knowledge of personal and occupational health and safety practices, including first aid, in the workplace ~~discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~."

MOTION AND VOTE: *It was moved by Mr. Hickman and seconded by Mrs. Little to recommend that the State Board of Education amend §127.15(1)(I) to read:*

"demonstrate knowledge of personal and occupational health and safety practices, including first aid, in the field ~~workplace discuss the importance of safety in the workplace and why it is critical for employees and employers to maintain a safe work environment; and~~."

The motion failed.

VOTE: *A vote was taken on the original motion to recommend that the State Board of Education amend §127.15(1)(I). The motion carried.*

MOTION AND VOTE: *It was moved by Mr. Francis, seconded by Mr. Hall, and carried to recommend that the State Board of Education amend §127.15(2)(I) to read:*

"demonstrate knowledge of personal and occupational health and safety, applicable regulations, and first aid in the workplace and discuss why it is critical for employees and employers to maintain a safe work environment; and ~~identify the components of a safety plan and why it is critical for employees and employers to maintain a safe work environment; and~~"

MOTION: *It was moved by Mr. Maynard and seconded by Mr. Hickman to recommend that the State Board of Education add new §127.15(1)(K) to read:*

"(K) identify career development opportunities in the field."

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education strike proposed new §127.15(1)(K) and add new §127.15(1)(K) and (L) to read:*

"(K) identify career development and entrepreneurship opportunities in the field; and

(L) identify appropriate training, education or certification in the field."

VOTE: *A vote was taken on the motion to recommend that the State Board of Education add new §127.15(1)(K) and (L) as amended to read:*

"(K) identify career development and entrepreneurship opportunities in the field; and

(L) identify appropriate training, education or certification in the field."

The motion carried without objection.

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mr. Hickman, and carried without objection to recommend that the State Board of Education add new §127.15(2)(K) to read:*

"(K) identify career development opportunities in the field:

(i) education and training;

(ii) credentialing;

(iii) internships and apprenticeships; and

(iv) entrepreneurship opportunities."

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Ms. Pickren, and carried without objection to recommend that the State Board of Education add new §127.15(1)(M) to read:*

"(M) identify legal and ethical responsibilities in relation to the field."

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education add new §127.15(2)(M) to read:*

"(L) demonstrate an understanding of legal and ethical responsibilities in relation to the field."

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education amend §127.15(2)(C) to read:*

"present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions ~~in the design process~~;

VOTE: *A vote was taken on the original motion to recommend that the State Board of Education approve for first reading and filing authorization proposed new to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter B, High School, §127.15, Career and Technical Education Employability Skills, Adopted 2025, as amended.*

The motion carried.

2. Adoption of Review of 19 TAC Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option (Adoption of Review)
(Board agenda page I-7)
[Official agenda item #2]

Julie Cole, Director of Policy and Publications, Student Assessment, explained that Texas Government Code, §2001.039 establishes a four-year rule review cycle for all state agency rules including State Board of Education Rules (SBOE) rules. Ms. Cole explained that this item presents the adoption of the review of 19 Texas Administrative Code (TAC) Chapter 101, Assessment, Subchapter A, General Provisions, Subchapter B, Implementation of Assessments, and Subchapter C, Local Option.

The committee asked clarifying questions regarding the statutory authority of the statewide assessment program between the SBOE, the commissioner of education, and the agency.

MOTION AND VOTE: It was moved by Mrs. Little, seconded by Mr. Hickman, and adopted without objection by those present to recommend that the State Board of Education postpone the item for further consideration at the June 2025 meeting.

3. Proposed New 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, 111.29-111.31
(Second Reading and Final Adoption)
(Board agenda page I-14)
[Official agenda item #5]

Public testimony was provided by the following individual:

NAME	AFFILIATION
Dr. Corinna Bullock	Texas Education Policy Institute

Jessica Snyder, director, curriculum standards and student support division, explained that the proposed new TEKS support the implementation of Senate Bill 2124 (88th Texas Legislature, Regular Session, 2023), which requires school districts and open-enrollment charter schools to develop an advanced mathematics program designed to enable students to enroll in Algebra I in eighth grade. Ms. Snyder stated that the proposed middle school advanced mathematics TEKS would not be required to be taught by school districts but would provide them with an option for implementation of their middle school advanced mathematics programs.

Ms. Snyder explained that a handout of the cumulative public comments received on the proposal was distributed to board members. She explained that staff recommended two amendments in response to public comments and one amendment to align with comments from the TEKS review work group.

MOTION AND VOTE: *It was moved by Mrs. Little, seconded by Mr. Maynard, and carried to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, §§111.29-111.31; and*

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter B, Middle School, §§111.29-111.31, is necessary and shall have an effective date of 20 days after filing as adopted with the Texas Register.

DISCUSSION ITEM

4. Discussion of Pending Litigation
(Board agenda page I-31)

The committee did not discuss pending litigation; therefore, no executive session was held.

Chairman Kinsey adjourned the meeting at 4:44 p.m.

Report of the State Board of Education
Committee of the Full Board
Tuesday, April 8, 2025

The State Board of Education Committee of the Full Board met at 9:00 a.m. on Tuesday, April 8, 2025, in room #2.034 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Aaron Kinsey, chair; Rebecca Bell-Metereau; Evelyn Brooks; Staci Childs; Tiffany Clark; Keven Ellis; L.J. Francis; Brandon Hall; Will Hickman; Pam Little; Tom Maynard; Marisa B. Perez-Diaz; Julie Pickren; Gustavo Reveles; Audrey Young

Public Testimony

The Committee of the Full Board heard public testimony on agenda item #1. Information regarding the individuals who presented public testimony is included in the discussion of that item.

ACTION ITEMS

1. Consideration of the Committee of Education's Generation 30 High-Performing Entity Charter School Proposals
(Board agenda page I-32)
[Official agenda item #5]

NAME	AFFILIATION
Crystal Rios	Texas Public Charter Schools Association
Yenesis Alvarez	Mater Brickell Academy
Nora Leza	Mater Academy San Antonio
Maggie Stern	Our Schools Our Democracy
Dameon Lutz	Mater Academy San Antonio
Daniel Fishman	Choose to Succeed
Jeanie Murphy (late registrant)	None
Bonnie Salas (Invited testifier)	Mater Academy San Antonio
Courtney Oliver	Mater Academy San Antonio

Marian Schutte, Deputy Associate Commissioner, presented information on the Generation 30 High-Performing Entity Charter School application process. Ms. Schutte answered questions regarding the selection process.

MOTION: It was moved by Member Little to recommend that the State Board of Education take no action on the proposed Generation 30, High-Performing Entity charter school, Mater Academy San Antonio, scheduled to open in the 2026-2027 school year.

MOTION AND VOTE: It was moved by Member Hall and carried to take a roll call vote.

VOTE: A vote was taken on the motion to review and take no action on Mater Academy San Antonio. The motion was carried with 10 members voting Aye and 4 members voting No as follows:

Aye:	*Ms. Childs*	*Mrs. Little*
	Dr. Ellis	*Mr. Maynard*
	Mr. Francis	*Mrs. Perez-Diaz*
	Mr. Hall	*Ms. Pickren*
	Mr. Hickman	*Dr. Young*
No:	*Dr. Bell-Metereau*	*Dr. Clark*
	Ms. Brooks	*Mr. Reveles*

2. Proposed New 19 TAC Chapter 67, State Review and Approval of Instructional Materials, Subchapter C, Local Operations, §67.69, Local Review of Classroom Instructional Materials (Second Reading and Final Adoption)
(Board agenda page I-34)
[Official agenda item #7]

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports explained the proposed new section would implement House Bill (HB) 1605, 88th Texas Legislature, Regular Session, 2023, by outlining the local process requirements for a parent to petition for a review of instructional materials. He also shared that no changes are recommended since first reading.

MOTION AND VOTE: *It was moved by Mrs. Little, seconded by Mr. Francis, and carried unanimously to Approve for second reading and final adoption proposed new 19 TAC Chapter 67, State Review and Approval of Instructional Materials, Subchapter C, Local Operations, §67.69, Local Review of Classroom Instructional Materials; and*

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 67, State Review and Approval of Instructional Materials, Subchapter C, Local Operations, §67.69, Local Review of Classroom Instructional Materials, is necessary and shall have an effective date of 20 days after filing as adopted with the Texas Register.

3. Approval of Local Classroom Review Rubrics
(Board agenda page I-39)
[Official agenda item #8]

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports, explained this item provides an opportunity for staff to present the final rubrics related to classroom reviews for SBOE approval. Mr. Dempsey explained that the rubrics are modeled after the IMRA quality rubrics and described the proposed changes for each rubric based on focus group feedback.

MOTION: *It was moved by Mrs. Little and seconded by Mr. Hickman to recommend that the State Board of Education approve rubrics related to classroom reviews.*

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried to divide the question.*

VOTE: *A vote was taken to recommend that the State Board of Education approve* ELAR K–3 Foundational Literacy Skills *rubric related to classroom reviews. The motion failed.*

VOTE: *A vote was taken to recommend that the State Board of Education approve* Mathematics K–12, ELAR K–3 Reading Comprehension, and ELAR 4–8 Reading Comprehension *rubrics related to classroom reviews. The motion carried.*

DISCUSSION ITEMS

4. Instructional Materials Review and Approval Cycle 2025 Update
(Board agenda page I-41)

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports, presented information regarding Instructional Materials Review and Approval (IMRA) Cycle 2025 milestones, instructional materials selected for review, and the status of reviewer recruitment. He also provided the details regarding the upcoming in-person IMRA kick-off meetings.

5. Discussion of Draft Quality Rubrics for Instructional Materials Review and Approval Cycle 2026
(Board agenda page I-43)

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports, presented drafts of the IMRA Cycle 2026 quality rubrics for full-subject, tier-one instructional materials for high school career and technical education (CTE) and K–12 fine arts.

6. Discussion of Proposed Amendment to 19 TAC Chapter 67, State Review and Approval, §67.21 Proclamations, Public Notice, and Requests for Instructional Materials for Review
(Board agenda page I-45)

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports, explained this item provides an opportunity for the committee to discuss a proposed amendment to 19 Texas Administrative Code (TAC) Chapter 67, State Review and Approval of Instructional Materials, Subchapter B, State Review and Approval, §67.21, Proclamations, Public Notice, and Requests for Instructional Materials for Review. He explained that the proposed amendment would establish a process to consider updates to instructional materials that have been approved by the SBOE through the IMRA process if suitability standards are updated post-approval.

7. Discussion of Proposed Changes to the Instructional Materials Review and Approval Process
(Board agenda page I-47)

Colin Dempsey, Director, District Operations, Technology, and Sustainability Supports, presented the SBOE-approved IMRA process and requested that the committee provide feedback regarding changes they would like to see in future updates to that process. He focused on four main areas, which included the confirmation of changes for IMRA-approved instructional materials, the after-action report

requirements, IMRA reviewer selection, and the prioritization protocol for selecting instructional materials for the IMRA review cycle.

Chairman Kinsey adjourned the meeting at 4:45 p.m.

Report of the State Board of Education
Committee of the Full Board
Wednesday April 9, 2025

The State Board of Education Committee of the Full Board met at 9:00 a.m. on Wednesday, April 9, 2025, in room #2.034 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Aaron Kinsey; chair, Pam Little; Will Hickman; LJ Francis; Staci Childs; Rebecca Bell-Metereau; Julie Pickren; Audrey Young; Keven Ellis; Tom Maynard; Brandon Hall; Tiffany Clark; Evelyn Brooks; Gustavo Reveles; Marisa Perez-Diaz (virtual)

Absent:

Public Testimony

The Committee of the Full Board heard public testimony on agenda item #3. Information regarding the individuals who presented public testimony is included in the discussion of that item.

DISCUSSION ITEM

1. Commissioner's Comments
(Board agenda page I-48)

Commissioner Mike Morath presented an in-depth discussion on educator disciplinary processes, differentiating between those educators certified by SBEC and non-certified educators and staff.

ACTION ITEMS

2. Proposed New 19 TAC Chapter 127, Texas Essential Knowledge and Skills in Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-419, 127.452, and 127.453
(Second Reading and Final Adoption)
(Board agenda page I-49)
[Official agenda item #9]

Jessica Snyder, senior director, curriculum standards and student support division, explained that proposed new career and technical education (CTE) Texas Essential Knowledge and Skills (TEKS) in engineering were being presented for second reading and final adoption. She stated that no public comments were received during the public comment period.

MOTION: *It was moved by Mrs. Little and seconded by Ms. Childs to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453; and*

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453, is necessary and shall have an effective date of August 1, 2025.

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education strike the employability skills strand in (d)(1) and add the employability skills reference appropriate for the level of the course to the implementation subsection as new Paragraph (a)(2) for all the proposed new engineering courses as follows:*

Level 1 and Level 2 courses:

"School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Employability Skills) as an integral part of this course."

Level 3 and Level 4 courses:

"School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Employability Skills) as an integral part of this course."

MOTION: *It was moved by Mr. Francis and seconded by Mr. Hickman to recommend that the State Board of Education amend proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, as follows:*

Insert the CTE program of study level in the general requirements section for each engineering course as follows in:

§§127.402, 127.411, 127.413, 127.415, 127.417, 127.419

" (b) General requirements. This course is a Level 2 course and is recommended for students in Grades…"

§§127.403, 127.404, 127.407-127.410, 127.412, 127.414, 127.416, 127.418

" (b) General requirements. This course is a Level 3 course and is recommended for students in Grades… "

§§127.405, 127.406, 127.452, 127.453

" (b) General requirements. This course is a Level 4 course and is recommended for students in Grades…"

Add the following Texas-specific language to maintain applicable language from the proposed employability skills section to read:

For the Level 1 and Level 2 courses:

"The student discusses ethics pertaining to engineering. The student is expected to:

(A) identify and discuss the importance of professionalism, standards of conduct, and ethics as defined by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying;"

For the Level 3 and Level 4 courses:

"The student researches and describes ethics pertaining to engineering. The student is expected to:

(A) explain how engineering ethics as defined by ~~professional organizations such as~~ the Texas Board of Professional Engineers and Land Surveyors [~~National Society of Professional Engineers~~] apply to engineering practice;"

Amend §127.415 Civil Engineering I (One Credit), Adopted 2025 to read as follows:

"(17) The student researches and describes ethics pertaining to civil engineering. The student is expected to:

(A) research and identify the fundamental engineering ethics established by the Texas Board of Professional Engineers and Land Surveyors [~~and other professional organizations such as American Society of Civil Engineers, the National Society of Professional Engineers, the National Council of Examiners for Engineering and Surveying, and the National Institute of Engineering Ethics;~~] and"

Amend §127.416. Civil Engineering II (Two Credits), Adopted 2025 to read as follows:

"(17) The student researches and understands the code of ethics pertaining to civil engineering. The student is expected to:

(A) research and describe the impact of the State of Texas Engineering Practice Act ~~and Rules~~; and"

Amend §127.419. Surveying and Geomatics (Two Credits), Adopted 2025 to read as follows:

"(14) The student researches and understands the code of ethics pertaining to civil engineering and land surveyors. The student is expected to:

(A) research and identify the legal definitions and descriptions surveyors use to delineate and report survey data; and

(B) research and identify engineering ethics established by the Texas Engineering Practice Act and rules concerning the practice of engineering and surveying; ~~organizations such as the American Society of Civil Engineers, the National Society of Professional Engineers, the Texas Board of Professional Engineers and Land Surveyors, the National Council of Examiners for Engineering and Surveying, and the National Institute of Engineering Ethics.~~"

Amend §127.407. Environmental Engineering (One Credit), Adopted 2025 to read as follows:

"(4) Engineering ethics. The student applies ethical consideration to analyze resilient engineered systems. The student is expected to:

(A) analyze ~~compare~~ the Texas Engineering Practices Act and ~~to the code of ethics of other engineering societies such as the American Society of Civil Engineers and the National Society of Professional Engineers to~~ explain how engineers demonstrate the responsibility they have to serve the public interest, their clients, and the profession with a high degree of honesty, integrity, and accountability;"

Amend the course title for §127.404. Engineering Design and Presentation I and §127.405. Engineering Design and Presentation II to read Engineering Design and Presentation and Advanced Engineering Design and Presentation – and make conforming amendments in any places where these course titles appear.

Amend the prerequisite for §127.405. Advanced Engineering Design and Presentation, by striking "Principles of Applied Engineering."

Replace references to the course title "Physics" with the discipline of "physics" in Fluid Mechanics, Mechanics of Materials, and Statics.

Identify Mechanical Design I and Aerospace Design I as Level 2 courses and make all necessary conforming amendments; and

Identify Mechanical Design II and Aerospace Design II as Level 3 courses and make all necessary conforming amendments.

Insert the following introduction paragraphs from the science TEKS into the introduction for §127.408, Fluid Mechanics, to read:

"(4) Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not currently scientifically testable.

(5) Scientific hypotheses and theories. Students are expected to know that:

(A) hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories; and

(B) scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.

(6) Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.

(A) Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.

(B) Engineering practices. Students should be able to identify problems and design solutions using appropriate tools and models.

(7) Scientific decision making is a way of answering questions about the natural world involving its own set of ethical standards about how the process of science should be carried out. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).

(8) Science consists of recurring themes and making connections between overarching concepts. Recurring themes include systems, models, and patterns. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested, while models allow for boundary specification and provide a tool for understanding the ideas presented. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment."

MOTION AND VOTE: *It was moved by Mr. Francis to restate his original motion to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering to replace "physics" with "Physics or Physics for Engineering." The motion failed.*

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Mrs. Little, and carried to recommend that the State Board of Education amend §127.408(b) to read:*

"(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: at least one credit in a course from the Engineering Career Cluster and physics or chemistry ~~Chemistry~~ ."

VOTE: *A vote was taken on the Mr. Francis's original motion as amended. The motion carried.*

MOTION AND VOTE: *It was moved by Mr. Francis, seconded by Mr. Hall, and carried without objection to recommend that the State Board of Education amend §127.411(d)(12)(I) to read:*

"identify and explain the use of engineering computational tools such as computer aided design (CAD), finite element analysis (FEA), or computational fluid dynamics (CFD)."

and amend §127.413(d)(11)(B) to read:

"explain the applications of engineering computational tools used in aerospace ~~mechanical~~ design."

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.402(d)(8)(D) to read:*

"(D) analyze and evaluate solutions using the established criteria such as structured techniques, design matrix, or cost benefit analysis;"

MOTION AND VOTE: *It was moved by Dr. Bell-Metereau, seconded by Mr. Reveles, and carried without objection to recommend that the State Board of Education amend §127.402(d)(8)(D) to read:*

"analyze and evaluate solutions using ~~the~~ established criteria such as structured techniques, design matrix, or cost benefit analysis;"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.407(d)(10)(H) to read:*

"research and describe emerging contaminants in water such as microplastics and pharmaceuticals, including methods of detection, measurement techniques, degradation, assessment of risk, and strategies for mitigation and removal;"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mr. Francis, and carried to recommend that the State Board of Education amend §127.407(d)(11)(A) to read:*

"~~explain the differences between and cost of renewable and non-renewable sources of energy and provide examples of each"~~

"explain the differences between and costs of renewable and non-renewable ~~sources of~~ energy sources, ~~and provide~~ providing examples of each, and discuss factors, including energy density, subsidies, raw materials, the impact on land and animal life, and the environmental and resource demands of mining for renewable and non-renewable energy sources;"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education add new §127.407(d)(11)(E) to read:*

"define and identify types of intermittent and on-demand energy;"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried to recommend that the State Board of Education amend §127.407(d)(12)(A) to read:*

"identify innovations and laws which have improved air quality in the United States, including bag houses, water suppression at mines, the catalytic converter, industrial scrubbers, and the Clean Air Act;"
"~~describe mitigation techniques and their associated costs for air pollutants and greenhouse gas emissions~~"

MOTION: *It was moved by Mr. Maynard and seconded by Mrs. Little to recommend that the State Board of Education amend §127.407(d)(12)(B) to read:*

"analyze the impact on humans of naturally occurring extreme weather events such as flooding, freezing temperatures, hurricanes, tornadoes, and thunderstorms, including types of habitat and access to energy;"

MOTION AND VOTE: *It was moved by Mr. Francis, seconded by Mr. Maynard, and carried to recommend that the State Board of Education amend §127.407(d)(12)(B) to read:*

"analyze the impact on humans of climate and ~~naturally occurring~~ extreme weather events such as flooding, freezing temperatures, hurricanes, tornadoes, and thunderstorms, including types of habitat and access to energy;"

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Mr. Francis and carried to recommend that the State Board of Education amend §127.407(d)(12)(B) to read:*

"analyze the impact on ~~humans~~ human habitat and access to energy of climate and extreme weather events, such as flooding, freezing temperature, hurricanes, tornadoes, and thunderstorms, ~~including types of habitat and access to energy~~."

VOTE: *A vote was taken on Mr. Maynard's original motion as amended. The motion carried.*

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Ms. Pickren, and carried to recommend that the State Board of Education add new §127.407(d)(12)(E) to read:*

"compare and analyze air quality data from different countries around the world, evaluating factors that influence air quality such as laws and use of different types of energy."

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.407(d)(13)(C) to read:*

"identify and evaluate land conservation, ~~and~~ preservation, and restoration ~~restorative~~ measures ~~using~~ industry practice standards , including ~~such as~~ the United States Department of Agriculture (USDA) National Resources Conservation Services (NRCS) Conservation Practice Standards and the Texas Railroad Commission (RRC) environmental regulations ~~for a given land area~~ ;

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.407(d)(13)(E) to read:*

"analyze and report positive and negative environmental impacts due to changes in land use , including ~~such as~~ urbanization over time, mining of rare earth minerals, and precision farming; and"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.407(d)(14)(C) to read:*

"explain how landfills manage waste decomposition, including the capture and potential use of gases, including methane;"

"~~explain the capture and use of methane gas from landfills;~~"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education add new §127.407(d)(15)(D) to read:*

"explain the role of the Texas Railroad Commission in facilitating the restoration of mined land to its original condition."

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mr. Francis, and carried without objection to recommend that the State Board of Education amend §127.407(d)(16)(C) to read:*

"identify principles that ~~help~~ guide the development of resilient solutions that enhance quality of life, support a high standard of living, and conserve resources ~~with considerations for sustainable development to include people and the planet;~~"

MOTION AND VOTE: *It was moved by Mr. Maynard, seconded by Mr. Francis, and carried without objection to recommend that the State Board of Education amend §127.415(d)(18)(B) to read:*

"~~describe~~ apply cost-benefit analysis to sustainability standards used throughout the project life cycle to evaluate their economic, environmental, and social trade-offs;"

MOTION AND VOTE: *It was moved by Mr. Francis, seconded by Mr. Hall, and carried without objection to recommend that the State Board of Education amend §127.418(d)(5)(F) to read:*

(F) "research and describe ~~sustainable~~ resilient building materials, methods, and costs; and"

MOTION AND VOTE: *It was moved by Dr. Clark and seconded by Mr. Reveles to recommend that the State Board of Education amend the general requirements in §127.403(a) to read:*

> General requirements. Prerequisite: Algebra I and Principles of Applied Engineering, physics ~~Physics for Engineering~~, Introduction to Computer-Aided Design and Drafting, or Introduction to Engineering Design.

and the general requirements in §127.406(a) to read:

> General requirements. This course is recommended for students in Grade 12. Prerequisites: Algebra I, Geometry, and at least one credit in a Level 2 or higher course in the Engineering Career Cluster. Recommended prerequisites or corequisites: Engineering Science, chemistry ~~Chemistry~~, or physics ~~Physics, or Physics for Engineering~~.

The motion failed.

VOTE: *A vote was taken on the main motion to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453, as amended; and*

Make an affirmative finding that immediate adoption of proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter I, Engineering, §§127.402-127.419, 127.452, and 127.453 is necessary and shall have an effective date of August 1, 2025. The motion carried.

3. Proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773
(Second Reading and Final Adoption)
(Board agenda page I-148)
[Official agenda item #10]

Public testimony was provided by the following individual:

NAME: Joshua Wimberly
AFFILIATION: Individual

Ms. Snyder explained that this item presents for second reading and final adoption a set of Texas Essential Knowledge and Skills (TEKS) for certain innovative courses proposed to be added as TEKS-

based courses for career and technical education (CTE). Ms. Snyder explained that at the January meeting, the board postponed second reading and final adoption until the April 2025 meeting.

MOTION: *It was moved by Mrs. Little and seconded by Mr. Maynard to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773; and*

Make an affirmative finding that immediate adoption of proposed new TEKS in 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources,§127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699, and Subchapter N, Law and Public Service, §127.773, is necessary and shall have an effective date of August 1, 2025.

MOTION AND VOTE*: It was moved by Mr. Maynard, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §127.696(d)(7)(A), §127.696(d)(10)(A), §127.696(d)(11)(C), and §127.696(d)(12)(H) to read:*

"(7) (A) write or ~~and~~ perform tests, including break testing, for an existing program to determine functionality;"

"(10)(A) apply mathematical concepts from algebra, geometry, trigonometry, or ~~and~~ calculus to calculate the angle of a joint;"

"(11)(C) employ abstraction in a program by representing numerical sensor readouts, ~~distance, and brightness ranges~~ in more intuitive variables and functions."

"(12)(H) employ abstraction to program ~~to~~ an interface, treating imported code as a "black box";"

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education delete the employability skills section under (d)(1) and amend (a)(2) in proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773, to read:*

Level 1 and 2 courses

"(a)(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(1) of this chapter (relating to Employability Skills) as an integral part of this course."

Level 3 and 4 courses

"(a)(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Employability Skills) as an integral part of this course."

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Dr. Clark, and carried without objection to recommend that the State Board of Education amend proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773 as follows:*

Insert the CTE program of study level in the general requirements section for each course to read:

Level 2 courses

"(b) General requirements. This course is a Level 2 course and is recommended for students in Grades…"

Level 3 courses

"(b) General requirements. This course is a Level 3 course and is recommended for students in Grades…"

Level 4 course

"(b) General requirements. This course is a Level 4 course and is recommended for students in Grades…"

Amend Paragraph (4) in the introduction of each course to read:

"(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations ~~leadership or extracurricular organizations~~ ."

Amend prerequisites to align with Level 3 and 4 prerequisites to read:

§127.511. Speech Communication Disorders (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: at least one credit in a course from the Health Science Career Cluster.

§127.263. Retail Management (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Business, Marketing, and Finance Career Cluster.

§127.604. Practicum in Event and Meeting Planning (Two Credits), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: a minimum of two credits with at least one course in a Level 2 or higher course from the Hospitality and Tourism Career Cluster.

§127.689. Advanced Cloud Computing (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. ~~Recommended~~ Prerequisite~~s~~: At least one credit from a course ~~in a Level 2 or higher course~~ in computer science, programming, software development, or networking systems. Students shall be awarded one credit for successful completion of this course.

§127.691. Advanced User Experience Design (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. ~~Students shall be awarded one credit for successful completion of this course.~~ This course is recommended for students in Grades 10-12. Prerequisite ~~Required prerequisite course~~: Foundations of User Experience. Students shall be awarded one credit for successful completion of this course.

§127.695. Information Technology Troubleshooting (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Information Technology Career Cluster.

§127.696. Engineering Applications of Computer Science Principles (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 9-12. Prerequisite: Algebra I and at least one credit in a course from the Information Technology Career Cluster.

§127.699. Spatial Technology and Remote Sensing (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Information Technology Career Cluster.

§127.773. Legal Research and Writing (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Law and Public Service Career Cluster.

§127.571. ~~Introduction to~~ Event and Meeting Planning (One Credit), Adopted 2025.

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. This course is recommended for students in Grades 10-12. Prerequisite: at least one credit in a course from the Hospitality and Tourism Career Cluster.

MOTION AND VOTE: *It was moved by Ms. Childs, seconded by Mr. Maynard, and carried without objection to recommend that the State Board of Education amend the knowledge and skills statement §127.733(d)(3) and student expectation §127.773(d)(3)(D)to read:*

"(3) The student prepares, drafts, and defends legal arguments. The student is expected to:

(3)(D) develop arguments based on research, relevant case law, statutes, and public policy. ~~supported by case law research.~~"

MOTION AND VOTE: *It was moved by Ms. Childs, seconded by Dr. Clark, and carried without objection to recommend that the State Board of Education amend §127.773(d)(4)(B), (C), and (D) to read:*

"(4) The student understands, ~~and~~ prepares, and drafts legal documents. The student is expected to:

(B) prepare and draft legal briefs that include standard elements, including an introduction~~, and~~ table of authorities, brief answer, introduction, argument, counter-argument and conclusion;

(C) prepare and draft memoranda ~~memorandu~~ms that follow a standard legal format; and

(D) prepare and draft other legal documents such as demand letters and pleadings."

MOTION AND VOTE: *It was moved by Ms. Childs, seconded by Dr. Clark, and carried without objection to recommend that the State Board of Education amend §127.773(d)(5)(A) to read:*

" (A) analyze the relationship between the U.S. Constitution, Common Law, ~~and~~ state law(s) and local law(s);"

MOTION AND VOTE: *It was moved by Ms. Childs, seconded by Dr. Clark, and carried without objection to recommend that the State Board of Education amend §127.773(d)(6)(A) to read:*

"(A) research and evaluate case law on a current legal issue;"

MOTION AND VOTE: *It was moved by Ms. Pickren, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education amend §127.773(d)(5)(D) to read:*

"(D) critique cases related to U.S. Constitutional law and other current legal issues such as free exercise clause, establishment clause, due process, and equal protection; and"

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Maynard, and carried without objection to recommend that the State Board of Education amend §127.61(d)(10) to read:*

"(10) The student demonstrates an in-depth understanding of ~~a~~ beekeeping, beehauling, and honey processing businesses, including production, processing, marketing, sales, and distribution. The student is expected to:

(A) describe the roles of an entrepreneur in ~~a~~ beekeeping, beehauling, and honey processing operations;

(B) differentiate between small, medium, and large-sized bee and honey businesses;"

MOTION AND VOTE: *It was moved by Hickman, seconded by Childs, and carried without objection to recommend that the State Board of Education amend §127.61(d)(12)(B) to read:*

"(C) explain how distribution can add value to goods and services, ~~and~~ which can be protected by intellectual property; and"

VOTE: *A vote was taken on the original motion to recommend that the State Board of Education approve for second reading and filing authorization proposed new 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources, §127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699; and Subchapter N, Law and Public Service, §127.773; as amended; and*

Make an affirmative finding that immediate adoption of proposed new TEKS in 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education, Subchapter C, Agriculture, Food, and Natural Resources,§127.59 and §127.61; Subchapter F, Business, Marketing, and Finance, §127.262 and §127.263; Subchapter J, Health Science, §127.510 and §127.511; Subchapter K, Hospitality and Tourism, §§127.569, 127.571, and 127.604; Subchapter M, Information Technology, §§127.689-127.691 and 127.695-127.699, and Subchapter N, Law and Public Service, §127.773, is necessary and shall have an effective date of August 1, 2025.

The motion carried.

4. Proposed new 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum
(Second Reading and Final Adoption)
(Board agenda page I-214)
[Consent agenda item #(1)]

Jessica Snyder, senior director, curriculum standards and student support division, explained that this rule includes a list of science courses from which districts must select at least two additional courses to offer. Ms. Snyder explained that the proposed amendment would update the titles of two courses in the list of courses that school districts may choose from and would add two more course options to the list.

MOTION: *It was moved by Mrs. Little and seconded by Ms. Childs to recommend that the State Board of Education approve for second reading and final adoption the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum; and*

Make an affirmative finding that immediate adoption of the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum, is necessary and shall have an effective date of August 1, 2025.

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Ms. Childs, and carried without objection to recommend that the State Board of Education amend 19 TAC §74.3(b)(2)(C) to include Fluid Mechanics, Mechanics of Materials, and Physics for Engineering.*

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Mrs. Little, and carried to recommend that the State Board of Education amend 19 TAC §74.3(b)(2)(C) to strike the list of Advanced Placement courses and insert advanced level biology, chemistry, physics, and environmental science courses offered as dual credit referenced in 19 TAC §74.11(i) or courses selected from 19 TAC §74.12(b)(3)(A) and (B) to read as follows:*

(C) science--Integrated Physics and Chemistry, Biology, Chemistry, Physics, and at least two additional science courses selected from Aquatic Science, Astronomy, Earth Systems Science ~~[Earth and Space Science,]~~ Environmental Systems, Advanced Animal Science, ~~[Advanced Biotechnology,]~~ Advanced Plant and Soil Science, Anatomy and Physiology, Physics for Engineering, Biotechnology I, Biotechnology II, Engineering Design and Problem Solving, Food Science, Forensic Science, Medical Microbiology, Pathophysiology, Scientific Research and Design, ~~[and]~~ Engineering Science, Fluid Mechanics, Mechanics of Materials, and advanced level biology, chemistry, physics, and environmental science courses offered as dual credit as referenced in §74.11(i) of this title (relating to High School Graduation Requirements) or a course selected from §74.12(b)(3)(A) or (B) of this title (relating to Foundation High School Program). ~~Advanced Placement (AP) Biology, AP Chemistry, AP Physics 1: Algebra Based, AP Physics 2: Algebra Based, AP Environmental Science, AP Physics C: Electricity and Magnetism, and AP Physics C: Mechanics~~. The requirement to offer two additional courses may be reduced to one by the commissioner of education upon application of a school district with a total high school enrollment of less than 500 students. Science courses shall include at least 40% hands-on laboratory investigations and field work using appropriate scientific inquiry;

MOTION AND VOTE: *It was moved by Mr. Hickman, seconded by Mrs. Little, and carried without objection to recommend that the State Board of Education amend §74.3(b)(2)(I) to strike Advanced Placement Computer Science Principles and add "an advanced computer science course"*

(I) computer science--one course selected from Fundamentals of Computer Science, Computer Science I, or another advanced science course ~~AP [Advanced Placement (AP)] Computer Science Principles~~; and

MOTION AND VOTE: *It was moved by Dr Ellis, seconded by Ms. Pickren, and carried to recommend that the State Board of Education amend §74.3(b)(2)(C) to include romanettes as follows:*

(C) science--Integrated Physics and Chemistry, Biology, Chemistry, Physics, and at least two additional science courses selected from:

(i) Aquatic Science, Astronomy, Earth Systems Science, ~~[Earth and Space Science,]~~ Environmental Systems, Advanced Animal Science, ~~[Advanced Biotechnology,]~~ Advanced Plant and Soil Science, Anatomy and Physiology, Physics for Engineering, Biotechnology I, Biotechnology II, Engineering Design and Problem Solving, Food Science, Forensic Science, Medical Microbiology, Pathophysiology, Scientific Research and Design, ~~[and]~~Engineering Science, Fluid Mechanics, Mechanics of Materials, Physics for Engineering, advanced level biology, chemistry, physics, and environmental science courses offered as dual credit referenced in *Chapter 19 Texas Administrative Code §74.11(i) or course selected from Chapter 19 Texas Administrative Code §74.12(b)(3)(B).* ~~Advanced Placement (AP) Biology, AP Chemistry, AP Physics 1: Algebra Based, AP Physics 2: Algebra Based, AP Environmental Science, AP Physics C: Electricity and Magnetism, and AP Physics C: Mechanics~~.

(ii) The requirement to offer two additional courses may be reduced to one by the commissioner of education upon application of a school district with a total high school enrollment of less than 500 students. Science courses shall include at least 40% hands-on laboratory investigations and field work using appropriate scientific inquiry;

MOTION AND VOTE: *It was moved by Ms. Pickren, seconded by Dr. Ellis, and carried to recommend that the State Board of Education amend §74.3(b)(2) to read as follows:*

(2) The school district must offer the courses or selected course options listed in this paragraph and maintain evidence that students have the opportunity to take these courses:

VOTE: *A vote was taken on the original motion to recommend that the State Board of Education approve for second reading and final adoption the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum, as amended; and*

Make an affirmative finding that immediate adoption of the proposed amendment to 19 TAC Chapter 74, Curriculum Requirements, Subchapter A, Required Curriculum, §74.3, Description of a Required Secondary Curriculum, is necessary and shall have an effective date of August 1, 2025.

The motion carried.

Chairman Kinsey adjourned the meeting at 4:30 p.m.

Report of the State Board of Education
Committee on Instruction
Thursday, April 10, 2025

The State Board of Education Committee on Instruction met at 9:03 a.m. on Thursday, April 10, 2025, in Room #2.029 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Audrey Young, chair; Rebecca Bell-Metereau; Evelyn Brooks; Pam Little; and Gustavo Reveles

Non-committee members present: Keven Ellis, Aaron Kinsey, Marisa Perez-Diaz

Public Testimony

The Committee on Instruction heard public testimony on agenda item #3. Information regarding the individual who presented public testimony is included in the discussion of that item.

The Committee on Instruction considered items in the following order: Item number 2, 4, 1, 3.

ACTION ITEMS

1. **Proposed Repeal of 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, and Proposed Revisions to 19 TAC Chapter 127, Texas Essential Knowledge and Skills for Career Development and Career and Technical Education (Second Reading and Final Adoption)**
   (Board agenda page II-1)
   [Consent agenda item #2]

   Monica Martinez, associate commissioner for standards and programs, explained that this item presented for second reading and final adoption the proposed repeal of 19 TAC Chapter 130 and proposed revisions to 19 TAC Chapter 127, often referred to as the "big move." She provided a brief explanation of the process to move the Texas Essential Knowledge and Skills (TEKS) for existing career and technical education (CTE) courses from Chapter 130 to Chapter 127. She explained that this action would update subchapters to align with recent changes to state-approved career clusters, move TEKS for courses that have been reassigned to their appropriate career clusters, add implementation language to each course, and replace disparate employability skills with a cross-reference to new general employability skills preliminarily approved by the board. Ms. Martinez further explained that staff recently realized that because course levels are a function of school finance rulemaking, the levels should not be directly referenced in the rules for each course and instead should refer to the school finance course level designation. She indicated that staff would need time to make this correction. Ms. Martinez recommended that the committee use this meeting as an opportunity for further discussion and postpone final adoption to the June board meeting.

   The committee chair withdrew the item from the agenda to allow time for the Committee to further review the material.

2. Proposed Amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12 Foundation High School Program, and §74.13, Endorsements
(Second Reading and Final Adoption)
(Board agenda page II-19)
[Consent agenda item #(3)]

Ms. Martinez explained that the proposed amendments would update the list of courses that can satisfy a science graduation requirement to reflect a CTE course that was retitled Physics for Engineering (formerly titled Principles of Technology) and would update certain references related to CTE.

MOTION AND VOTE: *It was moved by Mrs. Brooks, seconded by Mr. Reveles, and carried without objection to recommend that the State Board of Education approve for second reading and final adoption proposed amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12, Foundation High School Program, and §74.13, Endorsements; and*

Make an affirmative finding that immediate adoption of proposed amendments to 19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements, §74.12, Foundation High School Program, and §74.13, Endorsements, is necessary and shall have an effective date of August 1, 2025.

3. Consideration of Renewal of Currently Approved Innovative Courses
(Board agenda page II-25)
[Official agenda item #11]

Public testimony was provided by the following individuals:

NAME	AFFILIATION
Stephen Silva-Brave	Self
Lanette Aguero	Grand Prairie Independent School District
Robert Whistler	Citizen Potawatomi Nation
Kenneth Roemer	University of Texas at Arlington
Amy Longfield	Self
Somprathana Kongdara	Asians Texans for Justice
Orlando Lara	The Ethnic Studies Network of Texas

Ms. Martinez explained that this item presented for consideration seven innovative courses that will expire at the end of the 2024-25 school year and that have been submitted for renewal. Ms. Martinez requested that the committee take no action on this item to grant time for staff to conduct further research to ensure courses and related materials meet the board's suitability rubric and comply with broader statutory mandates. She clarified that if the courses are renewed at the June 2025 board meeting, there would still be time for implementation in the 2025-26 school year.

The committee chair withdrew the item from the agenda to allow time for the staff to further review the material for compliance with statutory requirements and the suitability rubric.

4. Approval of Updates and Substitutions to Approved Instructional Materials
(Board agenda page II-29)

[Official agenda item #12]

Amie Phillips, director, instructional materials review and approval explained this item provides an opportunity for the committee and board to approve or reject update requests received for Instructional Materials Review and Approval (IMRA)-approved products or require that the request(s) be reviewed by IMRA reviewers.

MOTION: *It was moved by Mrs. Little and seconded by Mrs. Brooks to recommend that the State Board of Education approve requests from Texas Education Agency to update the following content in its English language arts and reading materials:*

- *Kindergarten Unit 7:* Serving Our Neighbors*;*
- *Kindergarten Unit 11:* Exploring Art*;*
- *Grade 2 Unit 2:* Ancient Greeks*;*
- *Grade 4 Unit 7* Poetry: Wonderous Words*;*
- *Grade 4 Unit 9:* Innovations and Industry in Energy*;*
- *Grade 4:* Anthology*;*
- *Grade 5 Unit 5* Poetry: Collage of Words*;*
- *Grade 5 Unit 5:* World War II*;*
- *Grade 5 Unit 9:* Beyond Juneteenth*; and*
- *Grade 5* Anthology.

MOTION AND VOTE: *It was moved by Mrs. Little, seconded by Mrs. Brooks, and carried to divide the question to consider separately the requests to update content in Kindergarten, Unit 11:* Exploring Art: The Beauty We See; *Grade 4, Unit 9, Page 56, Image Card 11A-2; and Grade 5, Unit 9:* Beyond Juneteenth *(images of Opal Lee).*

VOTE: *A vote was taken on the motion to recommend that the State Board of Education reject requests from Texas Education Agency to update content in its English language arts and reading materials, Kindergarten, Unit 11:* Exploring Art: The Beauty We See; *Grade 4, Unit 9, Page 56, Image Card 11A-2; and Grade 5, Unit 9:* Beyond Juneteenth *(images of Opal Lee). The motion carried.*

VOTE: *A vote was taken on the motion to recommend that the State Board of Education approve requests from Texas Education Agency to update content in its English language arts and reading materials, Kindergarten Unit 7:* Serving Our Neighbors*, Grade 2 Unit 2* Ancient Greeks*, Grade 4 Unit 9* Innovations and Industry in Energy*, Grade 5* Course: Anthology*, Grade 5 Unit 5* Poetry: Collage of Words*, Grade 5 Unit 7:* World War II*, Grade 5. The motion carried.*

(*Note: Since the committee voted to reject an update request for Grade 4 Unit 9 Page 56, Image Card 11A-2 that was not part of the publisher's update request or the original motion, the motion was out of order.)*

The meeting of the Committee on Instruction adjourned at 10:55 a.m.

Report of the State Board of Education
Committee on School Finance/Permanent School Fund
Thursday, April 10, 2025

The State Board of Education Committee on Committee on School Finance/Permanent School Fund met at 9:18 a.m. on Thursday, April 10, 2025, in Room #2.034 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Tom Maynard, chair; Marisa Perez-Diaz, vice chair; Kevin Ellis; and Aaron Kinsey

Absent: Will Hickman

Public Testimony

The Committee on School Finance/Permanent School Fund received no presentations of public testimony.

ACTION ITEM

1. **Adoption of Review of 19 TAC Chapter 109, Budgeting, Accounting, and Auditing, Subchapter A, Budgeting, Accounting, Financial Reporting, and Auditing for School Districts, Subchapter B, Texas Education Agency Audit Functions, Subchapter C, Adoptions by Reference, and Subchapter D, Uniform Bank Bid or Request for Proposal and Depository Contract**
   (Adoption of Review)
   (Board agenda page III-1)
   [Official agenda item #13]

   David Marx, senior director, financial compliance, presented this action item. Mr. Marx explained the background and purpose of 19 TAC Chapter 109, Budgeting, Accounting, and Auditing, Subchapter A, Budgeting, Accounting, Financial Reporting, and Auditing for School Districts, Subchapter B, Texas Education Agency Audit Functions, Subchapter C, Adoptions by Reference, and Subchapter D, Uniform Bank Bid or Request for Proposal and Depository Contract, and the reason for the current rule review. He stated that there were no public comments about the review. Mr. Maynard asked questions about the item.

   MOTION AND VOTE: *It was moved by Ms. Perez-Diaz, seconded by Mr. Kinsey and carried unanimously to recommend that the State Board of Education approve for adoption the review of 19 Texas Administrative Code (TAC) Chapter 109, Budgeting, Accounting, and Auditing, Subchapter A, Budgeting, Accounting, Financial Reporting, and Auditing for School Districts, Subchapter B, Texas Education Agency Audit Functions, Subchapter C, Adoptions by Reference, and Subchapter D, Uniform Bank Bid or Request for Proposal and Depository Contract.*

DISCUSSION ITEM

2. Report of the State Auditor's Office Related to the Certification of the Bond Guarantee Program for Fiscal Year Ending August 31, 2024
(Board agenda page III-49)

John McGeady, Director of External Relations, Texas Permanent School Fund (PSF) Corporation presented the State Auditor's Office report related to the certification of the Bond Guarantee Program for fiscal year ending August 31, 2024.

ACTION ITEMS

3. Adoption of an Annual Report on the Status of the Bond Guarantee Program
(Board agenda page III-66)
[Consent agenda item #4]

John McGeady, Director of External Relations, Texas Permanent School Fund (PSF) Corporation, presented the annual report of the Bond Guarantee Program as required by the Texas Education Code and requested that the committee adopt the report as presented.

MOTION AND VOTE: *It was moved by Mrs. Perez-Diaz, and seconded by Dr. Ellis, and carried unanimously to recommend that the State Board of Education adopt the annual report on the status of the Bond Guarantee Program.*

4. Review the Process for Consideration of Board Member Nominees for State Board Positions
(Board agenda page III-67)
[Consent agenda item #5]

John McGeady, Director of External Relations, Texas PSF Corporation provided an overview of the procedures for selecting nominees to be sent to the Governor for appointment to the School Land Board and the Texas Teacher Retirement System Board of Trustees.

MOTION AND VOTE: *It was moved by Mrs. Perez-Diaz, and seconded by Mr. Kinsey, and carried unanimously to recommend that the State Board of Education adopt the procedures for selecting nominees to be sent to the Governor for appointment to the School Land Board and the Texas Teacher Retirement System Board of Trustees.*

The meeting of the Committee on School Finance/Permanent School Fund adjourned at 9:48 a.m.

Report of the State Board of Education
Committee on School Initiatives
Thursday, April 10, 2025

The State Board of Education Committee on School Initiatives met at 8:00 a.m. on Thursday, April 10, 2025, in Room #2.027 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: LJ Francis, chair; Julie Pickren, vice-chair; Staci Childs; Tiffany Clark; and Brandon Hall

Non committee members in the meeting: Keven Ellis; Aaron Kinsey; Marisa Perez-Diaz; Rebecca Bell-Metereau, Will Hickman

Public Testimony

The Committee on School Initiatives heard public testimony on agenda item(s) 4 and 5. Information regarding the individual who presented public testimony is included in the discussion of that item.

The items were considered in the following order: 1, 2, 3, 4, 7, 9, 8, 5, 6.

DISCUSSION ITEM

1. Open-Enrollment Charter School Generation 30 Application and Texas Charter School Portfolio Updates
(Board agenda page IV-1)

Marian Schutte, Deputy Associate Commissioner, provided updates on the Generation 30 application process. She shared detailed information about the standard process, including application submissions, timelines for application remedies, external reviews, and advancement notifications. She shared the number of applications moving forward to the capacity interview stage and that upon receipt of the notification to applicants that the no-contact period would end. She shared that SBOE members will receive an email with a list of applicants that are moving forward to the capacity interview stage.

ACTION ITEMS

2. Approval of 2025-2029 Rule Review Plan for State Board of Education Rules
(Board agenda page IV-2)
[Consent agenda item #4]

Cristina De La Fuente-Valadez, director of rulemaking, presented this item and informed the committee that state law requires the four-year review of rules adopted in the *Texas Administrative Code*, including State Board of Education (SBOE) rules. Ms. De La Fuente-Valadez reported that the Proposed 2025-2029 Rule Review Plan for State Board of Education Rules reflects the next four-year schedule for the SBOE to review its rules. Ms. De La Fuente-Valadez pointed out that state law exempts the Texas Essential Knowledge and Skills from the four-year rule review requirement. Ms. De La Fuente-Valadez provided the committee with the Status Report on the 2021-2025 SBOE Rule

Review Plan, which was updated to add a column noting that the review of each chapter began in accordance with the 2021-2025 SBOE Rule Review Plan (Attachment A). In response to questions, Ms. De La Fuente-Valadez clarified the separate rule review and rulemaking processes and noted that rule changes can be considered by the SBOE outside of the rule review schedule.

MOTION AND VOTE: *It was moved by Mrs. Pickren, seconded by Dr. Clark, and carried unanimously to recommend that the State Board of Education approve the Proposed 2025-2029 Rule Review Plan for State Board of Education Rules.*

ACTION ITEMS

3. Review of Adoption of Proposed Amendment to 19 TAC Chapter 249, Disciplinary Proceedings, Sanctions, and Contested Cases
(Board agenda page IV-8)
(Official agenda item #14)

Sarah Wolfe, Senior Director, EPCE Law and Policy, presented the Adoption of Proposed Amendment to 19 TAC Chapter 249, Disciplinary Proceedings, Sanctions, and Contested Cases to the committee.

MOTION AND VOTE: *It was moved by Mr. Hall, seconded by Ms. Pickren, and carried unanimously to recommend that the State Board of Education take no action on the Adoption of Proposed Amendment to 19 TAC Chapter 249, Disciplinary Proceedings, Sanctions, and Contested Cases.*

4. Review of Adoption of Proposed Revisions to Amendment to 19 TAC Chapter 235, Classroom Teacher Certification Standards, Subchapter A, General Provisions, Subchapter B, Elementary School Certificate Standards, Subchapter C, Middle School Certificate Standards, and Subchapter D, Secondary School Certificate Standards
(Board agenda page IV-37)

Public testimony was provided by the following individuals:

Name	Name of Organization
Hjamil Martinez	Teach Plus Texas
Kelly Waters	Vidor Independent School District
Veronica Yan	Individual
Ana Sepulveda	Individual
Robert McCraw	Harts Bluff Independent School District
Mollie Wright (late registrant)	Individual

Beth Burkhart, Director of Educator Standards and Testing, presented the Adoption of Proposed Revisions to Amendment to 19 TAC Chapter 235, Classroom Teacher Certification Standards, Subchapter A, General Provisions, Subchapter B, Elementary School Certificate Standards, Subchapter C, Middle School Certificate Standards, and Subchapter D, Secondary School Certificate Standards to the committee.

MOTION AND VOTE: *It was moved by Ms. Pickren, seconded by Mr. Hall, and carried unanimously to recommend that the State Board of Education take no action on the Proposed Revisions to Amendment to 19 TAC Chapter 235, Classroom Teacher Certification Standards, Subchapter A, General Provisions, Subchapter B, Elementary School Certificate Standards, Subchapter C, Middle School Certificate Standards, and Subchapter D, Secondary School Certificate Standards.*

5. Review of Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments
(Board agenda page IV-74)

Public testimony was provided by the following individuals:

Name	Name of Organization
Dr. Andrea Chevalier	TCASE

DeMarco Pitre, Director of Educator Standards and Test Development, presented the Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments to the committee.

MOTION AND VOTE: *It was moved by Ms. Pickren and seconded by Mr. Hall to recommend that the State Board of Education veto the Adoption of Proposed Revisions to 19 TAC Chapter 231, Requirements for Public School Personnel Assignments, Subchapter F, Special Education-Related Services Personnel Assignments. Chair Francis, Member Pickren, and Member Hall voted in favor of the motion; Member Childs and Member Clark voted against, and the motion carried.*

DISCUSSION ITEMS

6. Discussion of Ongoing State Board for Educator Certification Activities
(Board agenda page IV-93)

Jessica McLoughlin, Associate Commissioner of Educator Preparation, Certification, and Enforcement, shared several updates on SBEC activities during their February meeting including the adoption of revisions to 19 TAC Chapters 249, 231, and 235. Ms. McLoughlin also shared updates around the upcoming adoption and proposal items for the April meeting of the SBEC.

7. Report by the Texas School Safety Center Related to the Statutorily Required Biennial Report
(Board agenda page IV-95)

Kathy Martinez-Prather, Director of Texas School Safety Center, presented the statutorily required biennial report that includes any findings made by the center regarding school safety and security and the center's functions, budget information, and strategic planning initiatives.

8. Update by the Texas Education Agency Office of School Safety and Security
(Board agenda page IV-96)

John Scott, Chief of School Safety and Security, and James Finley, Deputy Chief of School Safety and Security, presented an update related to the safety and security of public schools.

ACTION ITEM

9. Proposed Amendments to the "Framework for Governance Leadership" Required to be Adopted under Texas Education Code (TEC) §11.159, Member Training and Orientation, and 19 Texas Administrative Code (TAC) Chapter 61, School Districts, Subchapter A, Board of Trustees Relationship, §61.1, Continuing Education for School Board Members
(Board agenda page IV-97)

MOTION AND VOTE: *It was moved by Mr. Hall and seconded by Mrs. Pickren to recommend that the State Board of Education adopt the "Framework for Governance Leadership" as drafted by Mr. Hall. Chair Francis, Member Pickren, and Member Hall voted in favor of the motion; Member Childs and Member Clark voted against, and the motion carried.*

MOTION AND VOTE: *It was moved by Mr. Hall and seconded by Mrs. Pickren to amend the "Framework for Governance Leadership" as drafted by Mr. Hall by adding a new bullet to Section V, Accountable Governance, which reads: "Utilizes Executive Session within the guidelines of the Texas Open Meetings Act to discuss the allowable items in relation to the effectiveness of the district efforts. To allow complete transparency within the board, the presence of the superintendent in an Executive Session is at the discretion of the board. The superintendent shall continue to make comments in open session on any agenda item."*

Chair Francis, Member Pickren, and Member Hall voted in favor of the motion; Member Childs and Member Clark voted against, and the motion carried.

MOTION AND VOTE: *It was moved by Mr. Hall, seconded by Mrs. Pickren, and adopted without objection to amend the "Framework for Governance Leadership" as drafted by Mr. Hall by amending the fourth bullet in Section I, Vision and Goals, by striking "and" and inserting "that" so that the bullet reads: Establishes locally-developed, near-term measurable goals for student opportunities and experiences that support the board's long-term vision."*

MOTION AND VOTE: *It was moved by Mr. Hall and seconded by Mrs. Pickren to amend the "Framework for Governance Leadership" as drafted by Mr. Hall and amended by the Committee on School Initiatives. Chair Francis, Member Pickren, and Member Hall voted in favor of the motion; Member Childs and Member Clark voted against, and the motion carried.*

The meeting of the Committee on School Initiatives adjourned at 1:10 p.m.

Attachment A

Status Report on the 2021-2025 SBOE Rule Review Plan (as of April 2025)

Chapter Title	Review Approved by SBOE as Proposed	Review Approved by SBOE as Adopted	Began Review According to 2021-2025 Plan	Rules Should Continue?	Changes Adopted in Response to Review
Chapter 30. Administration	November 2024	January 2025	Yes	Yes	No changes identified.
Chapter 33. Statement of Investment Objectives, Policies, and Guidelines of the Texas Permanent School Fund	September 2023	November 2023	Yes	Yes	No changes identified.
Chapter 61, School Districts	April 2022	June 2022	Yes	Yes	No changes identified.
Chapter 66. State Adoption and Distribution of Instructional Materials	November 2023	February 2024	Yes	Yes	No changes identified. House Bill 1605, 88th Texas Legislature, Regular Session, 2023, implemented significant changes to the instructional materials review and adoption process. Chapter 66 will remain for previous proclamations, while new Chapter 67 implements the new instructional materials approval process under HB 1605.
Chapter 74. Curriculum Requirements	September 2021	November 2021	Yes	Yes, for Subchapters A-C, F, and G	The review found that Subchapters D and E contained outdated graduation requirements. The repeal of Subchapters D and E was adopted at the January 2022 SBOE meeting.
Chapter 89. Adaptations for Special Populations	January 2022	April 2022	Yes	Yes	No changes identified.
Chapter 100. Charters	January 2024	April 2024	Yes	Yes	No changes identified.
Chapter 101. Assessment	January 2025		Yes		Public comment period ended 3/25/25.

Attachment A

Chapter Title	Review Approved by SBOE as Proposed	Review Approved by SBOE as Adopted	Began Review According to 2021-2025 Plan	Rules Should Continue?	Changes Adopted in Response to Review
Chapter 109. Budgeting, Accounting, and Auditing	January 2025		Yes		Public comment period ended 3/25/25.
Chapter 157. Hearings and Appeals	January 2023	April 2023	Yes	Yes	As a result of the review, the SBOE requested an amendment to §157.41 to modify the experience requirements for hearing examiners. The amendment was adopted at the April 2024 meeting.

Authorized Official
copy by: LJ Francis
4.10.2025

Framework for School Board Development

Preamble

The mission of the public education system of this state is to ensure that all Texas children have access to a quality education that enables them to achieve their potential and fully participate now and in the future in the social, economic, and educational opportunities of our state and nation (Texas Education Code, §4.001).

The board of trustees is the governing body for Texas public schools and holds the ultimate responsibility for the district's success in educating students. Above all else, trustees owe the highest duty to students and their parents, and the board represents taxpayers, attempting to maximize learning outcomes while minimizing resources required. To effectively fulfill the mission of educating students, the board must provide leadership and direction, working in collaboration with the superintendent to implement the board's vision and goals. Each year, the board will self-assess its governing performance both as a corporate body and as individual trustees. On an ongoing basis, the board will monitor the progress of the district's superintendent in leading the district toward the achievement of the board's vision and goals. The board's governing performance is focused on five core areas:

- setting a clear vision and goals for students,
- evaluating the likely success of the superintendent's strategic plan, including its incorporation of effective systems and processes designed to meet the board's vision and goals,
- monitoring progress in the effective implementation of the plan and its critical systems and processes,
- ensuring transparency of goals, progress, processes, and resources,
- maintaining accountable governance to achieve the mission.

The Framework for School Board Development, approved by the State Board of Education, outlines the critical governing performance areas for all public school boards.

Framework

I.Vision and Goals—The board ensures creation of a shared and measurable vision and set of goals for student outcomes. The board:

- Prioritizes support for understanding and achieving state-identified outcomes goals for students
- Develops a measurable vision for what will be true for the district's students if the district is fully successful in its mission in the long term, attempting to ensure the vision is shared among the majority of the district's parents and taxpayers
- Adopts a reasonable number of specific, quantifiable, research-based, and time-bound student outcome goals that lead toward achieving the board's long-term vision
- Establishes locally-developed, near-term measurable goals for student opportunities and experiences ~~and~~ that support the board's long-term vision

Framework for School Board Development

- Uses the vision and goals to drive all deliberations, decisions, and actions

II. **District Strategic Plan**—The board evaluates the superintendent's strategic plan to achieve the board's vision and goals for students, ensuring the plan's systems and processes appear sufficient to accomplish the vision and goals. The board:

- Ensures a plan is developed, includes appropriately prioritized actions, and describes key systems and process that support its execution
- Ensures the plan includes components designed to determine whether and how well it is implemented over time
- Approves a budget that aligns with the plan and maximizes efficient use of resources to ensure the plan can be successfully executed with a minimum of taxpayer dollars
- Takes steps to ensure adequate flexibility of the superintendent to adopt procedures that support the plan's execution, while clearly delineating when a policy must require board approval
- Ensures that the superintendent's planning and decision-making processes are designed to maximize the likelihood of success, including the need to make evidence-based decision, and where appropriate, incorporating key stakeholder engagement to support changes needed
- Ensures the plan incorporates components designed to support sound business and fiscal practices
- Ensures the plan incorporates components designed to maximize the talent, skill, growth, and efficacy of district personnel
- Verifies that the plan fulfills the statutory duties of the district, including all laws, rules, ethical procedures, and court orders pertaining to schools, school personnel, and school board members

III. **Monitoring Progress**—The board ensures the superintendent and leadership team provide a cadence of reports to facilitate the monitoring of progress of the district's strategic plan toward the achievement of student outcomes goals and the district's long term vision. The board:

- Coordinates with the superintendent to identify key measures of progress and performance tied to the district's strategic plan, and aligns on a format and calendar of reporting
- Ensures progress toward achievement of district goals through systematic, timely, and comprehensive reviews of relevant progress reports and performance data that illustrate progress toward the district's goals and vision.
- Consistently prioritizes board time and attention on the aspects of the strategic plan most likely to impact the board's student outcomes goals
- Annually reflects on summative the board's student outcomes goals and the relationship between improvement in reaching the long term vision for students and progress and performance measures reported from the district's strategic

plan
- Annually evaluates the superintendent on the implementation of the district's strategic plan and the achievement of the board's goals

IV.Transparency—The board promotes clarity for parents and taxpayers with regard to the performance of the district and the resources used. The board:

- Ensures the district's measurable student outcomes vision and goals are prominently and consistently communicated, both for internal staff and for parents and taxpayers
- Ensures that current student outcomes are well understood, by parents for their own children, by parents for their schools, and by taxpayers for the entire school district, and by staff
- Ensures the district's strategic plan is clear, readily accessible, and regularly communicated
- Ensures that district action plan progress reports are readily accessible
- Ensures district financial information, including district revenue and its sources, and district expenditures, are clear and readily accessible
- Ensures that district procedures of use by parents are clearly communicated and the district takes steps to ensure they are easy to follow

V.Accountable Governance —The board's duties are distinct from the superintendent and other district personnel, as the entity with ultimate responsibility to ensure the district is making progress in achieving its vision for students . The board:

- Works collaboratively with the superintendent and the superintendent's leadership team, providing sufficient autonomy to implement the district's strategic plan while establishing a tone at the top supportive of taking actions needed to achieve the district's vision for students
- Provides feedback when appropriate on perceived strengths and weaknesses of the district's strategic plan, while working to deeply understand the kinds of prioritized actions, systems and processes likely to make the most progress toward achieving the district's vision for students
- Provides recurring feedback on the sufficiency of progress in implementation, while working to ensure the superintendent and district leadership team are empowered to take actions needed to make sufficient progress
- Determines whether to renew or continue a superintendent's employment as the leader of the school system, and whether and how to reward or recognize a superintendent's significant progress in achieving the district's vision
- When it is necessary to hire a new superintendent, evaluates all available options

to select a candidate with the greatest likelihood of making progress to achieve the district's vision for students

- Oversees the district's audit plan, and when appropriate the district's internal auditor, for the purpose of ensuring financial statements and other information provided to the board can be relied upon to make decisions
- Supports individual members to address constituent concerns by ensuring those constituents know how to avail themselves to district systems and processes designed to address their concerns
- Makes decisions as a whole only at properly called meetings and recognizes that individual members have no authority to take individual action in policy or district and campus administrative matters
- Respects the right of individual members to express their viewpoints and vote their convictions, while individual board members recognize they have an ethical duty to be bound by decisions of the board as a body corporate
- Establishes and follows local policies, procedures, and ethical standards governing the conduct and operations of the board, including the duties and responsibilities of the board president and board officers
- Is responsible for understanding and adhering to laws governing public education in Texas

V. Accountable Governance - Amendment added to end

- Utilizes Executive Session within the guidelines of the Texas Open Meetings Act to discuss the allowable items in relation to the effectiveness of the district efforts. To allow complete transparency within the board, the presence of the superintendent in an Executive Session is at the discretion of the board. The superintendent shall continue to make comments in open session on any agenda item.

Report of the State Board of Education
Ad Hoc Committee on Social Studies
Thursday, April 10, 2025

The State Board of Education Ad Hoc Committee on Social Studies met at 1:33p.m. on Thursday, April 10, 2025, in Room #2.034 of the Barbara Jordan Building, 1601 N. Congress Avenue, Austin, Texas. Attendance was noted as follows:

Present: Aaron Kinsey, chair; Marisa Perez-Diaz; Julie Pickren; and Audrey Young

Absent:

Non-committee members present: Rebecca Bell-Metereau; LJ Francis; Tiffany Clark; Keven Ellis; Gustavo Reveles; and Will Hickman

Public Testimony

The Ad Hoc Committee on Social Studies heard public testimony on agenda item #1. Information regarding the individual who presented public testimony is included in the discussion of that item.

DISCUSSION ITEM

1. **Public Hearing held on Recommendation for a Texas Essential Knowledge and Skills Framework for Social Studies**
   (Board agenda page V-1)

   Public Testimony was provided by the following individuals:
   NAME: Julia Brookins
   AFFILIATION: American Historical Association

   NAME: Jackie Besinger
   AFFILIATION: National Alliance for Education Freedom

   NAME: Andrea Hutchison
   AFFILIATION: Texas Council of the Social Studies

   NAME: Bianca Sulaica
   AFFILIATION: Northside Independent School District

   NAME: Ernesto Rodriguez
   AFFILIATION: Alamo Trust, Inc.

   NAME: Brenda Howard
   AFFILIATION: Individual

NAME: Shanda Hasse
AFFILIATION: Individual

NAME: Susan Perez
AFFILIATION: Individual

NAME: Steven Mintz
AFFILIATION: Individual

NAME: Mary Castle
AFFILIATION: Texas Values

Chairman Kinsey adjourned the meeting at 2:33pm