

4. Proposed New 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education

(Second Reading and Final Adoption)

(Board agenda page I-23)

[Official agenda item #4]

Shelly Ramos, curriculum division director, gave an overview of public comments and other matters related to the career and technical education courses presented in this item.

MOTION: *It was moved by Mrs. Miller, seconded by Mr. Mercer, and carried unanimously to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, Subchapter A, Agriculture, Food, and Natural Resources, Subchapter B, Architecture and Construction, Subchapter G, Government and Public Administration, Subchapter H, Health Science, Subchapter K, Information Technology, Subchapter L, Law, Public Safety, Corrections, and Security, Subchapter O, Science, Technology, Engineering, and Mathematics, Subchapter P, Transportation, Distribution, and Logistics, Subchapter I, Hospitality and Tourism, §130.256, Food Chemistry (One Credit) Adopted 2015, Subchapter M, Manufacturing, §130.362, Introduction to Welding (One Credit), Adopted 2015, §130.363, Welding I (Two Credits), Adopted 2015, §130.364, Welding II (Two Credits), Adopted 2015, §130.365, Welding II Lab (One Credit), Adopted 2015, and Subchapter N, Marketing, §130.387, Practicum in Marketing I (Two to Three Credits), Adopted 2015, with an effective date of August 28, 2017, and proposed new 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, Subchapter F, Finance, §130.180, Financial Mathematics (One Credit), Adopted 2015, with an effective date of August 24, 2015.*

MOTION AND VOTE: *It was moved by Mr. Mercer, seconded by Dr. Dominguez, and carried unanimously to recommend that the State Board of Education amend the following courses based on public comments received by TEA. The amendments would read as follows:*

Subchapter B, Architecture and Construction, §130.42. Principles of Architecture (One Credit), Adopted 2015.

(c) Knowledge and skills.

- (9) The student identifies the relationship between available resources and requirements of a project to accomplish realistic planning. The student is expected to:
- (A) initiate a project, including identifying ~~identify~~ resources and materials, ~~required for a specific project, including~~ time-management, labor-management, job-management, and job site obligations in order to effectively plan;
 - (B) plan a project, including estimating ~~estimate~~ correct amounts of required resources and materials as well as identifying risks;
 - (D) execute, monitor and control ~~complete a project or resolve a problem~~ using available resources and materials effectively; and
 - (E) close a project, including identifying lessons learned and evaluating ~~evaluate~~ waste of resources and materials.

Subchapter B, Architecture and Construction, §130.46. Construction Management I (Two Credits), Adopted 2015.

(c) Knowledge and skills.

- (12) The student manages a construction project. The student is expected to:

- (B) participate in the organization and operation of a real or simulated construction project using project management processes, including initiate, plan, execute, monitor and control, and close.

Subchapter B, Architecture and Construction, §130.47. Construction Management II (Two Credits), Adopted 2015.

- (c) Knowledge and skills.
 - (8) The student manages construction technology projects. The student is expected to:
 - (A) initiate ~~develop a plan for completing~~ a construction technology project;
 - (B) plan a construction technology project, including developing a project schedule and describing use of resources needed ~~identify and describe the resources required to complete a construction project;~~ and
 - (C) execute a construction technology project ~~develop a timeline for completing a~~ project ;
 - (D) monitor and control a construction technology project; and
 - (E) close a construction technology project.

Subchapter B, Architecture and Construction, §130.63. Practicum in Construction Management (Two Credits), Adopted 2015.

- (c) Knowledge and skills.
 - (2) The student develops a management plan for a project or an activity. The student is expected to:
 - (A) identify and describe the steps required to complete a project using project management processes including initiate, plan, execute, monitor and control, and close a project;
 - (C) develop a timeline to complete project schedule.

Subchapter B, Architecture and Construction, §130.64. Practicum in Construction Technology (Two Credits), Adopted 2015.

- (c) Knowledge and skills.
 - (2) The student develops a management plan for a project or an activity. The student is expected to:
 - (A) identify and describe the steps required to complete a project using project management processes including initiate, plan, execute, monitor and control, and close a project;
 - (C) develop a timeline to complete a project schedule.

Subchapter G, Government and Public Administration, §130.206. Planning and Governance (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (4) The student creates a coherent plan for project management. The student is expected to:
 - (A) initiate a project, including securing ~~secure~~ class or instructor approval of project scope ~~integrated plans~~ ;
 - (B) plan a project ~~create a format to monitor plan budgets~~ ;
 - (C) execute a project, including responding ~~respond to classroom, student, or instructor~~ requests for information;
 - (D) monitor and control a project, including ~~demonstrating demonstrate~~; effective, cogent presentation skills for public meetings and creating a format to monitor plan budgets; ~~and~~
 - (E) close a project; and
 - (F) maintain professionalism in challenging group and one-on-one situations.

Subchapter K, Information Technology, §130.302. Principles of Information Technology (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (G) demonstrate planning and time management skills such as ~~project management~~ and storyboarding and project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.303. Computer Maintenance (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (G) demonstrate planning and time-management skills such as project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.304. Computer Maintenance Lab (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (I) demonstrate planning and time-management skills such as project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.305. Networking (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (I) demonstrate planning and time-management skills such as project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.306. Networking Lab (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (I) demonstrate planning and time-management skills such as project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.307. Digital Media (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (G) demonstrate planning and time management skills such as ~~project management~~ and storyboarding and project management, including initiate, plan, execute, monitor and control, and close a project;
 - (11) The student demonstrates appropriate project management in the creation of digital media projects. The student is expected to:
 - (A) initiate a project, including identifying ~~identify~~ the purpose, audience, and audience needs for design plans;

- (B) develop a plan for a media project-such as a storyboard, stage development, and identify identification of equipment and resources; and
- (C) execute and monitor and control a project evaluate a project plan along its timeline and make suggested revisions until completion of the project; and
- (D) close a project, including identifying lessons learned.

Subchapter K, Information Technology, §130.308. Web Technologies (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (F) demonstrate planning and time management skills such as ~~project management and~~ storyboarding and project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.309. Computer Programming I (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (F) demonstrate planning and time-management skills such as project management including initiate, plan, execute, monitor and control, and close a project; and

Subchapter K, Information Technology, §130.310. Computer Programming II (One Credit), Adopted 2015.

- (c) Knowledge and skills.
 - (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (H) demonstrate planning and time-management skills such as project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter K, Information Technology, §130.311. Computer Technician Practicum (Two Credits), Adopted 2015.

- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (I) demonstrate planning and time management skills such as ~~project management and~~ storyboarding and project management, including initiate, plan, execute, monitor and control, and close a project.
- (8) The student employs project management knowledge to oversee IT projects. The student is expected to:
 - (A) implement project methodologies, including initiate, plan, execute, monitor and control, and close a project, to manage information system projects;

Subchapter K, Information Technology, §130.312. Practicum in Information Technology (Two Credits), Adopted 2015.

- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (I) demonstrate planning and time management skills such as ~~project management and~~ storyboarding and project management, including initiate, plan, execute, monitor and control, and close a project.

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.402. Principles of Applied Engineering (One Credit), Adopted 2015

- (6) The student thinks critically and applies fundamental principles of system modeling and design to multiple design projects. The student is expected to:
- (A) identify and describe the fundamental processes needed for a project, including the design process and prototype development; as well as initiating, planning, executing, monitoring and controlling, and closing a project;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.405. AC/DC Electronics (One Credit), Adopted 2015

- (4) The student develops skills for managing a project. The student is expected to:
- (A) implement project management methodologies, including initiate, plan, execute, monitor and control, and close a project; ~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.406. Solid State Electronics (One Credit), Adopted 2015

- (4) The student develops skills for managing a project. The student is expected to:
- (A) implement project management methodologies, including initiate, plan, execute, monitor and control, and close a project; ~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.407. Digital Electronics (One Credit), Adopted 2015

- (5) The student develops skills for managing a project. The student is expected to:
- (A) implement project management methodologies, including initiate, plan, execute, monitor and control, and close a project; ~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.408. Robotics I (One Credit), Adopted 2015

- (4) The student develops skills for managing a project. The student is expected to:
- (A) implement project management methodologies including initiate, plan, execute, monitor and control, and close a project; ~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.409. Robotics II (One Credit), Adopted 2015

- (4) The student develops skills of project management. The student is expected to:

- (A) implement project management methodologies including initiate, plan, execute, monitor and control, and close a project;~~maintain work schedules and meet deadlines~~
- (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.410. Engineering Design and Presentation I (One Credit), Adopted 2015

- (4) The student develops skills for managing a project. The student is expected to:
 - (A) implement project management methodologies including initiate, plan, execute, monitor and control, and close a project;~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete work according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.411. Engineering Design and Presentation II (Two Credits), Adopted 2015

- (3) The student develops skills for managing a project. The student is expected to:
 - A) implement project management methodologies including initiate, plan, execute, monitor and control, and close a project;~~use time management techniques to develop and maintain work schedules and meet deadlines~~
 - (B) develop a project schedule and complete projects according to established criteria;

Subchapter O, Science, Technology, Engineering, and Mathematics, §130.412. Engineering Design and Problem Solving (One Credit), Adopted 2015

- (9) The student manages an engineering design project. The student is expected to:
 - (A) participate in the design and implementation of a real-world or simulated engineering project; ~~using project management methodologies including initiate, plan, execute, monitor and control, and close a project;~~
 - (B) develop a plan and project schedule ~~timeline~~ for completion of a project;

MOTION AND VOTE: *It was moved by Mrs. Miller, seconded by Ms. Hardy, and carried unanimously to recommend that the State Board of Education amend the following courses based on public comments received by TEA. The amendments would read as follows:*

Subchapter M, Manufacturing, §130.362. Introduction to Welding (One Credit), Adopted 2015.

- (a) General requirements. This course is recommended for students in Grades 9-12. Recommended prerequisite or co-requisite: Algebra I. Students shall be awarded one credit for successful completion of this course.
- (c) Knowledge and skills.
 - (3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:
 - (C) explain the importance of recycling materials used in welding;
 - ~~(D)(E)~~ choose evaluate appropriate personal protective equipment; and
 - (5) The student applies academic skills in relationship to welding. The student is expected to:
 - (E) solve ~~calculate~~ problems using whole numbers, fractions, mixed numbers, and decimals; ~~and~~
 - (G) perform conversions between standard units and metric units.

- (7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:
- (A) ~~use~~ observe safe operating practices;
 - (E) ~~identify the~~ distinguish among factors affecting the oxy-fuel cutting of base metals ~~such as ferrous and non-ferrous metals~~; and
- (8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:
- (B) demonstrate knowledge of welding alternating currents;
 - (F) perform fillet and groove welds in all varied positions ~~such as techniques in fillet and groove welds~~; and
 - (G) prepare joints for welding ~~perform plates preparation~~.
- (9) The student performs gas metal arc welding principles and practices. The student is expected to:
- (D) use appropriate equipment setup for base metal in gas metal arc welding; and
 - (E) perform fillet and groove welds using various gas metal arc welding with various metal transfer processes techniques.

Subchapter M, Manufacturing, §130.363. Welding I (Two Credits), Adopted 2015.

- (c) Knowledge and skills.
- (3) The student applies academic skills to the requirements of welding. The student is expected to:
- (G) ~~solve~~ calculate problems using whole numbers, fractions, mixed numbers, and decimals;
 - (J) perform conversions between standard units and metric units;
 - (L)(K) ~~diagram~~ employ the parts of a circle.
- (4) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:
- (A) ~~operate~~ employ welding equipment according to safety standards;
 - (C) explain the importance of recycling materials used in welding;
 - (D)(C) ~~choose~~ evaluate appropriate personal protective equipment; and
- (5) The student understands welding joint design, symbols, and welds. The student is expected to:
- (B) ~~interpret~~ describe orthographic and isometric views of three-dimensional figures;
 - (E) ~~identify~~ analyze types of welding joints;
 - (F) ~~identify~~ analyze positions of welding; and
- (6) The student analyzes the concepts and intricacies of inspections and related codes. The student is expected to:
- (A) explain ~~evaluate~~ weld inspection processes; and
 - (B) ~~interpret~~ analyze welding codes.
- (7) The student analyzes oxy-fuel cutting processes on carbon steels. The student is expected to:
- (A) ~~practice~~ observe safe operating practices;
 - (C) identify components of oxy-fuel gas cutting system;
 - (D) demonstrate proper set-up procedures for oxy-fuel cutting process;
 - (E) ~~identify~~ distinguish factors affecting oxy-fuel cutting of base metals;
 - (H) evaluate alternative fuels gasses such as propane, propylene, and Chemtane 2® chemtane.
- (8) The student analyzes plasma arc cutting on metals. The student is expected to:
- (A) ~~use~~ observe safe operating practices;
 - (G) perform straight line, piercing, bevels, and shape cuts ~~cuttings~~.

- (9) The student analyzes shielded metal arc welding principles and practices on metals. The student is expected to:
- (B) analyze ~~electrical~~ welding current relationships such as alternating current and direct current, heat transfer, and polarity;
 - (E) Explain the American Welding Society's identification system for shielded metal arc welding electrodes;
 - (F)(E) determine appropriate electrodes ~~filler~~ for base metal in shielded metal arc welding; and
 - (G)(F) perform multi passes groove welds in all positions to the American Welding Society's SENSE standards ~~such as root, hot, filler, and cover.~~
- (10) The student analyzes gas metal arc welding principles and practices. The student is expected to:
- (A) use ~~observe~~ safe operating practices;
 - (B) explain the effects that weld angle, work angle, and electrode extension have on welds ~~analyze electrical relationships such as alternating current and direct current, heat transfer, and polarity;~~
 - (E) explain the American Welding Society's identification system for gas metal arc welding filler metal;
 - (F)(E) determine appropriate filler metal for base metal in gas metal arc welding; and
 - (G)(F) perform fillet and groove welds in all positions.
- (11) The student analyzes flux cored arc welding principles and practices on metals. The student is expected to:
- (A) use ~~observe~~ safe operating practices;
 - (B) explain the effects that weld angle, work angle, and electrode extension have on welds ~~analyze electrical relationships such as alternating current and direct current, heat transfer, and polarity;~~
 - (E) explain the American Welding Society's identification system for flux cored arc welding electrodes;
 - (F)(E) determine appropriate filler metal for base metal in flux cored arc welding; and
 - (G)(F) perform fillet and groove welds in all positions.
 - (G) ~~perform welds in all appropriate positions.~~
- (12) The student analyzes gas tungsten arc welding on metals. The student is expected to:
- (A) use ~~demonstrate~~ safe operating practices;
 - (B) analyze electrical welding current relationships such as alternating current and direct current, heat transfer, and polarity;
 - (C) identify ~~determine~~ the common types of tungsten and filler metals according to the American Welding Society's identification system ~~materials;~~
 - (E) perform fillet and groove welds in all appropriate positions; and
 - (F) perform welds on metals such as carbon steel, stainless steel, and aluminum.

Subchapter M, Manufacturing, §130.364. Welding II (Two Credits), Adopted 2015.

- (c) Knowledge and skills.
- (3) The student applies academic skills to the requirements of welding. The student is expected to:
- (B) explain ~~determine~~ the impact of ~~inaccurate~~ readings of measuring devices on cost estimates;
 - (E) solve ~~calculate~~ problems using whole numbers, fractions, mixed numbers, and decimals;

- (4) The student knows the functions and applications of the tools, equipment, technologies, and materials used in welding. The student is expected to:
 (C) explain the importance of recycling materials used in welding;
 (D)(~~C~~) evaluate the ~~determine the performance~~ impact of emerging technologies in welding;
- (5) The student illustrates welding joint design, symbols, and welds. The student is expected to:
 (B) evaluate ~~inspect~~ projects using engineering drawing specifications.
- (7) The student analyzes the concepts and intricacies of inspections related to welding codes. The student is expected to:
 (B) select ~~advanced~~ codes for weld inspections; and
- (8) The student performs advanced cutting processes on carbon steels. The student is expected to:
 (C) perform ~~advanced~~ cutting processes according to accepted welding standards.
- (9) The student performs shielded metal arc welding on metals. The student is expected to:
 (B) demonstrate skills required to make welds in all positions according to the American Welding Society's SENSE ~~advanced knowledge of qualified welding positions using accepted~~ welding standards.
- (10) The student performs flux cored metal arc welding. The student is expected to:
 (B) perform fillet and groove welds; and
 (~~C~~) ~~perform groove welds; and~~
 (C)(~~D~~) perform welds in all appropriate positions according to the American Welding Society's SENSE ~~accepted~~ welding standards.
- (11) The student performs gas tungsten arc welding on metals. The student is expected to:
 (B) perform fillet and groove welds in all positions; and
 (~~C~~) ~~perform groove welds;~~
 (~~D~~) ~~perform welds in all appropriate positions according to accepted welding standards; and~~
 (C)(~~E~~) perform welds on metals such as carbon steel, stainless steel, pipe, and aluminum to the American Welding Society's SENSE welding standards.

§130.365. Welding II Lab (One Credit), Adopted 2015.

- (c) Knowledge and skills.
- (2) The student demonstrates the functions and applications of the tools, equipment, technologies, and metals used in code welding. The student is expected to:
 (C) explain the importance of recycling materials used in welding; and
- (4) The student analyzes the concepts and intricacies of inspections and related codes. The student is expected to:
 (A) explain ~~evaluate~~ weld inspection processes; and
- (5) The student performs oxy-fuel cutting processes. The student is expected to:
 (A) use ~~employ~~ safe operating practices;
 (D) demonstrate proper setup ratios of compressed gases in cutting techniques such as piercing, straight line, bevel; and
- (6) The student performs plasma arc cutting on metals. The student is expected to:
 (A) use ~~judge~~ safe operating practices;
 (B) explain the difference ~~differentiate~~ between safe and unsafe storage and handling of compressed gas air supply;
 (D) demonstrate straight line, piercing, bevels, and shape cutting.

- (7) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:
- (A) use employ safe operating practices;
 - (D) select appropriate electrodes filler for base metal in shielded metal arc welding;
 - (E) perform employ welds such as fillet and groove according to the American Welding Society's SENSE welding standards;
 - (F) perform multiple pass welds employ passes such as root, hot, filler, and cover;
 - (G) prepare joints for welding employ plate preparation; and
 - (H) explain employ and evaluate heating processes such as pre-heating and post-heating.
- (8) The student demonstrates proper set-up procedure for gas metal arc welding. The student is expected to:
- (A) use employ safe operating practices;
 - (C) demonstrate proper ratios procedures of compressed gases for proper set-up for gas metal arc welding;
 - (D) select judge appropriate use of fillers metals for base metal in gas metal arc welding; and
 - (E) perform employ fillet and groove welds in all appropriate positions according to the American Welding Society's SENSE welding standards.
- (9) The student performs flux cored arc welding principles and practices on metals. The student is expected to:
- (A) use employ safe operating practices;
 - (D) appraise appropriate filler metal for base metal in flux cored arc welding;
 - (E) perform fillet and groove welds; and
 - (F) perform employ welds in all appropriate positions according to the American Welding Society's SENSE welding standards.
- (10) The student performs gas tungsten arc welding principles and practices on metals. The student is expected to:
- (A) use employ safe operating practices;
 - (C) demonstrate proper ratios procedures of compressed gases for proper set-up for gas tungsten arc welding;
 - (D) select judge appropriate use of filler metals for base metal in gas tungsten arc welding; and
 - (E) perform employ welds in all appropriate positions according to the American Welding Society's SENSE welding standards.
- (11) The student performs weldment fabrications. The student is expected to:
- (A) identify layout tools;
 - (B) perform a part layout on plate according to a blueprint;
 - (C) perform a layout of a pipe fitting according to a blueprint; and
 - (D) perform an assembly according to a blueprint;

MOTION AND VOTE: *It was moved by Ms. Hardy, seconded by Mr. Rowley, and carried unanimously to recommend that the State Board of Education amend the following based on public comments received by the TEA. The amendments would read as follows:*

§130.180. Financial Mathematics (One Credit), Adopted 2015.

- (c) Knowledge and skills.
- (2) Mathematical process standards. The student uses applies mathematical processes standards to acquire and demonstrate mathematical understanding. The student is expected to:

- (3) The student applies mathematical process standards to demonstrate an understanding of employment earnings. The student is expected to:
- (D) ~~analyze and interpret~~ calculate payroll deductions, including federal taxes, state taxes, and city taxes, using current tax rates;
 - (J) ~~analyze and interpret~~ calculate total compensation, including payroll, Federal Insurance Contribution Act (FICA) tax, employer cost of benefits, employers' matching costs for FICA and Medicare, and employer match in savings plans, to explain how compensation is more than what is reflected in a paycheck;
- (4) The student applies mathematical process standards to demonstrate an understanding of the various federal taxes. The student is expected to:
- (F) calculate tax on interest income and use regression methods available through technology to analyze data and interpret the results by tax bracket;
 - (L) describe the relationships among education tax credit, student loan interest, dependency and filing status and income tax liability ~~understand the application of education tax credits and student loan interest deductions to reduce income tax;~~ and
- (5) The student applies mathematical process standards to demonstrate an understanding of the various financial institutions and accounts. The student is expected to:
- (B) identify and explain the advantages and disadvantages ~~compare and contrast the features~~ of interest-bearing accounts such as savings accounts, checking accounts, certificates of deposits, and money market accounts;
 - (C) calculate the time value of money, with or without technology, using exponential and rational functions that include graphs, tables, and algebraic methods related to simple and compound interest
 - (D) analyze various representations of exponential functions with respect to compound interest situations and use the rule of 72 to determine the number of years it will take for savings to double in value; calculate compound interest and use the rule of 72 to determine the number of years it will take for savings to double in value;
 - (F) ~~calculate the time value of money;~~
- (6) The student applies mathematical process standards to demonstrate an understanding of the various types of credit. The student is expected to:
- (A) ~~examine the advantages and disadvantages of loans, including student loans;~~
 - (A)(B) determine ~~assess~~ the advantages and disadvantages of credit cards such as cashback rewards, balance transfer, foreign currency, interest rates charged, late payment fees, credit score, and bonus incentives;
 - (C)(D) analyze and compare graphically, with or without technology, the differences and risks in the cost of borrowing such as using a bank loan, a credit union loan, a student loans, and an easy-access loan such as pay-day and auto title loans and analyze the risks for each type of loan;
 - (E)(F) collect and organize data, make and interpret scatterplots, interpret the results and make critical judgments about loan balances when regular equal monthly payments are made; calculate compound interest paid when regular payments are made;
 - (G)(H) explain ways a negative credit report can affect a consumer's financial options; and investigate ways that a negative credit report can affect a consumer's financial options; and
- (7) The student applies mathematical process standards to demonstrate an understanding of the cost of housing by comparing home purchases and renting. The student is expected to:

- (A) analyze data of mortgage payments with various additional principal payments involving exponential functions using tables, graphs, or algebraic methods; calculate a mortgage payment with various additional principal payments;
 - (B) create ~~prepare~~ an amortization table using technology to collect and organize data to make decisions and critical judgments about varying the down payment, period of loan, special principal payment, and interest rate for a home loan; ~~with a variety of down payments and interest rates for a home loan~~
 - (E) analyze and interpret ~~calculate~~ mortgage tax deductions;
 - (I) compare the cost of homeownership versus renting, identifying benefits and drawbacks to both homeownership and renting, such as the ~~including~~ mortgage-related income tax deductions;
 - (J) ~~demonstrate how to use the multiple listing service to identify and compare housing properties;~~
- (8) The student applies mathematical process standards to demonstrate an understanding of the difference between a vehicle purchase and a vehicle lease and costs associated with each. The student is expected to:
- (A) create ~~prepare a monthly~~ an amortization table using technology to collect and organize data to make decisions and critical judgments about varying the down payment, period of loan, special principal payment, ~~with a variety of down payments~~ and interest rates for a vehicle loan;
- (11) The student applies mathematical process standards to demonstrate an understanding of retirement plans. The student is expected to:
- (B) calculate and graph the exponential function showing the benefits of starting early to invest with continuous contributions;
 - (D) calculate, using technology, the amount that must be saved annually to achieve financial independence by a desired age.
- (12) The student applies mathematical process standards to demonstrate an understanding of a fixed pension, a variable pension, social security, and an annuity. The student is expected to identify an annuity, calculate, and display graphically the future value of an annuity.
- (15) The student applies mathematical process standards to demonstrate an understanding of the budgeting process. The student is expected to:
- (A) create ~~evaluate~~ a comprehensive balanced personal budget, including fixed and variable expenses, college savings, emergency savings, and retirement savings;
 - (B) ~~prepare and balance a budget, including fixed and variable expenses, and differentiate between wants and needs;~~
- (17) The student applies mathematical process standards to demonstrate an understanding for a postsecondary plan. The student is expected to:
- (F) ~~graph and explain the correlation between postsecondary education and standard of living.~~
 - (F)(G) graph and compare compensation earnings of potential careers and the cost of post-secondary education.
 - (G)(H) calculate the Return on Investment (ROI) from completing a desired postsecondary education program, taking into consideration anticipated earnings for a selected degree and the cost of attending a specific postsecondary program;

Mrs. Cargill announced her intent to file comments with TEA received from the Texas Science Education Leadership Association and the Science Teachers Association of Texas that may be considered as amendments at the Friday meeting of the State Board of Education.

MOTION AND VOTE: *It was moved by Ms. Hardy, seconded by Mrs. Miller, and carried to recommend that the State Board of Education strike the following language from proposed §130.309(a), Computer Programming I and §130.310(a), Computer Programming II.*

~~This course satisfies a high school languages other than English graduation requirement.~~

MOTION AND VOTE: *It was moved by Mr. Rowley, seconded by Mrs. Melton-Malone, and carried to recommend that the State Board of Education strike the language from proposed §130.229, Mathematics for Medical Professionals (One Credit), Adopted 2015, §130.409, Robotics II (One Credit), Adopted 2015, and §130.416, Biotechnology II (One Credit), Adopted 2015 that would allow the courses to satisfy specific math or science graduation requirements.*

MOTION AND VOTE: *It was moved by Mrs. Miller, seconded by Mrs. Melton-Malone, and carried to recommend that the State Board of Education postpone the second reading and final adoption of 19 TAC, Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education Subchapter P, Transportation, Distribution, and Logistics, §130.445, Small Engine Technology (One Credit), Adopted 2015, §130.446, Advanced Small Engine Technology (Two Credits), Adopted 2015, §130.447, Automotive Basics I (One Credit), Adopted 2015, §130.448, Automotive Basics II (One Credit), Adopted 2015, §130.449, Automotive Technology I (Two Credits), Adopted 2015, §130.450, Advanced Automotive Technology II (Two Credits), Adopted 2015, §130.451, Advanced Automotive Technology II (Three Credits) Adopted 2015, §130.452, Introduction to Aircraft Technology (One Credit), Adopted 2015, §130.453, Aircraft Technology I (Two Credits), Adopted 2015, §130.454, Aircraft Technology II (Two Credits), Adopted 2015, §130.455, Basic Collision Repair and Refinishing (One Credit), Adopted 2015, §130.456, Collision Repair and Refinishing I (Two Credits), Adopted 2015, §130.457, Collision Repair and Refinishing II (Three Credits), Adopted 2015, §130.458, Diesel Equipment Technology I (One Credit), Adopted 2015, §130.459, Diesel Equipment Technology II (Two Credits), Adopted 2015 until the September board meeting.*

The committee directed staff to make technical edits to §130.30, Agricultural Laboratory and Field Experience and §130.205, Foreign Service and Diplomacy.

VOTE: *A vote was taken on the motion to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, Subchapter A, Agriculture, Food, and Natural Resources, Subchapter B, Architecture and Construction, Subchapter G, Government and Public Administration, Subchapter H, Health Science, Subchapter K, Information Technology, Subchapter L, Law, Public Safety, Corrections, and Security, Subchapter O, Science, Technology, Engineering, and Mathematics, Subchapter P, Transportation, Distribution, and Logistics, Subchapter I, Hospitality and Tourism, §130.256, Food Chemistry (One Credit) Adopted 2015, Subchapter M, Manufacturing, §130.362, Introduction to Welding (One Credit), Adopted 2015, §130.363, Welding I (Two Credits), Adopted 2015, §130.364, Welding II (Two Credits), Adopted 2015, §130.365, Welding II Lab (One Credit), Adopted 2015, and Subchapter N, Marketing, §130.387, Practicum in Marketing I (Two to Three Credits), Adopted 2015, as amended with an effective date of August 28, 2017.*

MOTION AND VOTE: *It was moved by Mrs. Bahorich, seconded by Ms. Hardy, and carried to recommend that the State Board of Education approve for second reading and final adoption proposed new 19 TAC Chapter 130, Texas Essential Knowledge and Skills for Career and Technical Education, Subchapter F, Finance, §130.180, Financial Mathematics (One Credit) Adopted 2015, as amended with an effective date of August 24, 2015.*