

- (1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:
 - (A) select an original independent study project for personal enrichment and career development;
 - (B) use reading and research skills to investigate self-selected topics and

- (C) conduct self-evaluations of presentations;
- (D) compose written reflections regarding strengths and weaknesses as well as areas of growth;
- (E) analyze the feedback from the panel of experts; and
- (F) submit project results and analysis to mentors and experts.

§127.13. Applied Mathematics for Technical Professionals (One Credit), Adopted 2015.

- (a) General requirements. This course is recommended for students in Grades 11 and 12. Recommended prerequisites: Algebra I and Geometry. This course satisfies a high school mathematics graduation requirement. Students shall be awarded one credit for successful completion of this course.
- (b) 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 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

- (1) 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)

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(B)

- (D) explain Occupational Safety and Health Administration regulations in the workplace; and
 - (E) determine health and wellness practices that influence job performance.
- (8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:
- (A) analyze the future employment outlook in the occupational area;
 - (B)

- (B) obtain letters of recommendation;
 - (C) expand personal communication skills; and
 - (D) refine interview skills.
- (2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:
- (A) maintain appropriate grooming and appearance for the workplace;
 - (B) demonstrate positive interpersonal skills, including respect for diversity;
 - (C) demonstrate appropriate business and personal etiquette in the workplace;
 - (D) exhibit productive work habits, attitudes, and ethical practices;
 - (E) evaluate consequences for breach of personal and occupational safety practices in the workplace; and
 - (F) prioritize work to fulfill responsibilities and meet deadlines.
- (3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:
- (A) evaluate personal integrity and its effects on human relations in the workplace;
 - (B) evaluate characteristics of successful working relationships such as teamwork, conflict resolution, self-control, and the ability to accept criticism;
 - (C) recognize and appreciate diversity in the workplace;
 - (D) analyze employer expectations;
 - (E) exhibit productive work habits and attitudes;
 - (F) communicate effectively to a variety of audiences;
 - (G) analyze ethical standards; and
 - (H) comply with organizational policies and procedures.
- (4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:
- (A) apply critical- and creative-thinking skills to solve complex problems;
 - (B) integrate mathematical concepts into business transactions;
 - (C) analyze and apply data from tables, charts, and graphs to find solutions to problems;
 - (D) apply effective listening skills used in the workplace;
 - (E) read and write technical reports and summaries; and
 - (F) apply effective verbal, nonverbal, written, and electronic communication skills.
- (5) The student recognizes legal responsibilities of the workplace. The student is expected to:
- (A) evaluate provisions of the Fair Labor Standards Act;
 - (B) analyze the legal consequences of "breach of confidentiality"; and
 - (C) research and describe laws governing the different professions.
- (6) The student recognizes the dangers of identity theft. The student is expected to:
- (A) identify various methods criminals use to obtain information; and
 - (B) research how to avoid becoming a victim.

coherent sequence of courses in a career cluster related to the field in which the student will be employed. Corequisite: Career Preparation I or Career Preparation II. This course must be taken concurrently with Career Preparation I or Career Preparation II 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.

(b) 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) Career development is a lifelong pursuit of answers to the questions: Who am I? Why am I here? What am I meant to do with my life? It is vital that students have a clear sense of direction for their career choice. Career planning is a critical step and is essential to success.
- (3) Extended Career Preparation provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
- (4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other 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.

(c) Knowledge and skills.

- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (A) participate in a paid work-based application of previously studied knowledge and skills related to career and technical education;
 - (B) participate in training, education, or preparation for licensure, certification, or other relevant credentials to prepare for employment;
 - (C) demonstrate professional standards and personal qualities needed to be employable such as punctuality, initiative, and cooperation with increased fluency;
 - (D) complete tasks with high standards to ensure delivery of quality products and services;
 - (E) employ teamwork and conflict-management skills with increased fluency to achieve collective goals; and
 - (F) employ planning and time-

- (E) apply active listening skills to obtain and clarify information; and
- (F) employ effective internal and external communications to support work activities.
- (3) The student applies concepts of critical thinking and problem solving. The student is expected to:
 - (A) employ critical-thinking skills with increased fluency both independently and in groups to solve problems and make decisions;
 - (B) analyze elements of a problem to develop creative and innovative solutions; and
 - (C) demonstrate the use of content, technical concepts, and vocabulary when analyzing information and following directions.
- (4) The student understands and applies proper safety techniques in the workplace. The student is expected to:
 - (A) demonstrate an understanding of and consistently follow workplace safety rules and regulations;
 - (B) demonstrate safe operation of tools and equipment used in the industry;
 - (C) describe and perform hazard analysis; and
 - (D) demonstrate knowledge of procedures for reporting and handling accidents and safety incidents.
- (5) The student understands the professional, ethical, and legal responsibilities as they relate to employment and the workplace. The student is expected to:
 - (A) demonstrate a positive, productive work ethic by performing assigned tasks as directed;
 - (B) apply ethical reasoning to a variety of situations in order to make ethical decisions; and
 - (C) comply with all applicable rules, laws, and regulations in a consistent manner.
- (6) The student participates in a paid career preparation experience. The student is expected to:
 - (A) conduct, document, and evaluate learning activities in a supervised employment experience;
 - (B) develop advanced technical knowledge and skills related to the student's occupational objective;
 - (C) demonstrate growth of technical skill competencies;
 - (D) evaluate strengths and weaknesses in technical skill proficiency; and
 - (E) collect representative work samples.

§127.17. Career and Technical Education Standards in Occupational Safety and Health, Adopted 2023.

- (a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2023-2024 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 the following career and technical education (CTE) courses:
 - (1) Construction Technology I;
 - (2) Electrical Technology I;
 - (3) Plumbing Technology I;
 - (4) HVAC Technology I;

- (5) Masonry Technology I;
- (6) Agriculture Mechanics and Metal Technology;
- (7) Welding I;
- (8) Metal Fabrication and Machining I;
- (9) Oil and Gas Production II; and
- (10) Introduction to Culinary Arts.

(c) Introduction.

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

(2) The goal of the occupational safety and health standards is to ensure that students develop safety consciousness in the workplace. Students build a strong foundation in the and nd oc and. (t)6.9ds (r)1. (A)5. i8u the onsc(pl)6.9 (a)4.813.7 (gi)nichnih snTfon(i)6.9b.9 (t)6y)TJ.006 Tc6.9 (a0.003 T (ni)6.9 (sb)6.9 (i)603 Tw 2.446 0 T

(2)

- (1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:
 - (A) identify different methods to gain employment such as employer websites, job search engines, business locations, networking, and local open forums for job opportunities;
 - (B) identify and demonstrate essential workplace skills such as eye contact, professional greetings, punctuality, appropriate dress, and effective communication to gain employment;
 - (C) develop a cover letter and create a resume, curriculum vitae (CV), or portfolio;
 - (D) demonstrate proper interview techniques in a variety of situations;
 - (E) create pre-employment documents, including thank you letters, and post-employment documents, including a resignation letter with customary notice provisions;
 - (F) complete appropriate employment documents, including application, offer letter, I-9 form, and W-4 form; and
 - (G) describe the benefits of having a job and being self-sufficient.
- (2) The student develops essential skills necessary for success in the workplace. The student is expected to:
 - (A) identify and model appropriate hygiene, grooming, and attire for various workplaces;
 - (B) demonstrate professionalism by being dependable, working hard, respecting authority, solving problems, taking initiative, communicating effectively, listening actively, and resolving conflicts;
 - (C) model appropriate workplace etiquette in physical and digital environments;
 - (D) demonstrate accountability by working with other employees to support the organization, completing assigned tasks and taking responsibility for mistakes; and
 - (E) demonstrate time management, including prioritizing work to fulfill responsibilities and meeting deadlines.
- (3) The student applies academic skills to the workplace. The student is expected to:
 - (A) apply appropriate industry-specific mathematical skills;
 - (B) develop and analyze a personal budget for a variety of economic situations such as part-time and full-time employment;
 - (C) interpret data from industry-specific tables, charts, and graphs to find solutions to problems;
 - (D) organize, write, and curate industry-specific documents and electronic communication using appropriate language;
 - (E) interpret and calculate information included in an earnings statement, including wages, Federal Insurance Contributions Act (FICA) deductions, taxes, and other benefits such as tips earned; and
 - (F) explain how debt affects financial stability.
- (4) The student exemplifies appropriate interpersonal skills in the workplace. The student is expected to:
 - (A) explain how interpersonal skills affect human relations on the job;
 - (B) differentiate between characteristics of successful and non-successful working relationships;
 - (C) explain the importance of respecting the rights of others;

- (D) explain how different personalities, experiences, and workstyles of employees can affect the workplace; and
 - (E) demonstrate professional verbal and nonverbal communication, including proper phone usage, body language, and interactions with customers and coworkers in person and online.
- (5) The student applies ethical codes of conduct and legal responsibilities within school and the workplace. The student is expected to:
- (A) research and explain workplace policies and procedures related to absence reporting, employee theft, sexual harassment, recognized holidays, workplace safety, acceptable use policy, jury duty, attendance and punctuality, drug-free workplace, and related consequences;
 - (B) demonstrate responsible behavior by following applicable workplace and school codes of conduct with integrity;
 - (C) discuss the importance of ethical behavior in the workplace such as treating others with respect, being honest, working to full potential, and developing a quality work product;
 - (D) summarize the importance of the Fair Labor Standards Act;
 - (E) describe the potential consequences of violating privacy laws related to Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA), and Children's Online Privacy Protection Rule (COPPA);
 - (F) research and explain the origins and legislative intent of the Civil Rights Act of 1964, Title VII, and the Education Amendments of 1972, Title IX, and the rights and responsibilities established by these laws; and
 - (G) research and describe laws and regulations related to a student's employment or a chosen industry or career.
- (6) The student applies concepts and skills related to safety in the workplace. The student is expected to:
- (A) identify and demonstrate safe working practices in the workplace;
 - (B) identify and illustrate solutions related to unsafe work practices;
 - (C) explain the importance of Occupational Safety and Health Administration regulations in the workplace; and
 - (D) describe physical health and mental wellness practices that influence job performance.
- (7) The student evaluates personal attitudes, work habits, and skills that support job retention and advancement. The student is expected to:
- (A) identify and develop effective leadership skills through pe9a2 (l)6.2.9 (o)8 (b566 -1.759 Td4.2 (nd lcy)5 (r)
 - (B) iden8 (wp)-7 (d)-7.1 (o (wp)-7 (d)-7.04 ia.4 (r))2.4 (r) prai(p)5 (r)(r)-5.3 (e)-22.27ted7 (la)-2.8 (d)-7 (F

- (G) summarize how to appropriately self-advocate in the workplace; and
 - (H) explain the impact of an employee self-evaluations, management performance evaluations, and employee feedback responses on personal job growth.
- (8) The student identifies skills and attributes necessary for professional success. The student is expected to:
- (A)

- (C) define personal integrity and evaluate its effects on human relations in the workplace;
 - (D) classify a variety of working relationships into functional and dysfunctional characteristics; and
 - (E) participate in leadership and career-development activities related to a selected program of study.
- (5) The student models ethical codes of conduct and legal responsibilities within school and the workplace. The student is expected to:
- (A) evaluate provisions of the Fair Labor Standards Act;
 - (B) analyze the legal consequences of violating privacy laws related to Family Educational

