

Subject	Chapter 127. Career Development, Subchapter B. High School
Title	§127.12. Project-Based Research (One Credit), Adopted 2015.
<p>(a) General Requirements. This course is recommended for students in Grades 11-12. Students shall be awarded one credit for successful completion of this course. Students may repeat this course with different course content for up to three credits.</p>	
<p>(b) Introduction.</p>	
<p>(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.</p> <p>(2) Career development is a lifelong pursuit of answers to the questions: <i>Who am I? Why am I here? What am I meant to do with my life?</i> 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.</p> <p>(3) Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.</p> <p>(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.</p> <p>(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.</p>	

(c) Knowledge and Skills.		
Knowledge and Skill Statement	Student Expectation	Breakout
(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	(i) select an original independent study project for personal enrichment
(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	(ii) select an original independent study project for career development
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(B) use reading and research skills to investigate self-selected topics and compile a research portfolio	(i) use reading skills to investigate self-selected topics
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(B) use reading and research skills to investigate self-selected topics and compile a research portfolio	(ii) use research skills to investigate self-selected topics
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(B) use reading and research skills to investigate self-selected topics and compile a research portfolio	(iii) use reading skills to compile a research portfolio
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(B) use reading and research skills to investigate self-selected topics and compile a research portfolio	(iv) use research skills to compile a research portfolio

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(C) collaborate with an interdisciplinary team to develop a project	(i) collaborate with an interdisciplinary team to develop a project
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(D) identify community, state, national, or international issues to select a project	(i) identify community, state, national, or international issues to select a project
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(E) conduct a project under the supervision of a mentor	(i) conduct a project under the supervision of a mentor
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(F) use scientific methods of investigation	(i) use scientific methods of investigation
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(G) apply statistical concepts to analyze data, evaluate results, and draw conclusions	(i) apply statistical concepts to analyze data
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(G) apply statistical concepts to analyze data, evaluate results, and draw conclusions	(ii) apply statistical concepts to evaluate results

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(G) apply statistical concepts to analyze data, evaluate results, and draw conclusions	(iii) apply statistical concepts to draw conclusions
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(H) compare and contrast findings in a coherent and organized manner	(i) compare and contrast findings in a coherent manner
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(H) compare and contrast findings in a coherent and organized manner	(ii) compare and contrast findings in an organized manner
(1) The student applies mathematics, science, English language arts, and social studies in an independent study. The student is expected to:	(I) present the independent research project to an appropriate audience of experts in the field using a variety of technologies	(i) present the independent research project to an appropriate audience of experts in the field using a variety of technologies
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(A) listen actively and effectively in group discussions	(i) listen actively in group discussions
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(A) listen actively and effectively in group discussions	(ii) listen effectively in group discussions
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(B) use a variety of resources to access, process, and collect data relevant to the project	(i) use a variety of resources to access data relevant to the project

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(B) use a variety of resources to access, process, and collect data relevant to the project	(ii) use a variety of resources to process data relevant to the project
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(B) use a variety of resources to access, process, and collect data relevant to the project	(iii) use a variety of resources to collect data relevant to the project
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(C) document the time and cost to accomplish the project goal	(i) document the time to accomplish the project goal
(2) The student uses verbal and nonverbal communication skills. The student is expected to:	(C) document the time and cost to accomplish the project goal	(ii) document the cost to accomplish the project goal
(3) The student demonstrates professional ethical behavior standards and legal responsibilities. The student is expected to:	(A) analyze ethical challenges determined by factors such as cost, new and emerging technologies, and allocation of limited resources	(i) analyze ethical challenges determined by factors
(3) The student demonstrates professional ethical behavior standards and legal responsibilities. The student is expected to:	(B) review legal issues related to the research project	(i) review legal issues related to the research project
(4) The student designs and develops a research project related to their career interests. The student is expected to:	(A) identify processes to be used in the independent research project	(i) identify processes to be used in the independent research project

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student designs and develops a research project related to their career interests. The student is expected to:	(B) use resources to complete a project	(i) use resources to complete a project
(5) The student uses technology needed to complete a research project. The student is expected to:	(A) use search engines, databases, and other digital electronic tools effectively to locate information	(i) use search engines effectively to locate information
(5) The student uses technology needed to complete a research project. The student is expected to:	(A) use search engines, databases, and other digital electronic tools effectively to locate information	(ii) use databases effectively to locate information
(5) The student uses technology needed to complete a research project. The student is expected to:	(A) use search engines, databases, and other digital electronic tools effectively to locate information	(iii) use other digital electronic tools effectively to locate information
(5) The student uses technology needed to complete a research project. The student is expected to:	(B) evaluate quality, accuracy, completeness, reliability, and currency of information from any source	(i) evaluate quality of information from any source
(5) The student uses technology needed to complete a research project. The student is expected to:	(B) evaluate quality, accuracy, completeness, reliability, and currency of information from any source	(ii) evaluate accuracy of information from any source
(5) The student uses technology needed to complete a research project. The student is expected to:	(B) evaluate quality, accuracy, completeness, reliability, and currency of information from any source	(iii) evaluate completeness of information from any source

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student uses technology needed to complete a research project. The student is expected to:	(B) evaluate quality, accuracy, completeness, reliability, and currency of information from any source	(iv) evaluate reliability of information from any sources
(5) The student uses technology needed to complete a research project. The student is expected to:	(B) evaluate quality, accuracy, completeness, reliability, and currency of information from any source	(v) evaluate currency of information from any sources
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(i) prepare independent research
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(ii) prepare mentor experiences
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(iii) organize independent research
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(iv) organize mentor experiences
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(v) present independent research
(5) The student uses technology needed to complete a research project. The student is expected to:	(C) prepare, organize, and present independent research and mentor experiences	(vi) present mentor experiences

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student uses technology needed to complete a research project. The student is expected to:	(D) receive constructive criticism and revise personal views when valid evidence warrants	(i) receive constructive criticism
(5) The student uses technology needed to complete a research project. The student is expected to:	(D) receive constructive criticism and revise personal views when valid evidence warrants	(ii) revise personal views when valid evidence warrants
(5) The student uses technology needed to complete a research project. The student is expected to:	(E) prepare and present research information in appropriate formats to a panel of experts in the field	(i) prepare research information in appropriate formats to a panel of experts in the field
(5) The student uses technology needed to complete a research project. The student is expected to:	(E) prepare and present research information in appropriate formats to a panel of experts in the field	(ii) present research information in appropriate formats to a panel of experts in the field
(6) The student evaluates the research project. The student is expected to:	(A) create weekly progress reports that address time management and goal setting	(i) create weekly progress reports that address time management
(6) The student evaluates the research project. The student is expected to:	(A) create weekly progress reports that address time management and goal setting	(ii) create weekly progress reports that address goal setting
(6) The student evaluates the research project. The student is expected to:	(B) meet periodically with the teacher for conferences about progress, concerns, successes, and needs	(i) meet periodically with the teacher for conferences about progress
(6) The student evaluates the research project. The student is expected to:	(B) meet periodically with the teacher for conferences about progress, concerns, successes, and needs	(ii) meet periodically with the teacher for conferences about concerns

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student evaluates the research project. The student is expected to:	(B) meet periodically with the teacher for conferences about progress, concerns, successes, and needs	(iii) meet periodically with the teacher for conferences about successes
(6) The student evaluates the research project. The student is expected to:	(B) meet periodically with the teacher for conferences about progress, concerns, successes, and needs	(iv) meet periodically with the teacher for conferences about needs
(6) The student evaluates the research project. The student is expected to:	(C) conduct self-evaluations of presentations	(i) conduct self-evaluations of presentations
(6) The student evaluates the research project. The student is expected to:	(D) compose written reflections regarding strengths and weaknesses as well as areas of growth	(i) compose written reflections regarding strengths
(6) The student evaluates the research project. The student is expected to:	(D) compose written reflections regarding strengths and weaknesses as well as areas of growth	(ii) compose written reflections regarding weaknesses
(6) The student evaluates the research project. The student is expected to:	(D) compose written reflections regarding strengths and weaknesses as well as areas of growth	(iii) compose written reflections regarding areas of growth
(6) The student evaluates the research project. The student is expected to:	(E) analyze the feedback from the panel of experts	(i) analyze the feedback from the panel of experts
(6) The student evaluates the research project. The student is expected to:	(F) submit project results and analysis to mentors and experts	(i) submit project results to mentors

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student evaluates the research project. The student is expected to:	(F) submit project results and analysis to mentors and experts	(ii) submit project results to experts
(6) The student evaluates the research project. The student is expected to:	(F) submit project results and analysis to mentors and experts	(iii) submit analysis to mentors
(6) The student evaluates the research project. The student is expected to:	(F) submit project results and analysis to mentors and experts	(iv) submit analysis to experts

Subject	Chapter 127. Career Development, Subchapter B. High School
Course Title	§127.13 Applied Mathematics for Technical Professionals (One Credit), Adopted 2015.
<p>(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.</p>	
<p>(b) Introduction.</p>	
<p>(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.</p> <p>(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, and number sense 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.</p> <p>(3) Career development is a lifelong pursuit of answers to the questions: <i>Who am I? Why am I here? What am I meant to do with my life?</i> 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.</p> <p>(4) Applied Mathematics for Technical Professionals uses problem-solving situations, hands-on activities, and technology to extend mathematical thinking and engage student reasoning. Situations relating to technical applications provide students opportunities to make connections with mathematics and the workplace. In addition, students will learn the skills necessary to communicate using mathematics. Hands-on activities will allow students to model, explore, and develop abstract concepts applicable to technical careers. (Essential to this course is the partnership between mathematics and technical teachers.)</p> <p>(5) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.</p> <p>(6) 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.</p>	

(c) Knowledge and Skills.		
Knowledge and Skill Statement	Student Expectation	Breakout
(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	(i) apply mathematics to problems arising in everyday life
(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	(ii) apply mathematics to problems arising in society
(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	(iii) apply mathematics to problems arising in the workplace
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(i) 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
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(ii) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the reasonableness of the solution

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(i) select tools, including real objects as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(ii) select tools, including manipulatives as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(iii) select tools, including paper and pencil as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(iv) select tools, including technology as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(v) select techniques, including mental math as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(vi) select techniques including estimation as appropriate, to solve problems

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(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	(vii) select techniques, including number sense as appropriate, to solve problems
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(i) communicate mathematical ideas using multiple representations, including symbols as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(ii) communicate mathematical ideas using multiple representations, including diagrams as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(iii) communicate mathematical ideas using multiple representations, including graphs as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(iv) communicate mathematical ideas using multiple representations, including language as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(v) communicate mathematical reasoning using multiple representations, including symbols as appropriate

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(vi) communicate mathematical reasoning using multiple representations, including diagrams as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(vii) communicate mathematical reasoning using multiple representations, including graphs as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(viii) communicate mathematical reasoning using multiple representations, including language as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(ix) communicate [mathematical ideas'] implications using multiple representations, including symbols as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(x) communicate [mathematical ideas'] implications using multiple representations, including diagrams as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xi) communicate [mathematical ideas'] implications using multiple representations, including graphs as appropriate

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xii) communicate [mathematical ideas'] implications using multiple representations, including language as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xiii) communicate [mathematical reasoning's] implications using multiple representations, including symbols as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xiv) communicate [mathematical reasoning's] implications using multiple representations, including diagrams as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xv) communicate [mathematical reasoning's] implications using multiple representations, including graphs as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xvi) communicate [mathematical reasoning's] implications using multiple representations, including language as appropriate
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(i) create representations to organize mathematical ideas

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(ii) create representations to record mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(iii) create representations to communicate mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(iv) use representations to organize mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(v) use representations to record mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(vi) use representations to communicate mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(F) analyze mathematical relationships to connect and communicate mathematical ideas	(i) analyze mathematical relationships to connect mathematical ideas
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(F) analyze mathematical relationships to connect and communicate mathematical ideas	(ii) analyze mathematical relationships to communicate mathematical ideas

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(i) display mathematical ideas using precise mathematical language in written or oral communication
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(ii) display mathematical arguments using precise mathematical language in written or oral communication
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(iii) explain mathematical ideas using precise mathematical language in written or oral communication
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(iv) explain mathematical arguments using precise mathematical language in written or oral communication
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(v) justify mathematical ideas using precise mathematical language in written or oral communication
(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	(vi) justify mathematical arguments using precise mathematical language in written or oral communication
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(A) calculate rise and run such as the rise and run of stair stringers or roof pitch	(i) calculate the rise and run of stair stringers or roof pitch

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(i) distinguish the purpose of a linear increase with time
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(ii) distinguish the purpose of a non-linear increase of a variable with time
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(iii) distinguish the purpose of a linear decrease of a variable with time
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(iv) distinguish the purpose of a nonlinear decrease of a variable with time such as
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(v) distinguish the difference of a linear increase of a variable with time
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(vi) distinguish the difference of a non-linear increase of a variable with time

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(vii) distinguish the difference of a linear and decrease of a variable with time such
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(B) distinguish the purpose and difference of a linear and non-linear increase and decrease of a variable with time such as cost or profit	(viii) distinguish the difference of a non-linear decrease of a variable with time such
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(C) write systems of equations and inequalities from real-life situations that compare "best deal opportunities" with profit and expenses in businesses	(i) write systems of equations from real-life situations that compare "best deal opportunities" with profit and expenses in businesses
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(C) write systems of equations and inequalities from real-life situations that compare "best deal opportunities" with profit and expenses in businesses	(ii) write systems of inequalities from real-life situations that compare "best deal opportunities" with profit and expenses in businesses
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(D) use linear programming to maximize or minimize linear objective function in real-life situations and determine the reasonableness of solutions	(i) use linear programming to maximize or minimize linear objectives in real-life situations
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(D) use linear programming to maximize or minimize linear objective function in real-life situations and determine the reasonableness of solutions	(ii) use linear programming to determine the reasonableness of solutions

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(E) express numbers as powers of 10 as applied to business and industry settings	(i) express numbers as powers of 10 as applied to business settings
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(E) express numbers as powers of 10 as applied to business and industry settings	(ii) express numbers as powers of 10 as applied to industry settings
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(F) determine the powers and roots of numbers	(i) determine the powers of numbers
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(F) determine the powers and roots of numbers	(ii) determine the roots of numbers
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(G) apply compound interest formulas related to operating a business	(i) apply compound interest formulas related to operating a business
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(H) use exponential decay models to determine the depreciation on equipment used in business and industry and explain the meaning of models	(i) use exponential decay models to determine the depreciation on equipment used in business and industry

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student uses mathematical concepts of algebra to explain linear and non-linear applications in business and industry situations. The student is expected to:	(H) use exponential decay models to determine the depreciation on equipment used in business and industry and explain the meaning of models	(ii) explain the meaning of [exponential decay] models
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(A) identify various geometric figures in order to identify what formulas are needed to solve situational problems	(i) identify various geometric figures in order to identify what formulas are needed to solve situational problems
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(B) compute measurements such as area, surface area, volume, perimeter, and circumference in order to prepare engineering drawings for projects	(i) compute measurements
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(C) use trigonometric functions such as sine, cosine, tangent, cotangent, cosecant, and secant to calculate angles and length of sides	(i) use all trigonometric functions
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(D) apply Heron's formula for finding areas of triangles when the height is not known	(i) apply Heron's formula for finding areas of triangles when the height is not known
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(E) determine how changing dimensions will affect the perimeter, area, surface area, or volume in a project	(i) determine how changing dimensions will affect the perimeter, area, surface area, or volume in a project
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(F) determine how angles will affect structural strength and stability	(i) determine how angles will affect structural strength

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(F) determine how angles will affect structural strength and stability	(ii) determine how angles will affect structural stability
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(G) apply right triangle relationships using the Pythagorean Theorem, special right triangles, and trigonometry for roof construction, building the frame of a car, or calculating machined parts	(i) apply right triangle relationships using the Pythagorean Theorem for roof construction, building the frame of a car, or calculating machined parts
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(G) apply right triangle relationships using the Pythagorean Theorem, special right triangles, and trigonometry for roof construction, building the frame of a car, or calculating machined parts	(ii) apply right triangle relationships using special right triangles for roof construction, building the frame of a car, or calculating machined parts
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(G) apply right triangle relationships using the Pythagorean Theorem, special right triangles, and trigonometry for roof construction, building the frame of a car, or calculating machined parts	(iii) apply right triangle relationships using trigonometry for roof construction, building the frame of a car, or calculating machined parts
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(H) determine the materials needed for a job or project by finding missing parts of a circle	(i) determine the materials needed for a job or project by finding missing parts of a circle
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(I) draw orthographic and isometric views and use them to produce engineering drawings	(i) draw orthographic views

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(I) draw orthographic and isometric views and use them to produce engineering drawings	(ii) use [orthographic views] to produce engineering drawings
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(I) draw orthographic and isometric views and use them to produce engineering drawings	(iii) draw isometric views
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(I) draw orthographic and isometric views and use them to produce engineering drawings	(iv) use [isometric views] to produce engineering drawings
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(J) use cross-sections, including conic sections, of three-dimensional figures to relate to plane figures in specific detail on an engineered drawing	(i) use cross-sections, including conic sections, of three-dimensional figures to relate to plane figures in specific detail on an engineered drawing
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(i) explain auxiliary views
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(ii) explain revolutions
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(iii) explain intersections

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(iv) explain engineered drawings
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(v) use auxiliary views
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(vi) use auxiliary revolutions
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(vii) use intersections
(3) The student applies geometric concepts to real-world problems in technical situations. The student is expected to:	(K) explain and use auxiliary views, revolutions, intersections, and engineered drawings	(viii) use engineered drawings
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(A) use dimensional analysis to select an appropriate tool to make measurements	(i) use dimensional analysis to select an appropriate tool to make measurements
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(B) apply accurate readings of both U.S. customary and metric measuring devices to a problem situation	(i) apply accurate readings of U.S. customary measuring devices to a problem situation

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(B) apply accurate readings of both U.S. customary and metric measuring devices to a problem situation	(ii) apply accurate readings of metric measuring devices to a problem situation
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(C) square, measure, and cut materials to specified dimensions	(i) square materials
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(C) square, measure, and cut materials to specified dimensions	(ii) measure materials
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(C) square, measure, and cut materials to specified dimensions	(iii) cut materials to specified dimensions
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(D) draw segments to scale using an accurate scale and measure segments that are drawn to scales	(i) draw segments to scale using an accurate scale
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(D) draw segments to scale using an accurate scale and measure segments that are drawn to scales	(ii) measure segments that are drawn to scales
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(E) convert temperature values between Celsius and Fahrenheit in situations involving thermodynamics	(i) convert temperature values between Celsius and Fahrenheit in situations involving thermodynamics

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(i) determine length with appropriate unit labels
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(ii) determine distance with appropriate unit labels
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(iii) determine area with appropriate unit labels
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(iv) determine surface area with appropriate unit labels
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(v) determine volume with appropriate unit labels
(4) The student applies measurement to all aspects of business and industry occupations. The student is expected to:	(F) determine length, distance, area, surface area, volume and weight with appropriate unit labels	(vi) determine weight with appropriate unit labels
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(i) use rates to solve problems involving finance, including compensations

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(ii) use rates to solve problems involving finance, including deductions
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(iii) use rates to solve problems involving budgeting, including compensations
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(iv) use rates to solve problems involving budgeting, including deductions
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(v) use linear functions to solve problems involving finance, including compensations
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(vi) use linear functions to solve problems involving finance, including deductions
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(vii) use linear functions to solve problems involving budgeting, including compensations

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(A) use rates and linear functions to solve problems involving finance and budgeting, including compensations and deductions	(viii) use linear functions to solve problems involving budgeting, including deductions
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(B) solve problems related to local, state, and federal taxes	(i) solve problems related to local taxes
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(B) solve problems related to local, state, and federal taxes	(ii) solve problems related to state taxes
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(B) solve problems related to local, state, and federal taxes	(iii) solve problems related to federal taxes
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(C) analyze data to make decisions about banking and finance	(i) analyze data to make decisions about banking
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(C) analyze data to make decisions about banking and finance	(ii) analyze data to make decisions about finance

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(D) use mathematical processes with algebraic formulas, numerical techniques and graphs to solve problems related to job cost analysis	(i) use mathematical processes with algebraic formulas to solve problems related to job cost analysis
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(D) use mathematical processes with algebraic formulas, numerical techniques and graphs to solve problems related to job cost analysis	(ii) use mathematical processes with numerical techniques to solve problems related to job cost analysis
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(D) use mathematical processes with algebraic formulas, numerical techniques and graphs to solve problems related to job cost analysis	(iii) use mathematical processes with graphs to solve problems related to job cost analysis
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(E) identify what parameters to change such as cost of materials, cost of labor, and work time required to improve the overall cost of a project	(i) identify what parameters to change to improve the overall cost of a project
(5) The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to finance. The student is expected to:	(F) identify the most reasonable mathematical solution using estimation	(i) identify the most reasonable mathematical solution using estimation
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(A) interpret and present situations in terms of given graphs and that fit graphics	(i) interpret situations in terms of given graphs

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(A) interpret and present situations in terms of given graphs and that fit graphics	(ii) present situations in terms of given graphs
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(A) interpret and present situations in terms of given graphs and that fit graphics	(iii) interpret situations in terms that fit graphics
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(A) interpret and present situations in terms of given graphs and that fit graphics	(iv) present situations in terms that fit graphics
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(B) apply Ohm's Law and Kirchhoff's laws to troubleshoot electrical circuits	(i) apply Ohm's Law to troubleshoot electrical circuits
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(B) apply Ohm's Law and Kirchhoff's laws to troubleshoot electrical circuits	(ii) apply Kirchhoff's laws to troubleshoot electrical circuits
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(i) collect data

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(ii) organize data
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(iii) make scatterplots
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(iv) interpret scatterplots
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(v) model decisions
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(vi) predict decisions
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(vii) make decisions

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(viii) model critical judgements
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(ix) predict critical judgements
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(C) collect and organize data; make and interpret scatterplots; and model, predict, and make decisions and critical judgments	(x) make critical judgements
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(i) prepare technical reports with visual media or models, including tables
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(ii) prepare technical reports with visual media or models, including graphs
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(iii) prepare technical reports with visual media or models, including verbal descriptions

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(iv) prepare presentations with visual media or models, including tables
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(v) prepare presentations with visual media or models, including graphs
(6) The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results. The student is expected to:	(D) prepare technical reports and presentations with visual media or models, including tables, graphs, and verbal descriptions	(vi) prepare presentations with visual media or models, including verbal descriptions
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(A) identify the line types used on engineering drawings	(i) identify the line types used on engineering drawings
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(B) identify selected symbols commonly used on engineering drawings	(i) identify selected symbols commonly used on engineering drawings
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(C) identify the components of engineering drawings	(i) identify the components of engineering drawings
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(D) read, interpret, and create engineering drawings	(i) read engineering drawings

Knowledge and Skill Statement	Student Expectation	Breakout
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(D) read, interpret, and create engineering drawings	(ii) interpret engineering drawings
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(D) read, interpret, and create engineering drawings	(iii) create engineering drawings
(7) The student applies mathematical principles of manufacturing processes. The student is expected to:	(E) use proper nomenclature when identifying engineering or manufacturing processes	(i) use proper nomenclature when identifying engineering or manufacturing processes

Subject	Chapter 127. Career Development, Subchapter B. High School
Course Title	§127.14. Career Preparation I (Two Credits), Adopted 2015
(a) General Requirements. General requirements. This course is recommended for students in Grades 11 and 12. Students shall be awarded two credits for successful completion of this course.	
(b) Introduction.	
<p>(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.</p> <p>(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.</p> <p>(3) Career Preparation I 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.</p> <p>(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.</p> <p>(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.</p>	

(c) Knowledge and Skills.		
Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(A) identify employment opportunities	(i) identify employment opportunities
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(B) demonstrate the application of essential workplace knowledge and skills	(i) demonstrate the application of essential workplace knowledge
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(B) demonstrate the application of essential workplace knowledge and skills	(ii) demonstrate the application of essential workplace skills
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(C) develop a resume	(i) develop a resume
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(D) demonstrate proper interview techniques in various situations	(i) demonstrate proper interview techniques in various situations
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(E) create and complete appropriate documents such as electronic portfolio, employment application, letter of intent, I-9 form, W-4 form, and thank you letters	(i) create appropriate documents

Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student demonstrates professional employability skills to gain an entry-level position. The student is expected to:	(E) create and complete appropriate documents such as electronic portfolio, employment application, letter of intent, I-9 form, W-4 form, and thank you letters	(ii) complete appropriate documents
(2) The student develops skills for success in the workplace. The student is expected to:	(A) identify and model appropriate grooming and appearance for the workplace	(i) identify appropriate grooming for the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(A) identify and model appropriate grooming and appearance for the workplace	(ii) identify appropriate appearance for the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(A) identify and model appropriate grooming and appearance for the workplace	(iii) model appropriate grooming for the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(A) identify and model appropriate grooming and appearance for the workplace	(iv) model appropriate appearance for the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(B) demonstrate dependability, punctuality, and initiative	(i) demonstrate dependability
(2) The student develops skills for success in the workplace. The student is expected to:	(B) demonstrate dependability, punctuality, and initiative	(ii) demonstrate punctuality
(2) The student develops skills for success in the workplace. The student is expected to:	(B) demonstrate dependability, punctuality, and initiative	(iii) demonstrate initiative

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student develops skills for success in the workplace. The student is expected to:	(C) research positive interpersonal skills, including respect for diversity	(i) research positive interpersonal skills, including respect for diversity
(2) The student develops skills for success in the workplace. The student is expected to:	(D) model appropriate business and personal etiquette in the workplace	(i) model appropriate business etiquette in the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(D) model appropriate business and personal etiquette in the workplace	(ii) model appropriate personal etiquette in the workplace
(2) The student develops skills for success in the workplace. The student is expected to:	(E) exhibit productive work habits, ethical practices, and a positive attitude	(i) exhibit productive work habits
(2) The student develops skills for success in the workplace. The student is expected to:	(E) exhibit productive work habits, ethical practices, and a positive attitude	(ii) exhibit ethical practices
(2) The student develops skills for success in the workplace. The student is expected to:	(E) exhibit productive work habits, ethical practices, and a positive attitude	(iii) exhibit a positive attitude
(2) The student develops skills for success in the workplace. The student is expected to:	(F) demonstrate the ability to work with other employees to support the organization and complete assigned tasks	(i) demonstrate the ability to work with other employees to support the organization
(2) The student develops skills for success in the workplace. The student is expected to:	(F) demonstrate the ability to work with other employees to support the organization and complete assigned tasks	(ii) demonstrate the ability to work with other employees to complete assigned tasks

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student develops skills for success in the workplace. The student is expected to:	(G) identify how to prioritize work to fulfill responsibilities and meet deadlines	(i) identify how to prioritize work to fulfill responsibilities
(2) The student develops skills for success in the workplace. The student is expected to:	(G) identify how to prioritize work to fulfill responsibilities and meet deadlines	(ii) identify how to prioritize work to meet deadlines
(2) The student develops skills for success in the workplace. The student is expected to:	(H) evaluate the relationship of good physical and mental health to job success and personal achievement	(i) evaluate the relationship of good physical health to job success
(2) The student develops skills for success in the workplace. The student is expected to:	(H) evaluate the relationship of good physical and mental health to job success and personal achievement	(ii) evaluate the relationship of good physical health to personal achievement
(2) The student develops skills for success in the workplace. The student is expected to:	(H) evaluate the relationship of good physical and mental health to job success and personal achievement	(iii) evaluate the relationship of good mental health to job success
(2) The student develops skills for success in the workplace. The student is expected to:	(H) evaluate the relationship of good physical and mental health to job success and personal achievement	(iv) evaluate the relationship of good mental health to personal achievement
(2) The student develops skills for success in the workplace. The student is expected to:	(I) demonstrate effective methods to secure, maintain, and terminate employment	(i) demonstrate effective methods to secure employment
(2) The student develops skills for success in the workplace. The student is expected to:	(I) demonstrate effective methods to secure, maintain, and terminate employment	(ii) demonstrate effective methods to maintain employment

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student develops skills for success in the workplace. The student is expected to:	(I) demonstrate effective methods to secure, maintain, and terminate employment	(iii) demonstrate effective methods to terminate employment
(2) The student develops skills for success in the workplace. The student is expected to:	(J) develop soft skills in a working environment	(i) develop soft skills in a working environment
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(A) illustrate how personal integrity affects human relations on the job	(i) illustrate how personal integrity affects human relations on the job
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(B) research characteristics of successful working relationships such as teamwork, conflict resolution, self-control, and ability to accept criticism	(i) research characteristics of successful working relationships
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(C) discuss and analyze employer expectations	(i) discuss employer expectations
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(C) discuss and analyze employer expectations	(ii) analyze employer expectations

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(D) demonstrate respect for the rights of others	(i) demonstrate respect for the rights of others
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(E) develop listening skills	(i) develop listening skills
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(F) apply effective listening skills used in the workplace	(i) apply effective listening skills used in the workplace
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(G) identify ethical standards	(i) identify ethical standards
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(H) comply with organizational policies and procedures	(i) comply with organizational policies
(3) The student discusses work ethics, employer expectations, interactions with diverse populations, and communication skills in the workplace. The student is expected to:	(H) comply with organizational policies and procedures	(ii) comply with organizational procedures

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies academic skills to the workplace. The student is expected to:	(A) apply mathematical skills to business transactions	(i) apply mathematical skills to business transactions
(4) The student applies academic skills to the workplace. The student is expected to:	(B) develop a personal budget based on a career choice	(i) develop a personal budget based on a career choice
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(i) interpret data from tables to estimate solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(ii) interpret data from tables to find solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(iii) interpret data from charts to estimate solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(iv) interpret data from charts to find solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(v) interpret data from graphs to estimate solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(C) interpret data from tables, charts, and graphs to estimate and find solutions to problems	(vi) interpret data from graphs to find solutions to problems
(4) The student applies academic skills to the workplace. The student is expected to:	(D) organize, write, and compile workplace business documents	(i) organize workplace business documents

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies academic skills to the workplace. The student is expected to:	(D) organize, write, and compile workplace business documents	(ii) write workplace business documents
(4) The student applies academic skills to the workplace. The student is expected to:	(D) organize, write, and compile workplace business documents	(iii) compile workplace business documents
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(A) research and compare published workplace policies and procedures	(i) research published workplace policies
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(A) research and compare published workplace policies and procedures	(ii) research published workplace procedures
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(A) research and compare published workplace policies and procedures	(iii) compare published workplace policies
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(A) research and compare published workplace policies and procedures	(iv) compare published workplace procedures
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(B) demonstrate responsible and ethical behavior	(i) demonstrate responsible behavior

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(B) demonstrate responsible and ethical behavior	(ii) demonstrate ethical behavior
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(C) summarize provisions of the Fair Labor Standards Act	(i) summarize provisions of the Fair Labor Standards Act
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(D) describe the consequences of "breach of confidentiality"	(i) describe the consequences of "breach of confidentiality"
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(E) research and describe laws related to different careers	(i) research laws related to different careers
(5) The student applies the ethical code of conduct and legal responsibilities within the workplace. The student is expected to:	(E) research and describe laws related to different careers	(ii) describe laws related to different careers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(i) identify effective interpersonal skills with coworkers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(ii) identify effective interpersonal skills with managers

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(iii) identify effective interpersonal skills with customers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(iv) identify effective team-building skills with coworkers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(v) identify effective team-building skills with managers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(vi) identify effective team-building skills with customers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(vii) practice effective interpersonal skills with coworkers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(viii) practice effective interpersonal skills with managers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(ix) practice effective interpersonal skills with customers

Knowledge and Skill Statement	Student Expectation	Breakout
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(x) practice effective team-building skills with coworkers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(xi) practice effective team-building skills with managers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(A) identify and practice effective interpersonal and team-building skills with coworkers, managers, and customers	(xii) practice effective team-building skills with customers
(6) The student applies the use of self-development techniques and interpersonal skills. The student is expected to:	(B) develop effective leadership skills through participation in activities such as career and technical student organizations	(i) develop effective leadership skills through participation in activities
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(A) identify and apply safe working practices related to the workplace	(i) identify safe working practices related to the workplace
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(A) identify and apply safe working practices related to the workplace	(ii) apply safe working practices related to the workplace
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(B) demonstrate knowledge of personal and occupational safety practices in the workplace	(i) demonstrate knowledge of personal safety practices in the workplace
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(B) demonstrate knowledge of personal and occupational safety practices in the workplace	(ii) demonstrate knowledge of occupational safety practices in the workplace

Knowledge and Skill Statement	Student Expectation	Breakout
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(C) offer solutions related to unsafe work practices and attitudes	(i) offer solutions related to unsafe work practices
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(C) offer solutions related to unsafe work practices and attitudes	(ii) offer solutions related to unsafe work attitudes
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(D) explain Occupational Safety and Health Administration regulations in the workplace	(i) explain Occupational Safety and Health Administration regulations in the workplace
(7) The student applies concepts and skills related to safety in the workplace. The student is expected to:	(E) determine health and wellness practices that influence job performance	(i) 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	(i) analyze the future employment outlook in the occupational area
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(B) describe entrepreneurial opportunities in the occupational area	(i) describe entrepreneurial opportunities in the occupational area
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(C) compare rewards and demands for various levels of employment in a variety of careers	(i) compare rewards for various levels of employment in a variety of careers
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(C) compare rewards and demands for various levels of employment in a variety of careers	(ii) compare demands for various levels of employment in a variety of careers

Knowledge and Skill Statement	Student Expectation	Breakout
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(D) evaluate strategies for career retention and advancement in response to the changing global workplace	(i) evaluate strategies for career retention in response to the changing global workplace
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(D) evaluate strategies for career retention and advancement in response to the changing global workplace	(ii) evaluate strategies for career advancement in response to the changing global workplace
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(E) summarize the rights and responsibilities of employers and employees	(i) summarize the rights of employers
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(E) summarize the rights and responsibilities of employers and employees	(ii) summarize the rights of employees
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(E) summarize the rights and responsibilities of employers and employees	(iii) summarize the responsibilities of employers
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(E) summarize the rights and responsibilities of employers and employees	(iv) summarize the responsibilities of employees
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(F) determine effective money-management and financial-planning techniques	(i) determine effective money-management techniques

Knowledge and Skill Statement	Student Expectation	Breakout
(8) The student evaluates personal attitudes and work habits that support career retention and advancement. The student is expected to:	(F) determine effective money-management and financial-planning techniques	(ii) determine effective financial-planning techniques
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment options, including salaries and benefits	(i) evaluate employment options, including salaries
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment options, including salaries and benefits	(ii) evaluate employment options, including benefits
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment options, including salaries and benefits	(iii) compare employment options, including salaries
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment options, including salaries and benefits	(iv) compare employment options, including benefits
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(B) determine how interests, abilities, personal priorities, and family responsibilities affect career choices	(i) determine how interests affect career choices
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(B) determine how interests, abilities, personal priorities, and family responsibilities affect career choices	(ii) determine how abilities affect career choices

Knowledge and Skill Statement	Student Expectation	Breakout
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(B) determine how interests, abilities, personal priorities, and family responsibilities affect career choices	(iii) determine how personal priorities affect career choices
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(B) determine how interests, abilities, personal priorities, and family responsibilities affect career choices	(iv) determine how family responsibilities affect career choices
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(C) determine continuing education opportunities that enhance career advancement and promote lifelong learning	(i) determine continuing education opportunities that enhance career advancement
(9) The student identifies skills and attributes necessary for professional advancement. The student is expected to:	(C) determine continuing education opportunities that enhance career advancement and promote lifelong learning	(ii) determine continuing education opportunities that promote lifelong learning

Subject	Chapter 127. Career Development, Subchapter B. High School
Course Title	§127.15. Career Preparation II (Two Credits), Adopted 2015
(a) General Requirements. This course is recommended for students in Grade 12. Prerequisite: Career Preparation I. Students shall be awarded two credits for successful completion of this course.	
(b) Introduction.	
<p>(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.</p> <p>(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.</p> <p>(3) Career Preparation II develops essential knowledge and skills through advanced classroom instruction with business and industry employment experiences. Career Preparation II maintains relevance and rigor, supports student attainment of academic standards, and effectively prepares students for college and career success.</p> <p>(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.</p> <p>(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.</p>	

(c) Knowledge and Skills.		
Knowledge and Skill Statement	Student Expectation	Breakout
(1) The student uses and evaluates employability skills to improve marketability within the workplace. The student is expected to:	(A) refine a professional electronic portfolio, such as a two- to four-year individual career plan of study, resume, cover letter, awards, commendations, and thank you letters	(i) refine a professional electronic portfolio
(1) The student uses and evaluates employability skills to improve marketability within the workplace. The student is expected to:	(B) obtain letters of recommendation	(i) obtain letters of recommendation
(1) The student uses and evaluates employability skills to improve marketability within the workplace. The student is expected to:	(C) expand personal communication skills	(i) expand personal communication skills
(1) The student uses and evaluates employability skills to improve marketability within the workplace. The student is expected to:	(D) refine interview skills	(i) 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	(i) maintain appropriate grooming for the workplace
(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	(ii) maintain appropriate appearance for the workplace

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(B) demonstrate positive interpersonal skills, including respect for diversity	(i) demonstrate positive interpersonal skills, including respect for diversity
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(C) demonstrate appropriate business and personal etiquette in the workplace	(i) demonstrate appropriate business etiquette in the workplace
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(C) demonstrate appropriate business and personal etiquette in the workplace	(ii) demonstrate appropriate personal etiquette in the workplace
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(D) exhibit productive work habits, attitudes, and ethical practices	(i) exhibit productive work habits
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(D) exhibit productive work habits, attitudes, and ethical practices	(ii) exhibit productive attitudes
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(D) exhibit productive work habits, attitudes, and ethical practices	(iii) exhibit productive ethical practices
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(E) evaluate consequences for breach of personal and occupational safety practices in the workplace	(i) evaluate consequences for breach of personal safety practices in the workplace

Knowledge and Skill Statement	Student Expectation	Breakout
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(E) evaluate consequences for breach of personal and occupational safety practices in the workplace	(ii) evaluate consequences for breach of occupational safety practices in the workplace
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(F) prioritize work to fulfill responsibilities and meet deadlines	(i) prioritize work to fulfill responsibilities
(2) The student demonstrates professional employability skills as required by business and industry. The student is expected to:	(F) prioritize work to fulfill responsibilities and meet deadlines	(ii) prioritize work to 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	(i) evaluate personal integrity in the workplace
(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	(ii) evaluate its effects on human relations in the workplace
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(B) evaluate characteristics of successful working relationships such as teamwork, conflict resolution, self-control, and the ability to accept criticism	(i) evaluate characteristics of successful working relationships

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(C) recognize and appreciate diversity in the workplace	(i) recognize diversity in the workplace
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(C) recognize and appreciate diversity in the workplace	(ii) appreciate diversity in the workplace
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(D) analyze employer expectations	(i) analyze employer expectations
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(E) exhibit productive work habits and attitudes	(i) exhibit productive work habits
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(E) exhibit productive work habits and attitudes	(ii) exhibit productive work attitudes
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(F) communicate effectively to a variety of audiences	(i) communicate effectively to a variety of audiences

Knowledge and Skill Statement	Student Expectation	Breakout
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(G) analyze ethical standards	(i) analyze ethical standards
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(H) comply with organizational policies and procedures	(i) comply with organizational policies
(3) The student applies work ethics, job expectations, multicultural considerations, and communication skills in the workplace. The student is expected to:	(H) comply with organizational policies and procedures	(ii) comply with organizational 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	(i) apply critical-thinking skills to solve complex problems
(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	(ii) apply creative-thinking skills to solve complex problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(B) integrate mathematical concepts into business transactions	(i) integrate mathematical concepts into business transactions
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(i) analyze data from tables to find solutions to problems

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(ii) analyze data from charts to find solutions to problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(iii) analyze data from graphs to find solutions to problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(iv) apply data from tables to find solutions to problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(v) apply data from charts to find solutions to problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(C) analyze and apply data from tables, charts, and graphs to find solutions to problems	(vi) apply data from graphs to find solutions to problems
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(D) apply effective listening skills used in the workplace	(i) apply effective listening skills used in the workplace
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(E) read and write technical reports and summaries	(i) read technical reports

Knowledge and Skill Statement	Student Expectation	Breakout
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(E) read and write technical reports and summaries	(ii) read technical summaries
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(E) read and write technical reports and summaries	(iii) write technical reports
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(E) read and write technical reports and summaries	(iv) write technical summaries
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(F) apply effective verbal, nonverbal, written, and electronic communication skills	(i) apply effective verbal communication skills
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(F) apply effective verbal, nonverbal, written, and electronic communication skills	(ii) apply effective nonverbal communication skills
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(F) apply effective verbal, nonverbal, written, and electronic communication skills	(iii) apply effective written communication skills
(4) The student applies and enhances academic knowledge and skills in the workplace. The student is expected to:	(F) apply effective verbal, nonverbal, written, and electronic communication skills	(iv) apply effective electronic communication skills

Knowledge and Skill Statement	Student Expectation	Breakout
(5) The student recognizes legal responsibilities of the workplace. The student is expected to:	(A) evaluate provisions of the Fair Labor Standards Act	(i) evaluate provisions of the Fair Labor Standards Act
(5) The student recognizes legal responsibilities of the workplace. The student is expected to:	(B) analyze the legal consequences of "breach of confidentiality"	(i) analyze the legal consequences of "breach of confidentiality"
(5) The student recognizes legal responsibilities of the workplace. The student is expected to:	(C) research and describe laws governing the different professions	(i) research laws governing the different professions
(5) The student recognizes legal responsibilities of the workplace. The student is expected to:	(C) research and describe laws governing the different professions	(ii) 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	(i) identify various methods criminals use to obtain information
(6) The student recognizes the dangers of identity theft. The student is expected to:	(B) research how to avoid becoming a victim	(i) research how to avoid becoming a victim
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(i) evaluate effective interpersonal skills involving situations with coworkers
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(ii) evaluate effective team-building skills involving situations with coworkers

Knowledge and Skill Statement	Student Expectation	Breakout
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(iii) evaluate effective interpersonal skills involving situations with managers
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(iv) evaluate effective team-building skills involving situations with managers
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(v) evaluate effective interpersonal skills involving situations with customers
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(A) evaluate effective interpersonal and team-building skills involving situations with coworkers, managers, and customers	(vi) evaluate effective team-building skills involving situations with customers
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(B) participate in leadership and career-development activities	(i) participate in leadership activities
(7) The student applies the use of interpersonal skills to improve personal development. The student is expected to:	(B) participate in leadership and career-development activities	(ii) participate in career-development activities
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(A) apply safe working practices to a training station	(i) apply safe working practices to a training station

Knowledge and Skill Statement	Student Expectation	Breakout
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(B) evaluate unsafe work practices and attitudes	(i) evaluate unsafe work practices
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(B) evaluate unsafe work practices and attitudes	(ii) evaluate unsafe work attitudes
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(C) evaluate the impact of Occupational Safety and Health Administration regulations in the workplace	(i) evaluate the impact of Occupational Safety and Health Administration regulations in the workplace
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(D) recognize the importance of applying safety rules in all situations	(i) recognize the importance of applying safety rules in all situations
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(E) analyze health and wellness practices that influence job performance	(i) analyze health practices that influence job performance
(8) The student recognizes knowledge and skills related to safety in the workplace. The student is expected to:	(E) analyze health and wellness practices that influence job performance	(ii) analyze wellness practices that influence job performance
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(A) research and identify current or emerging occupations	(i) research current or emerging occupations

Knowledge and Skill Statement	Student Expectation	Breakout
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(A) research and identify current or emerging occupations	(ii) identify current or emerging occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(B) analyze future employment outlook	(i) analyze future employment outlook
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(C) research entrepreneurial opportunities	(i) research entrepreneurial opportunities
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(D) analyze rewards and demands for various levels of employment	(i) analyze rewards for various levels of employment
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(D) analyze rewards and demands for various levels of employment	(ii) analyze demands for various levels of employment

Knowledge and Skill Statement	Student Expectation	Breakout
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(E) identify the academic and technical entry requirements for employment in various high-skill, high-wage, or high-demand occupations	(i) identify the academic entry requirements for employment in various high-skill, high-wage, or high-demand occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(E) identify the academic and technical entry requirements for employment in various high-skill, high-wage, or high-demand occupations	(ii) identify the technical entry requirements for employment in various high-skill, high-wage, or high-demand occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(F) identify and pursue opportunities available in high school and postsecondary to acquire the necessary academic and technical skills for employment in high-skill, high-wage, or high-demand occupations	(i) identify opportunities available in high school to acquire the necessary skills for employment in high-skill, high-wage, or high-demand occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(F) identify and pursue opportunities available in high school and postsecondary to acquire the necessary academic and technical skills for employment in high-skill, high-wage, or high-demand occupations	(ii) identify opportunities available in postsecondary to acquire the necessary skills for employment in high-skill, high-wage, or high-demand occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(F) identify and pursue opportunities available in high school and postsecondary to acquire the necessary academic and technical skills for employment in high-skill, high-wage, or high-demand occupations	(iii) pursue opportunities available in high school to acquire the necessary skills for employment in high-skill, high-wage, or high-demand occupations

Knowledge and Skill Statement	Student Expectation	Breakout
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(F) identify and pursue opportunities available in high school and postsecondary to acquire the necessary academic and technical skills for employment in high-skill, high-wage, or high-demand occupations	(iv) pursue opportunities available in postsecondary to acquire the necessary skills for employment in high-skill, high-wage, or high-demand occupations
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(G) evaluate the rights and responsibilities of employers and employees	(i) evaluate the rights of employers
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(G) evaluate the rights and responsibilities of employers and employees	(ii) evaluate the responsibilities of employers
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(G) evaluate the rights and responsibilities of employers and employees	(iii) evaluate the rights of employees
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(G) evaluate the rights and responsibilities of employers and employees	(iv) evaluate the responsibilities of employees

Knowledge and Skill Statement	Student Expectation	Breakout
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(H) apply money-management and financial-planning techniques	(i) apply money-management techniques
(9) The student acquires the academic and technical skills for future education and employment in high-skill, high-wage, or high-demand occupations. The student is expected to:	(H) apply money-management and financial-planning techniques	(ii) apply financial-planning techniques
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment advancement options such as salaries, benefits, and prerequisites	(i) evaluate employment advancement options
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(A) evaluate and compare employment advancement options such as salaries, benefits, and prerequisites	(ii) compare employment advancement options
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(B) compare rewards and demands for various levels of employment in a variety of careers	(i) compare rewards for various levels of employment in a variety of careers
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(B) compare rewards and demands for various levels of employment in a variety of careers	(ii) compare demands for various levels of employment in a variety of careers

Knowledge and Skill Statement	Student Expectation	Breakout
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(C) determine continuing education opportunities that enhance career advancement and promote lifelong learning	(i) determine continuing education opportunities that enhance career advancement
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(C) determine continuing education opportunities that enhance career advancement and promote lifelong learning	(ii) determine continuing education opportunities that promote lifelong learning
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(D) determine preparation requirements for levels of employment in a variety of careers	(i) determine preparation requirements for levels of employment in a variety of careers
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(E) determine personal priorities such as interests, abilities, and family responsibilities affecting career choice	(i) determine personal priorities
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(F) demonstrate effective methods to secure, maintain, and terminate employment	(i) demonstrate effective methods to secure employment
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(F) demonstrate effective methods to secure, maintain, and terminate employment	(ii) demonstrate effective methods to maintain employment
(10) The student identifies skills and characteristics necessary for professional advancement. The student is expected to:	(F) demonstrate effective methods to secure, maintain, and terminate employment	(iii) demonstrate effective methods to terminate employment