# Scope & Sequence

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| **Course Name:** Practicum in Manufacturing/ExtendedPracticum in Manufacturing  **TSDS PEIMS Code:** 13033005 (First Time Taken)  13033015 (Second Time Taken) | | **Course Credit:** 3.0  **Course Requirements:** Grade Placement: 12  **Prerequisites:** None.  **Corequisites:** Practicum in Manufacturing. |
| **Course Description:** The Extended Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. This course must be taken concurrently with Practicum in Manufacturing and may not be taken as a stand-alone course. Students shall be awarded one credit for successful completion of this course. | | |
| **NOTE 1:** The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Manufacturing Career Cluster. This is a suggested scope and sequence for the course content. This content will work with any textbook, instructional materials or practicum experience. If locally adapted, make sure all TEKS are covered.  **NOTE 2:** Completion of skill sets may be demonstrated throughout the practicum. Therefore, content based on the TEKS does not have to be delivered sequentially. The major reason students take a practicum is to provide additional time on task for learning specialized skills. In most cases where the Extended Practicum is added to the Practicum, it is because the student is spending more than 15 hours per week at his/her training station (place of employment or internship).  **NOTE 3:** The information in this scope and sequence document does not describe detailed activities, because the activities will vary from student to student and training station to training station. The intent is that students incorporate and use previously learned knowledge and skills related to the career cluster. | | |
| **Practicum Plan** | **TEKS Covered**  **130.366. (c) Knowledge and skills.** | |
| **Section 1: Pre-Practicum**  Prior to beginning practicums, students will review and discuss professional standards and employers’ expectations, personal and workplace safety and emergency procedures, effective problem-solving strategies, positive interpersonal skills, ethical conduct, etiquette, and effective communication skills. Students will also discuss appropriate technical and academic skills required for the practicum, and put into place strategies for mastering any/all skills necessary to manage and perform work/practicum responsibilities.  Also prior to beginning their practicum experiences, students will agree to adhere to policies and procedures, demonstrate positive work attitudes and behaviors, including punctuality, time management, initiative, and cooperation, make ethical decisions, and to comply with all applicable rules, laws, and regulations in a consistent manner. Students will also review and discuss professional communications strategies and practices, such as demonstrating the ability to communicate appropriately and accept constructive criticism as well as professional appearance such as dress, grooming, and personal protective equipment as appropriate.  Students, supervising instructors, and practicum experience supervisors will read and review locally created practicum checklist(s). Parents/guardians will also be provided with a copy. Checklist(s) will include all relevant TEKS along with rubrics for supervisor evaluations and student self-evaluations. Students will read, discuss, and demonstrate an understanding of the provided checklist and rubric criteria before beginning their practicum experiences. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) identify and apply the employer's standard operating procedures;  (B) demonstrate positive work behaviors such as attitudes, punctuality, time management, initiative, and cooperation;  (C) communicate appropriately and accept constructive criticism;  (D) research and discuss business ethics;  (E) complete tasks such as quality products and services with the highest standards;  (F) model professional appearance such as dress, grooming, and personal protective equipment as appropriate; and  (G) comply with safety rules such as regulations to maintain safe working conditions and environments appropriate to the work setting.  (2) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) analyze elements of a problem; and  (B) analyze information critically to determine its value.  (3) The student demonstrates leadership and teamwork skills in collaborating with others to accomplish goals and objectives. The student is expected to:  (B) demonstrate teamwork skills through working cooperatively with others to achieve tasks;  (C) demonstrate teamwork processes such as promoting team building, consensus, continuous improvement, respect for the opinions of others, cooperation, adaptability, and conflict resolution; and  (E) establish and maintain effective working relationships.  (4) The student demonstrates oral and written communication skills. The student is expected to:  (A) demonstrate the use of content such as technical concepts and vocabulary;  (B) employ verbal skills when obtaining and conveying information;  (C) use informational texts such as Internet websites and technical materials for occupational tasks;  (D) evaluate the reliability of information such as Internet websites, technical materials, and resources;  (E) interpret verbal and nonverbal cues and behaviors to enhance communication;  (F) apply active listening skills such as obtaining and clarifying the information; and  (G) use academic skills such as effective written and oral communication.  (5) The student demonstrates technical knowledge and skills required to pursue a career in the manufacturing cluster. The student is expected to:  (A) use information literacy skills such as accessing, evaluating, and disseminating information;  (E) prioritize tasks; and  (F) develop timelines using time-management skills. | |
| **Section 2: TEKS Checklist Components: Practicum in Manufacturing**  Students, parents/guardians, and instructional/workplace supervisors will review, understand, and agree to a checklist of practicum objectives. Checklists may be locally adapted/modified, but all corresponding TEKS Checklist Components must be addressed. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) identify and apply the employer's standard operating procedures;  (B) demonstrate positive work behaviors such as attitudes, punctuality, time management, initiative, and cooperation;  (C) communicate appropriately and accept constructive criticism;  (E) complete tasks such as quality products and services with the highest standards;  (F) model professional appearance such as dress, grooming, and personal protective equipment as appropriate; and  (G) comply with safety rules such as regulations to maintain safe working conditions and environments appropriate to the work setting.  (2) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) analyze elements of a problem; and  (B) analyze information critically to determine its value.  (3) The student demonstrates leadership and teamwork skills in collaborating with others to accomplish goals and objectives. The student is expected to:  (B) demonstrate teamwork skills through working cooperatively with others to achieve tasks;  (C) demonstrate teamwork processes such as promoting team building, consensus, continuous improvement, respect for the opinions of others, cooperation, adaptability, and conflict resolution;  (D) demonstrate responsibility for organization tasks such as shared group and individual work tasks; and  (E) establish and maintain effective working relationships.  (4) The student demonstrates oral and written communication skills. The student is expected to:  (A) demonstrate the use of content such as technical concepts and vocabulary;  (B) employ verbal skills when obtaining and conveying information;  (C) use informational texts such as Internet websites and technical materials for occupational tasks;  (D) evaluate the reliability of information such as Internet websites, technical materials, and resources;  (E) interpret verbal and nonverbal cues and behaviors to enhance communication;  (F) apply active listening skills such as obtaining and clarifying the information; and  (G) use academic skills such as effective written and oral communication.  (5) The student demonstrates technical knowledge and skills required to pursue a career in the manufacturing cluster. The student is expected to:  (A) use information literacy skills such as accessing, evaluating, and disseminating information;  (C) maintain records to facilitate ongoing business operations;  (D) develop goals;  (E) prioritize tasks;  (F) develop timelines using time-management skills;  (G) use project-management skills such as initiate, plan, execute, monitor and control, and close to improve workflow;  (H) evaluate proficiencies in technical skills; and  (I) accept critical feedback provided by the supervisor.  (6) The student documents technical knowledge and skills using a professional portfolio. The student is expected to:  (A) demonstrate growth of technical skill competencies;  (E) collect representative work samples; and  (F) maintain copies of evaluations from the practicum supervisor and/or industrial representative. | |
| **Section 3: Critical Thinking and Problem-Solving: Practicum Check-In 1**  Students will discuss and demonstrate critical-thinking and problem-solving skills as they participate in check-in(s) with supervisors throughout their practicum experiences. Students will analyze and evaluate their practicum experiences as they describe how they have applied critical-thinking and problem-solving skills as well as interpersonal skills independently and in groups to solve problems they may have encountered or may still encounter. Students will also be encouraged to conduct technical research to discuss and predict what other decision-making skills will be necessary for a successful practicum experience as well as a successful career in manufacturing.  Students will also use appropriate technology and reliable information sources to analyze and describe information management uses in the manufacturing cluster. Students will prepare a brief presentation describing their findings, and discuss their presentation with their supervising instructor. | (2) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) analyze elements of a problem;  (B) analyze information critically to determine its value; and  (C) conduct technical research to gather information for decision making.  (4) The student demonstrates oral and written communication skills. The student is expected to:  (A) demonstrate the use of content such as technical concepts and vocabulary;  (B) employ verbal skills when obtaining and conveying information;  (C) use informational texts such as Internet websites and technical materials for occupational tasks;  (D) evaluate the reliability of information such as Internet websites, technical materials, and resources; and  (G) use academic skills such as effective written and oral communication.  (5) The student demonstrates technical knowledge and skills required to pursue a career in the manufacturing cluster. The student is expected to:  (A) use information literacy skills such as accessing, evaluating, and disseminating information;  (B) describe information management;  (E) prioritize tasks; and  (F) develop timelines using time-management skills. | |
| **Section 4: Check List Progress and Leadership Activities: Check-In 2**  During this check-in, students will discuss and self-evaluate their practicum check list progress as well as any questions or problems they may have encountered. Students will describe how they have applied or will apply critical-thinking and problem-solving skills as well as interpersonal skills independently and in groups to solve problems they may have encountered or may still encounter. Students will also use appropriate technology to research and analyze leadership characteristics as well as teamwork processes. Students will also research leadership and teamwork opportunities and other benefits offered by CTSO and/or other extracurricular student activities, and prepare and effectively present a brief oral and/or written report on a CTSO or other extracurricular organization they may be willing to join or are already participating in. | (2) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) analyze elements of a problem;  (B) analyze information critically to determine its value; and  (C) conduct technical research to gather information for decision making.  (3) The student demonstrates leadership and teamwork skills in collaborating with others to accomplish goals and objectives. The student is expected to:  (A) analyze leadership characteristics such as trust, positive attitude, integrity, and willingness to accept key responsibilities in a work situation;  (B) demonstrate teamwork skills through working cooperatively with others to achieve tasks; and  (C) demonstrate teamwork processes such as promoting team building, consensus, continuous improvement, respect for the opinions of others, cooperation, adaptability, and conflict resolution.  (4) The student demonstrates oral and written communication skills. The student is expected to:  (A) demonstrate the use of content such as technical concepts and vocabulary;  (B) employ verbal skills when obtaining and conveying information;  (C) use informational texts such as Internet websites and technical materials for occupational tasks;  (D) evaluate the reliability of information such as Internet websites, technical materials, and resources; and  (G) use academic skills such as effective written and oral communication. | |
| **Section 5: Career Skills and Practicum Culminating Activities**  During their practicum experience, students will use appropriate technology and/or assigned materials to review and self-evaluate practicum learning activities as well as their own personal qualities, technical knowledge and competencies, training, education, and/or preparation for licensure, certification, or other relevant credentials. Students will then develop an abstract of key points of the practicum and create a job-skills resume.  Students will also present a professional portfolio, and demonstrate to their supervising instructor effective communications skills as they present their practicum- and self-evaluations as well as their work samples, resumes, and portfolios. | (4) The student demonstrates oral and written communication skills. The student is expected to:  (A) demonstrate the use of content such as technical concepts and vocabulary;  (B) employ verbal skills when obtaining and conveying information; and  (G) use academic skills such as effective written and oral communication.  (6) The student documents technical knowledge and skills using a professional portfolio. The student is expected to:  (A) demonstrate growth of technical skill competencies;  (B) demonstrate technical knowledge and skills by completing activities such as earning licensures or certifications;  (C) develop an abstract of key points of the practicum;  (D) create a job-skills resume;  (E) collect representative work samples;  (F) maintain copies of evaluations from the practicum supervisor and/or industrial representative; and  (G) present the portfolio to interested stakeholders. | |
| **Extended Practicum Plan** | **TEKS Covered**  **130.367. (c) Knowledge and skills.** | |
| **Section 1: Pre-Practicum**  Prior to beginning practicums, students will review and discuss professional standards and employers’ expectations, personal and workplace safety and emergency procedures, effective problem-solving strategies, positive interpersonal skills, ethical conduct, integrity, and effective communication skills. Students will also discuss appropriate technical and academic skills required for the practicum, and put into place strategies for mastering any/all skills necessary to manage and perform work/practicum responsibilities.  Also prior to beginning their practicum experiences, students will agree to adhere to policies and procedures, demonstrate positive work attitudes and behaviors, employ effective time management, make ethical decisions, and comply with all applicable rules, laws, and regulations in a consistent manner. Students will also review and discuss professional communications strategies and practices, such as applying active listening skills to obtain and clarify information.  Students, supervising instructors, and practicum experience supervisors will read and review locally created practicum checklist(s). Parents/guardians will also be provided with a copy. Checklist(s) will include all relevant TEKS along with rubrics for supervisor evaluations and student self-evaluations. Students will read, discuss, and demonstrate an understanding of the provided checklist and rubric criteria before beginning their practicum experiences. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) participate in a paid or unpaid, laboratory- or work-based application of previously studied knowledge and skills related to manufacturing;  (B) participate in training, education, or preparation for licensure, certification, or other relevant credentials to prepare for employment;  (C) demonstrate professional standards and personal qualities needed to be employable such as self-discipline, positive attitude, integrity, leadership, appreciation for diversity, customer service, work ethic, and adaptability with increased fluency;  (D) use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications with increased fluency;  (E) employ teamwork and conflict-management skills with increased fluency to achieve collective goals; and  (F) employ planning and time-management skills and tools with increased fluency to enhance results and complete work tasks.  (2) The student implements advanced professional communications strategies. The student is expected to:  (A) demonstrate verbal and non-verbal communication consistently in a clear, concise, and effective manner;  (B) analyze, interpret, and effectively communicate information, data, and observations;  (C) observe and interpret verbal and nonverbal cues and behaviors to enhance communication; and  (D) apply active listening skills to obtain and clarify information.  (3) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) employ critical-thinking skills with increased fluency both independently and in groups to solve problems and make decisions; and  (B) analyze elements of a problem to develop creative and innovative solutions.  (4) The student understands and applies proper safety techniques in the workplace. The student is expected to:  (A) demonstrate an understanding of and consistently follow workplace safety rules and regulations; and  (B) demonstrate knowledge of procedures for reporting and handling accidents and safety incidents.  (5) The student understands the professional, ethical, and legal responsibilities in teaching and training. The student is expected to:  (A) demonstrate a positive, productive work ethic by performing assigned tasks as directed;  (B) apply ethical reasoning to a variety of situations in order to make ethical decisions; and  (C) comply with all applicable rules, laws, and regulations in a consistent manner. | |
| **Section 2: TEKS Checklist Components: Extended Practicum in Manufacturing**  Students, parents/guardians, and instructional/workplace supervisors will review, understand, and agree to a checklist of practicum objectives. Checklists may be locally adapted/modified, but all corresponding TEKS Checklist Components must be addressed. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) participate in a paid or unpaid, laboratory- or work-based application of previously studied knowledge and skills related to manufacturing;  (B) participate in training, education, or preparation for licensure, certification, or other relevant credentials to prepare for employment;  (C) demonstrate professional standards and personal qualities needed to be employable such as self-discipline, positive attitude, integrity, leadership, appreciation for diversity, customer service, work ethic, and adaptability with increased fluency;  (D) use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications with increased fluency;  (E) employ teamwork and conflict-management skills with increased fluency to achieve collective goals; and  (F) employ planning and time-management skills and tools with increased fluency to enhance results and complete work tasks.  (2) The student implements advanced professional communications strategies. The student is expected to:  (A) demonstrate verbal and non-verbal communication consistently in a clear, concise, and effective manner;  (B) analyze, interpret, and effectively communicate information, data, and observations;  (C) observe and interpret verbal and nonverbal cues and behaviors to enhance communication; and  (D) apply active listening skills to obtain and clarify information.  (3) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) employ critical-thinking skills with increased fluency both independently and in groups to solve problems and make decisions; and  (B) analyze elements of a problem to develop creative and innovative solutions.  (4) The student understands and applies proper safety techniques in the workplace. The student is expected to:  (A) demonstrate an understanding of and consistently follow workplace safety rules and regulations; and  (B) demonstrate knowledge of procedures for reporting and handling accidents and safety incidents.  (5) The student understands the professional, ethical, and legal responsibilities in teaching and training. The student is expected to:  (A) demonstrate a positive, productive work ethic by performing assigned tasks as directed;  (B) apply ethical reasoning to a variety of situations in order to make ethical decisions; and  (C) comply with all applicable rules, laws, and regulations in a consistent manner. | |
| **Section 3: Critical Thinking and Problem-Solving: Practicum Check-Ins**  Students will discuss and demonstrate critical-thinking and problem-solving skills as they participate in check-in(s) with supervisors throughout their practicum experiences. Students will analyze and evaluate their practicum experiences as they describe how they have applied critical-thinking and problem-solving skills as well as interpersonal skills independently and in groups to solve problems they may have encountered or may still encounter. Students will also be encouraged to analyze elements of a problem or problems to develop creative and innovative solutions. In addition, students will apply concepts of critical-thinking and problem-solving as they conduct technical research to discuss and predict what other decision-making skills will be necessary for a successful practicum experience as well as a successful career in manufacturing. | (2) The student implements advanced professional communications strategies. The student is expected to:  (A) demonstrate verbal and non-verbal communication consistently in a clear, concise, and effective manner.  (3) The student applies concepts of critical thinking and problem solving. The student is expected to:  (A) employ critical-thinking skills with increased fluency both independently and in groups to solve problems and make decisions;  (B) analyze elements of a problem to develop creative and innovative solutions; and  (C) conduct technical research to gather information necessary for decision making.  (6) The student participates in a manufacturing experience. The student is expected to:  (A) conduct, document, and evaluate learning activities in a supervised manufacturing experience; and  (B) develop advanced technical knowledge and skills related to the student's occupational objective. | |
| **Section 4: Practicum Culminating Activities**  During their practicum experience, students will use appropriate technology and/or assigned materials to review and self-evaluate practicum learning activities as well as their own technical knowledge and competencies and training, education, and/or other preparation for licensure, certification, or other relevant credentials. Students will also demonstrate to their supervising instructor effective communications skills as they present their work samples and practicum- and self-evaluations.  In a course culminating activity, students will demonstrate growth of technical skills and/or other competencies to their supervising instructor. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) participate in a paid or unpaid, laboratory- or work-based application of previously studied knowledge and skills related to manufacturing; and  (B) participate in training, education, or preparation for licensure, certification, or other relevant credentials to prepare for employment.  (2) The student implements advanced professional communications strategies. The student is expected to:  (A) demonstrate verbal and non-verbal communication consistently in a clear, concise, and effective manner.  (6) The student participates in a manufacturing experience. The student is expected to:  (A) conduct, document, and evaluate learning activities in a supervised manufacturing experience;  (B) develop advanced technical knowledge and skills related to the student's occupational objective;  (C) demonstrate growth of technical skill competencies;  (D) evaluate strengths and weaknesses in technical skill proficiency; and  (E) collect representative work samples. | |