# Scope & Sequence

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| Course Name: Practicum in Construction Management **TSDS PEIMS Code:** 13006200 (First Time Taken)  13006210 (Second Time Taken) | **Course Credit:** 2.0  **Course Requirements:** Grade Placement 12.  **Prerequisites:** Construction Management II. |
| **Course Description:** Practicum in Construction Management is an occupationally specific course designed to provide classroom technical instruction or on-the-job training experiences. Safety and career opportunities are included in addition to work ethics and job-related study in the classroom. | |
| **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 Architecture & Construction 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. | |

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| **Practicum Plan** | **TEKS Covered**  **130.63. (c) Knowledge and Skills.** |

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| **Section 1: Pre-Practicum**  Prior to beginning practicums, students will review and discuss professional standards and employers’ expectations, personal and workplace safety, effective negotiation and problem-solving strategies, positive interpersonal skills, the principles of group participation and teamwork, appropriate work habits, ethical conduct, teamwork, and conflict-management skills. Students will also discuss the 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 and effective time management, and to comply with all applicable ethical and legal practices, rules, laws, and regulations in a consistent manner. Students will also review and discuss professional communications strategies and practices for effective working relationships, such as appropriate business and personal etiquette and professionalism through appropriate grooming and appearance.  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) demonstrate effective verbal, nonverbal, written, and electronic communication skills;  (C) demonstrate positive interpersonal skills, including conflict resolution, negotiation, teamwork, and leadership;  (E) demonstrate appropriate grooming and appearance for the workplace;  (F) demonstrate appropriate business and personal etiquette in the workplace; and  (G) exhibit productive work habits and attitudes.  (3) The student applies the appropriate codes, laws, standards, or regulations related to a research and development project. The student is expected to:  (A) identify areas where codes, laws, standards, or regulations may be required;  (B) locate the appropriate codes, laws, standards, or regulations; and  (C) interpret the appropriate codes, laws, standards, or regulations.  (7) The student applies knowledge and skills in communication, mathematics, and science to construction management activities. The student is expected to:  (A) write technical reports;  (B) deliver technical presentations to groups of individuals;  (C) apply the mathematical concepts used in projects; and  (D) apply the science concepts used in projects.  (9) The student uses advanced tools, materials, processes, and procedures in construction management. The student is expected to:  (A) determine and use the appropriate technology needed to solve a problem or complete a task; and  (B) evaluate the use of technology in a given situation.  (10) The student designs a project using appropriate design processes and techniques. The student is expected to:  (A) design an object or a service using an accepted design process;  (B) develop drawings, illustrations, or models; and  (C) establish design criteria and constraints.  (17) The student applies knowledge and skills in mathematics, science, English language arts, and social studies as they relate to construction management. The student is expected to:  (A) develop a school-based learning activity that provides an in-depth study of at least one aspect of construction management;  (B) establish at least one industry-related mentor for the school-based learning activity;  (C) present the product in at least two formats to a panel of students, teachers, and practitioners in construction management; and  (D) deliver a final product that demonstrates the use of a variety of resources, technologies, and communication skills.  (19) The student demonstrates ethical and legal practices for careers in construction management. The student is expected to:  (A) summarize the rights and responsibilities of employers and employees;  (B) exhibit ethical practices as defined in construction management; and  (C) analyze legal aspects of construction management. |
| **Section 2: TEKS Checklist Components for Practicum in Construction Management**  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) demonstrate effective verbal, nonverbal, written, and electronic communication skills;  (B) demonstrate effective methods to secure, maintain, and terminate employment;  (C) demonstrate positive interpersonal skills, including conflict resolution, negotiation, teamwork, and leadership;  (D) evaluate the relationship of good physical and mental health to job success and achievement;  (E) demonstrate appropriate grooming and appearance for the workplace;  (F) demonstrate appropriate business and personal etiquette in the workplace; and  (G) exhibit productive work habits and attitudes.  (2) The student develops a management plan for a project or an activity. The student is expected to:  (A) identify and describe the steps required to complete a project using project management processes, including initiating, planning, executing, monitoring and controlling, and closing a project;  (B) determine and acquire the resources needed to complete a project; and  (C) develop a project schedule.  (3) The student applies the appropriate codes, laws, standards, or regulations related to a research and development project. The student is expected to:  (A) identify areas where codes, laws, standards, or regulations may be required;  (B) locate the appropriate codes, laws, standards, or regulations; and  (C) interpret the appropriate codes, laws, standards, or regulations.  (4) The student describes the intended and unintended effects of construction management solutions. The student is expected to:  (A) use an assessment strategy to determine the risks and benefits of a research project; and  (B) describe how construction management has affected individuals, societies, cultures, economies, and environments.  (5) The student solves problems, thinks critically, and makes decisions related to research, design, and development. The student is expected to:  (A) develop or improve a product by following a problem-solving strategy;  (B) apply critical-thinking strategies to the analysis and evaluation of proposed technological solutions; and  (C) apply decision-making techniques to the selection of technological solutions.  (6) The student describes the costs associated with research and development activities. The student is expected to:  (A) develop a budget for a research and development project; and  (B) determine the most effective way to minimize project costs.  (7) The student applies knowledge and skills in communication, mathematics, and science to construction management activities. The student is expected to:  (A) write technical reports;  (B) deliver technical presentations to groups of individuals;  (C) apply the mathematical concepts used in projects; and  (D) apply the science concepts used in projects.  (8) The student predicts the marketability of a project, product, or service. The student is expected to:  (A) determine the customer's expectations concerning a project, product, or service;  (B) evaluate a project, product, or service to determine if it will meet the customer's expectations; and  (C) assess customer responses.  (9) The student uses advanced tools, materials, processes, and procedures in construction management. The student is expected to:  (A) determine and use the appropriate technology needed to solve a problem or complete a task;  (B) evaluate the use of technology in a given situation; and  (C) describe the factors that influence the use of technology in a variety of situations.  (10) The student designs a project using appropriate design processes and techniques. The student is expected to:  (A) design an object or a service using an accepted design process;  (B) develop drawings, illustrations, or models; and  (C) establish design criteria and constraints.  (11) The student predicts the impacts of emerging applications of construction technology. The student is expected to:  (A) describe the emerging technologies in a field; and  (B) identify the factors that may influence the adoption of emerging technologies.  (12) The student improves the quality of a product or service using different quality-control techniques. The student is expected to:  (A) define quality;  (B) assess the quality of a specific product or service; and  (C) determine how the quality of a product or service can be improved.  (13) The student recommends new ways to build products using different tools, equipment, machines, materials, and technical processes. The student is expected to:  (A) build products in a more efficient manner using a variety of tools, equipment, machines, materials, and processes; and  (B) demonstrate advanced construction-management skills.  (14) The student proposes safety devices required to complete different tasks. The student is expected to:  (A) recommend improvements to safety standards; and  (B) specify safety devices that allow for the safe completion of a task.  (15) The student performs advanced equipment maintenance. The student is expected to:  (A) maintain tools and materials correctly;  (B) locate and perform manufacturers' maintenance procedures on selected tools, equipment, and machines; and  (C) describe the results of negligent or improper maintenance.  (16) The student suggests how the cost of a project, product, or service can be reduced. The student is expected to:  (A) identify the factors that influence the cost of a project, product, or service; and  (B) select materials or processes that will reduce the cost of producing the product or delivering the service.  (17) The student applies knowledge and skills in mathematics, science, English language arts, and social studies as they relate to construction management. The student is expected to:  (A) develop a school-based learning activity that provides an in-depth study of at least one aspect of construction management;  (B) establish at least one industry-related mentor for the school-based learning activity;  (C) present the product in at least two formats to a panel of students, teachers, and practitioners in construction management; and  (D) deliver a final product that demonstrates the use of a variety of resources, technologies, and communication skills.  (18) The student determines employment opportunities and preparation requirements for careers in the construction-management industries. The student is expected to:  (A) determine preparation requirements for various levels of employment in a variety of careers in construction management;  (B) analyze the future employment outlook of construction management;  (C) describe entrepreneurial opportunities in construction management;  (D) determine how interests, abilities, personal priorities, and family responsibilities affect career choice;  (E) compare rewards and demands for various levels of employment in a variety of careers; and  (F) determine continuing education opportunities that enhance career advancement.  (19) The student demonstrates ethical and legal practices for careers in construction management. The student is expected to:  (A) summarize the rights and responsibilities of employers and employees;  (B) exhibit ethical practices as defined in construction management; and  (C) analyze legal aspects of construction management.  (20) The student selects the appropriate technological resources to conduct research, design, and development activities. The student is expected to:  (A) apply technology to individual or community problems;  (B) describe the factors that affect the purchase and use of items;  (C) differentiate among research, design, and development; and  (D) distinguish among adaptation, imitation, innovation, and invention. |
| **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 practicum instructional 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, and alternative solutions to possible problems they have encountered thus far or may still encounter. Students will also be encouraged to discuss and predict what math, technology, and other technical skills will be necessary for a successful practicum experience as well as a successful career in a construction management-related field.  As part of their practicum experience, students will use appropriate computer applications/technology to identify and describe the factors that influence the use of technology in a variety of situations, describe the functions and methodologies used in basic and applied research, and select the appropriate technological resources to conduct practicum research, design, and development activities. | (2) The student develops a management plan for a project or an activity. The student is expected to:  (A) identify and describe the steps required to complete a project using project management processes, including initiating, planning, executing, monitoring and controlling, and closing a project;  (B) determine and acquire the resources needed to complete a project; and  (C) develop a project schedule.  (4) The student describes the intended and unintended effects of construction management solutions. The student is expected to:  (A) use an assessment strategy to determine the risks and benefits of a research project; and  (B) describe how construction management has affected individuals, societies, cultures, economies, and environments.  (9) The student uses advanced tools, materials, processes, and procedures in construction management. The student is expected to:  (A) determine and use the appropriate technology needed to solve a problem or complete a task;  (B) evaluate the use of technology in a given situation; and  (C) describe the factors that influence the use of technology in a variety of situations.  (20) The student selects the appropriate technological resources to conduct research, design, and development activities. The student is expected to:  (A) apply technology to individual or community problems;  (B) describe the factors that affect the purchase and use of items;  (C) differentiate among research, design, and development; and  (D) distinguish among adaptation, imitation, innovation, and invention.  (21) The student designs or improves a product using appropriate design processes and techniques. The student is expected to:  (C) describe the functions and methodologies used in basic and applied research. |
| **Section 4: Check List Progress and Research 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 during their practicum. Students and supervising instructors will discuss course timelines and requirements as well as effective time management strategies for task completion.  As part of their practicum experiences, students will complete a research project that develops or improves a product by following a problem-solving strategy. The project will include a technical report with a description of the costs as well as the mathematical and science concepts associated with research and development activities, predictions of marketability, and factors that influence the cost. Students will discuss the project with their supervising instructor, develop a project portfolio, and deliver a technical presentation after completion. | (5) The student solves problems, thinks critically, and makes decisions related to research, design, and development. The student is expected to:  (A) develop or improve a product by following a problem-solving strategy;  (B) apply critical-thinking strategies to the analysis and evaluation of proposed technological solutions; and  (C) apply decision-making techniques to the selection of technological solutions.  (6) The student describes the costs associated with research and development activities. The student is expected to:  (A) develop a budget for a research and development project; and  (B) determine the most effective way to minimize project costs.  (7) The student applies knowledge and skills in communication, mathematics, and science to construction management activities. The student is expected to:  (A) write technical reports;  (B) deliver technical presentations to groups of individuals;  (C) apply the mathematical concepts used in projects; and  (D) apply the science concepts used in projects.  (8) The student predicts the marketability of a project, product, or service. The student is expected to:  (A) determine the customer's expectations concerning a project, product, or service;  (B) evaluate a project, product, or service to determine if it will meet the customer's expectations; and  (C) assess customer responses.  (16) The student suggests how the cost of a project, product, or service can be reduced. The student is expected to:  (A) identify the factors that influence the cost of a project, product, or service; and  (B) select materials or processes that will reduce the cost of producing the product or delivering the service.  (21) The student designs or improves a product using appropriate design processes and techniques. The student is expected to:  (A) develop or improve a product or service that meets a specified need;  (B) identify how quality, reliability, and safety can be designed into a product;  (D) develop a project portfolio that documents a research and development project. |
| **Section 5: Construction Management Careers and Practicum Culminating Activities**  During their practicum experience, students will use appropriate technology and/or assigned materials to examine and evaluate the relationship of good physical and mental health to job success and achievement, how interests, abilities, personal priorities, and family responsibilities affect career choice, and the rewards and demands for various levels of employment in a variety of careers.  Students will demonstrate effective communications skills as they present their project portfolio and discuss effective methods to secure, maintain, and terminate employment. Students will also research and determine preparation requirements as well as future employment outlook for a variety of careers, including construction management, and discuss their findings with their supervising instructor.  Students will also recommend and present a new way to build products using different tools, equipment, machines, materials, and/or technical processes. Presentations will demonstrate advanced construction-management skills and meet all course requirements.  As a culminating project for the practicum, students will demonstrate their knowledge of ethical and legal practices for careers in the construction management industry as well as the impacts of emerging applications of construction technology in a brief written report and/or oral presentation. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) demonstrate effective verbal, nonverbal, written, and electronic communication skills;  (B) demonstrate effective methods to secure, maintain, and terminate employment;  (D) evaluate the relationship of good physical and mental health to job success and achievement.  (11) The student predicts the impacts of emerging applications of construction technology. The student is expected to:  (A) describe the emerging technologies in a field; and  (B) identify the factors that may influence the adoption of emerging technologies.  (12) The student improves the quality of a product or service using different quality-control techniques. The student is expected to:  (A) define quality;  (B) assess the quality of a specific product or service; and  (C) determine how the quality of a product or service can be improved.  (13) The student recommends new ways to build products using different tools, equipment, machines, materials, and technical processes. The student is expected to:  (A) build products in a more efficient manner using a variety of tools, equipment, machines, materials, and processes; and  (B) demonstrate advanced construction-management skills.  (17) The student applies knowledge and skills in mathematics, science, English language arts, and social studies as they relate to construction management. The student is expected to:  (A) develop a school-based learning activity that provides an in-depth study of at least one aspect of construction management;  (B) establish at least one industry-related mentor for the school-based learning activity;  (C) present the product in at least two formats to a panel of students, teachers, and practitioners in construction management; and  (D) deliver a final product that demonstrates the use of a variety of resources, technologies, and communication skills.  (18) The student determines employment opportunities and preparation requirements for careers in the construction-management industries. The student is expected to:  (A) determine preparation requirements for various levels of employment in a variety of careers in construction management;  (B) analyze the future employment outlook of construction management;  (C) describe entrepreneurial opportunities in construction management;  (D) determine how interests, abilities, personal priorities, and family responsibilities affect career choice;  (E) compare rewards and demands for various levels of employment in a variety of careers; and  (F) determine continuing education opportunities that enhance career advancement.  (19) The student demonstrates ethical and legal practices for careers in construction management. The student is expected to:  (A) summarize the rights and responsibilities of employers and employees;  (B) exhibit ethical practices as defined in construction management; and  (C) analyze legal aspects of construction management. |