# Scope & Sequence

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| **Course Name:** Practicum in Information Technology/Extended Practicum in Information Technology  **TSDS PEIMS Code:** 13028005 (First Time Taken)  13028050 (Second Time Taken) | | **Course Credit:** 3.0  **Course Requirements:** Grade Placement 12.  **Prerequisites:** Minimum of two high school information technology (IT) courses.  **Corequisites:** Practicum in Information Technology. |
| **Course Description:** In Extended Practicum in Information Technology, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an instructor, with an industry mentor, or both. This course must be taken concurrently with Practicum in Information Technology 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 Information Technology 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**  **130.312. (c) Knowledge and skills** | |
| **Section 1: Career Exploration and Employability**  Students will expand their knowledge base and interest in careers and entrepreneurship opportunities in the field of Information Technology. Students will explore and discuss employment opportunities and industry certifications and requirements in small groups and as a class as they develop and improve individualized career preparation plans. Students will also discover and use resources available through CTSO or other extracurricular organization(s) to further develop leadership and employability skills. Students will discuss and demonstrate appropriate and proper etiquette and behavior as well as effective listening and speaking skills in this and in all units as they further develop their personal and career goals and increase their interpersonal and employability skills.  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, 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, to demonstrate positive work attitudes and behaviors, including effective planning and time management, to make ethical decisions, and to comply with all applicable rules, laws, and regulations in a consistent manner. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) identify and demonstrate work behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work;  (B) identify and demonstrate qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills;  (C) employ effective reading and writing skills;  (D) employ effective verbal and nonverbal communication skills;  (E) solve problems and think critically;  (F) demonstrate leadership skills and function effectively as a team member;  (G) identify and implement proper safety procedures;  (H) demonstrate an understanding of legal and ethical responsibilities in relation to the field of IT; and  (I) demonstrate planning and time-management skills such as storyboarding and project management, including initiating, planning, executing, monitoring and controlling, and closing a project.  (2) The student identifies various employment opportunities in the IT field. The student is expected to:  (A) improve on a personal career plan along with education, job skills, and experience necessary to achieve career goals. | |
| **Section 2: Customer Service and Academic Skills**  Students will expand their knowledge base and interest in customer service through activities that are supportive of a multi-cultural perspective. Students will apply academic skills in all learning activities and apply knowledge through designs that would be represented in a technical support work environment. Students will also be encouraged to discuss and predict what academic skills will be necessary for a successful practicum experience as well as a successful career in an IT field. | (3) The student applies academic knowledge and skills to research and develop projects. The student is expected to:  (A) demonstrate proper use of written, verbal, and visual communication techniques consistent with IT industry standards;  (B) demonstrate proper use of mathematics concepts in the development of products or services; and  (C) demonstrate proper use of science principles in the development of products or services. | |
| **Section 3: Research and Project Management in IT Services**  Students will participate in skilled and technical hands-on activities that will allow them to identify a research opportunity in computer maintenance, computer programming or network maintenance, and apply their IT skills in implementing a solution. Students will develop a project portfolio that documents their research and problem solution process, and present their portfolio and solution to a panel of professionals using formal presentation skills. | (4) The student selects an approach for conducting research to discover a problem in the field of IT with the appropriate supervision and guidance. The student is expected to:  (A) identify a problem relating to information technology; and  (B) describe and use an approach such as top-down or bottom-up for conducting a research activity.  (5) The student creates a technological solution for a problem in the field of IT. The student is expected to:  (A) apply critical-thinking strategies to develop a solution using appropriate technologies and resources, IT concepts, and industry standards;  (B) apply decision-making techniques to the selection of technological solutions; and  (C) explain how the proposed technological solution will resolve the problem.  (6) The student designs, creates, and implements a product or service that addresses a problem in the field of IT and incorporates the solution. The student is expected to:  (A) work closely with a mentor throughout the design, creation, and implementation process;  (B) develop a product or service that meets a specified need following a problem-solving strategy;  (C) identify areas where quality, reliability, and safety can be designed into a product or service;  (D) develop and implement a security management plan to address security requirements;  (E) develop a sustainability plan for the product or service;  (F) develop an evaluation method for analyzing the effect of the product or service on client satisfaction and problem resolution;  (G) develop a project portfolio that documents the research and development process; and  (H) present the portfolio to a panel of professionals using formal presentation skills. | |
| **Section 4: Employability Skills and Portfolios**  During their practicum experience, students will use appropriate technology and/or assigned materials to create, develop, and maintain an employment portfolio as well as a resume. Students will catalog their IT projects and research into a final tangible portfolio, and demonstrate effective communication and interview skills as they present their portfolios, projects, and resumes in a real or mock interview. | (2) The student identifies various employment opportunities in the IT field. The student is expected to:  (B) develop a resume that includes letters of recommendation and a portfolio appropriate to a chosen career plan; and  (C) illustrate interview skills for successful job placement.  (7) The student creates a personal portfolio. The student is expected to:  (A) create a portfolio that documents all projects and accomplishments such as academics, volunteer experience, employment experience, awards, and certifications;  (B) organize and prioritize information within the portfolio; and  (C) use written, verbal, and visual communication techniques consistent with IT industry standards. | |
| **Extended Practicum Plan** | **TEKS Covered**  **130.314. (c) Knowledge and Skills** | |
| **Section 1: Career Exploration and Employability**  As part of their practicum experience, students will expand their knowledge base and interest in careers and entrepreneurship opportunities in the field of Information Technology. Students will explore and discuss employment opportunities and industry certifications and requirements with their supervising instructors as they further develop individualized career preparation plans. Students will discuss and demonstrate planning, time-management, teamwork, and conflict-management skills, as well as effective listening and speaking skills pre-practicum and in practicum check-ins with their supervising instructor as they further develop and increase their interpersonal and employability skills. Students will also discuss and be encouraged to use resources available through CTSO or other extracurricular organization(s) to further develop leadership and teamwork skills. | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) participate in a paid or unpaid, laboratory- or work-based application of previously studied knowledge and skills related to IT;  (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, integrity, customer service, work ethic, and adaptability with increased fluency;  (D) employ teamwork and conflict-management skills with increased fluency to achieve collective goals; and  (E) employ planning and time-management skills and tools such as project management and storyboarding with increased fluency to enhance results and complete work tasks. | |
| **Section 2: Communication Skills**  As part of their practicum experiences, students will expand their knowledge and interest in effective communication strategies through activities that are supportive of a multi-cultural perspective. Students will also create and effectively deliver a brief and informal presentation about communication strategies to their supervising instructor. The presentation will include a discussion regarding how to learn and exhibit public relations skills to create/maintain internal and external customer/client satisfaction. | (2) The student applies professional communications strategies. The student is expected to:  (A) demonstrate proper use of written, verbal, and visual communication techniques consistent with IT industry standards with increased proficiency;  (B) apply active listening skills to obtain and clarify information;  (C) create and deliver formal and informal presentations in an effective manner; and  (D) exhibit public relations skills to maintain internal and external customer/client satisfaction. | |
| **Section 3: Information Technology Workplace Skills**  During their practicum experience, students will engage in activities that will enhance their understanding and knowledge of information technology workplace skills. Students will also understand and apply proper safety and security techniques in the workplace, demonstrate a positive, productive work ethic by performing assigned tasks as directed, describe and practice ethical and legal responsibilities associated with the field of IT, show integrity by choosing the ethical course of action when making decisions, and comply with all applicable rules, laws, and regulations in a consistent manner. | (4) The student understands and applies proper safety and security techniques in the workplace. The student is expected to:  (A) demonstrate an understanding of and consistently follow IT security rules, regulations, and procedures; and  (B) develop and implement security management plans to address security requirements.  (5) The student understands the professional, ethical, and legal responsibilities in IT. The student is expected to:  (A) demonstrate a positive, productive work ethic by performing assigned tasks as directed;  (B) describe and practice ethical and legal responsibilities associated with the field of IT;  (C) show integrity by choosing the ethical course of action when making decisions; and  (D) comply with all applicable rules, laws, and regulations in a consistent manner. | |
| **Section 4: Practicum Culminating Activities**  During their practicum experience, students will use appropriate technology and/or assigned materials to document and evaluate their practicum learning activities.  In a culminating project for the practicum, students will design, create, and implement a product or service that addresses a problem or meets a specified need in the field of IT, identify areas where quality, reliability, and safety can be designed into a product or service, and develop an evaluation method to analyze the effect of the product or service on client satisfaction and problem resolution. Students will demonstrate professional communications skills as they present their evaluations, projects, and representative work samples to their supervising instructor. | (3) The student implements advanced problem-solving methods. 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) apply critical-thinking strategies with increased fluency to develop solutions using appropriate technologies and resources, IT concepts, and industry standards; and  (C) apply decision-making techniques with increased fluency to choose a technology-based solution.  (6) The student participates in a supervised IT experience. The student is expected to:  (A) design, create, and implement a product or service that addresses a problem or meets a specified need in the field of IT;  (B) identify areas where quality, reliability, and safety can be designed into a product or service;  (C) develop a sustainability plan for the product or service;  (D) develop an evaluation method to analyze the effect of the product or service on client satisfaction and problem resolution; and  (E) collect representative work samples. | |