# Scope & Sequence

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| Course Name: Web Technologies **TSDS PEIMS Code:** 13027900 | | | **Course Credit:** 1.0  **Course Requirements:** Grade Placement 10-12.  **Prerequisite:** None.  **Recommended Prerequisite:** Principles of Information Technologies. |
| **Course Description:** In Web Technologies, students will learn to make informed decisions and apply the decisions to the field of IT. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. The knowledge and skills acquired and practiced will enable students to successfully perform and interact in a technology-driven society. Students will enhance reading, writing, computing, communication, and critical thinking and apply them to the IT environment. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 175 Periods  7920 Minutes  132 Hours\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |
| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unit | **TEKS Covered**  **130.308. (c) Knowledge and Skills** | |
| **Unit 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 individualized career preparation plans. Students will 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. | 10 of periods  450 of minutes | (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 and qualities that enhance employability and job advancement such as regular attendance, attention to proper attire, maintenance of a clean and safe work environment, pride in work, flexibility, and initiative;  (B) employ effective verbal and nonverbal communication skills;  (C) examine the role of certifications, resumes, and portfolios in the web technology profession;  (D) solve problems and think critically;  (E) demonstrate leadership skills and function effectively as a team member; and  (F) 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 employment opportunities in the IT field with a focus in the area of interactive media. The student is expected to:  (A) identify job opportunities and accompanying job duties and tasks;  (B) research careers of personal interest along with the education, job skills, and experience required to achieve personal career goals;  (C) demonstrate an understanding of the functions of resumes and portfolios; and  (D) create a portfolio. | |
| **Unit 2: Frameworks of Webpages in Networking**  Students will engage in opportunities to develop skilled and technical hands-on activities that will enhance the understanding and knowledge of frameworks of webpages in networking. Students will synthesize and demonstrate knowledge by identify the role of webpages in network communication and the trends in webpage coding languages. | 10 periods  450 minutes | (3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies. The student is expected to:  (A) identify networking components and define the impact of networking components on web development;  (B) evaluate the various input, processing, output, and storage devices and storage services;  (C) identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email; and  (D) describe new trends in web technology and evaluate their impact on web development. | |
| **Unit 3: Ethics, Security, and Application in Webpages**  Student will engage in opportunities to develop skills in ethical procedures in webpages. Students will participate in group activities to enhance intellectual property law, copyright, trademarks, patents and violation of these laws. Students will discuss security needs for personal identity protection in webpage data. | 10 periods  450 minutes | (4) The student complies with practices and behaviors that meet legal and ethical responsibilities. The student is expected to:  (A) explain and demonstrate ethical use of technology and online resources;  (B) differentiate between copyright and trademarks;  (C) explain the concept of intellectual property laws, including copyright, trademarks, and patents and consequences of violating each type of law;  (D) examine the consequences of plagiarism;  (E) adhere to copyright and trademark intellectual property laws and regulations, including demonstrating correct acquisition and citation of sources;  (F) discuss the process of acquiring rights to use copyrighted and trademarked content in a website;  (G) demonstrate appropriate behavior and adherence to acceptable use policies when accessing and using online resources;  (H) explain the importance of information privacy such as securing credit card information, passwords, and personal information;  (I) describe the function of a non-disclosure agreement; and  (J) discuss website accessibility concerns.  (5) The student evaluates electronic information. The student is expected to:  (A) identify appropriate methods to analyze the design and functionality of web pages;  (B) demonstrate skill in testing the accuracy and validity of information acquired; and  (C) synthesize information from data acquired from online resources. | |
| **Unit 4: Fundamentals of Web Design**  Students will engage in opportunities to develop software skills in webpage design. Students will synthesize and demonstrate knowledge by utilizing hands-on skills activities that will enhance the use of webpage design focusing on projects to apply the principles and elements of design into creating a webpage. Students will create webpages using various coding methods and advanced webpage structures. | 50 periods  2250 minutes | (6) The student creates and modifies web and digital media designs. The student is expected to:  (A) implement functional design elements such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography;  (B) identify, create, modify, and use common file formats such as text, image, video analog and digital, and audio files;  (C) select, create, modify, and integrate effective digital content such as vector-based and raster graphics, motion graphics, video, and audio;  (D) create web pages using current web standards and web development skills such as version control, documentation, web application security, validation, accessibility, and compatibility across multiple browsers and devices;  (E) demonstrate proper use of folder structure hierarchy; and  (F) use web coding standards to evaluate the design and functionality of web pages such as the World Wide Web Consortium (W3C) guidelines. | |
| **Unit 5: Fundamentals of Web Programming**  Students will engage in opportunities to develop software skills in webpage programming. Students will synthesize and demonstrate knowledge by utilizing hands-on skills activities that will enhance the use of webpage programming focusing on projects to apply the fundamentals of webpage design. Students will create advanced webpage programs and applications using varying coding methods and advanced programming languages. | 50 periods  2250 minutes | (7) The student demonstrates and employs knowledge of Internet programming strategies to develop and maintain web applications. The student is expected to:  (A) explain the importance of Internet programming standards;  (B) differentiate among various web coding standards such as HyperText Markup Language, and cascading style sheets;  (C) use standard applications to develop web applications such as text-based editing programs, word processors, and web authoring software;  (D) compare and contrast the impact of different browsers on web development;  (E) explain client-server applications and describe the process of a client-server transaction;  (F) identify the advantages and disadvantages of client-side processing;  (G) identify security issues related to client-side processing;  (H) use standard scripting languages to produce interactive web applications;  (I) identify characteristics of various scripting languages; and  (J) explain the process to construct secure transaction interfaces from the web server to the customer. | |
| **Unit 6: Webpage Servers and Hosting**  Students will engage in opportunities to develop skills and knowledge in webpage hosting. Students will synthesize and demonstrate knowledge by utilizing hands-on skills activities that will enhance the skills of hosting a webpage from a remote server. Students will maintain advanced webpages on public hosted servers, and collect statistical webpage data on usage. | 20 periods  900 minutes | (8) The student employs knowledge of web administration to develop and maintain web applications. The student is expected to:  (A) compare the advantages and disadvantages of running a personal server versus using a server provider;  (B) explain the Transmission Control Protocol/Internet Protocol;  (C) identify hardware and software requirements for web servers;  (D) evaluate server providers;  (E) describe the process of establishing a domain name;  (F) simulate the administration of web servers, including uploading and managing files;  (G) collect and analyze usage statistics;  (H) maintain documentation of the server environment such as specifications, passwords, and software versions;  (I) summarize the process of server backup and restoration of software features;  (J) propose security measures to protect web servers from electronic threats such as unauthorized access and negative intentions; and  (K) evaluate security measures such as using a firewall, Secure Socket Layer (SSL) connections, and Hypertext Transfer Protocol Secure (HTTPS) transactions. | |
| **Unit 7: Webpage Consulting and Project Management**  Students will engage in opportunities to develop skills and knowledge in consulting and project management. Students will synthesize and demonstrate knowledge by utilizing hands-on skills activities that will enhance the skills designing a webpage for a client. Students will meet with a client to design, develop, and create a custom webpage to be hosted on a remote server and will provide the client with usage data and site analytics. | 25 periods  1125 minutes | (9) The student evaluates a problem and creates a project management plan for meeting client requirements. The student is expected to:  (A) communicate with clients to analyze requirements to meet the needs of the client and target audience;  (B) document design properties, necessary tools, and resources and identify and address risks;  (C) develop and use a timeline task list such as critical milestones, potential challenges, and interdependencies; and  (D) use various methods to evaluate the progress of the plan and modify as necessary.  (10) The student creates and implements a web product using a project management plan. The student is expected to:  (A) create and simulate the publication of a multipage web product using client required content and web design concepts;  (B) develop a test plan for a multipage web product for testing usability, effectiveness, reliability, and customer acceptance;  (C) explain the quality assurance process; and  (D) develop and implement a quality assurance plan. | |