FUNDAMENTALS OF WEB PAGE DESIGN AND DEVELOPMENT
COURSE CODE: 5031

COURSE DESCRIPTION: The Fundamentals of Web Page Design and Development course will guide students in the development of websites in a project-based, problem-solving environment. Students will learn HTML as a means to organize website content and CSS to format the appearance of website content in order to develop websites that are well-organized, universally accessible, and easy to navigate. Students will learn the technological processes, requirements, and legal ramifications for publishing their websites. Successful completion of this course will prepare students for certification.

NOTE: Websites created by students in this course are not to be published without following district guidelines.

OBJECTIVE: Given the necessary equipment, supplies, and facilities, the student will be able to successfully complete all of the following core standards for a course that grants one unit of credit.

RECOMMENDED GRADE LEVELS:	9 – 12
COURSE CREDIT:	1 Carnegie unit (120 hours)
REQUIRED PREREQUISITE:	Fundamentals of Computing OR Discovering Computer Science AND/OR Teacher Recommendation
COMPUTER REQUIREMENTS:	1 desktop computer per student
REQUIRED SOFTWARE:	Text Editor (e.g., Notepad, Notepad++, Textpad, and Textedit)
CERTIFICATION ALIGNMENT:	See CTE Student Reporting Procedures Guide
RESOURCES:	Instructional Materials

A. SAFETY

IT professionals know the academic subject matter, including safety as required for proficiency within their area. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Review school safety policies and procedures.
2. Review classroom safety rules and procedures.

3. Review safety procedures for using equipment in the classroom.
4. Identify major causes of work-related accidents in office environments.
5. Demonstrate safety skills in an office/work environment.

B. STUDENT ORGANIZATIONS

IT professionals know the academic subject matter, including professional development, required for proficiency within their area. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Identify the purpose and goals of a Career and Technology Student Organization (CTSO).
2. Explain how CTSOs are integral parts of specific clusters, majors, and/or courses.
3. Explain the benefits and responsibilities of being a member of a CTSO.
4. List leadership opportunities that are available to students through participation in CTSO conferences, competitions, community service, philanthropy, and other activities.
5. Explain how participation in CTSOs can promote lifelong benefits in other professional and civic organizations.

C. TECHNOLOGY KNOWLEDGE

IT professionals know the academic subject matter, including the ethical use of technology. The following accountability criteria are considered essential for students in in the Information Technology programs of study.

1. Demonstrate proficiency and skills associated with the use of technologies that are common to a specific occupation.
2. Identify proper netiquette when using e-mail, social media, and other technologies for communication purposes.
3. Identify potential abuse and unethical uses of laptops, tablets, computers, and/or networks.
4. Explain the consequences of social, illegal, and unethical uses of technology (e.g., piracy; cyberbullying; illegal downloading; licensing infringement; inappropriate uses of software, hardware, and mobile devices in the work environment).
5. Discuss legal issues and the terms of use related to copyright laws, fair use laws, and ethics pertaining to downloading of images, Creative Commons, photographs, documents, video, sounds, music, trademarks, and other elements for personal use.
6. Describe ethical and legal practices of safeguarding the confidentiality of business-related information.
7. Describe possible threats to a laptop, tablet, computer, and/or network and methods of avoiding attacks.

D. PERSONAL QUALITIES AND EMPLOYABILITY SKILLS

IT professionals know the academic subject matter, including positive work practices and interpersonal skills. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Demonstrate creativity and innovation.
2. Demonstrate critical thinking and problem-solving skills.
3. Demonstrate initiative and self-direction.
4. Demonstrate integrity.
5. Demonstrate work ethic.
6. Demonstrate conflict resolution skills.
7. Demonstrate listening and speaking skills.
8. Demonstrate respect for diversity.
9. Demonstrate customer service orientation.
10. Demonstrate teamwork.

E. PROFESSIONAL KNOWLEDGE

IT professionals know the academic subject matter, including positive work practices and interpersonal skills. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Demonstrate global or "big picture" thinking.
2. Demonstrate career and life management skills and goal-making.
3. Demonstrate continuous learning and adaptability skills to changing job requirements.
4. Demonstrate time and resource management skills.
5. Demonstrates information literacy skills.
6. Demonstrates information security skills.
7. Demonstrates information technology skills.
8. Demonstrates knowledge and use of job-specific tools and technologies.
9. Demonstrate job-specific mathematics skills.
10. Demonstrates professionalism in the workplace.
11. Demonstrate reading and writing skills.
12. Demonstrates workplace safety.

F. WEB DESIGN PRINCIPLES (INCORPORATED THROUGHOUT THE COURSE)

Web designers demonstrate a basic knowledge of the internet and the tools used to access information. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Define web terminology.
2. Describe the history and evolution of the internet.
3. Explain how the Internet functions, including the World Wide Web (WWW), browsers, FTP, URL, ISP, encryption, https, and domains.
4. Describe the tools for accessing the Internet.

5. Explain how websites and social media solve problems in business, industry, government, and education.
6. Explore principles of e-commerce as they apply to web development, mobile devices, banking, and government regulations.
7. Explain the role of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), and JavaScript (or a similar scripting language) in Web development.

G. PLANNING AND DESIGN (INCORPORATED THROUGHOUT THE COURSE)

Web designers plan and design webpages using industry design principles. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Utilize a design document as part of the design and development process.
   a. Determine the purpose and target audience of a website.
   b. Develop a design solution for a website including a storyboard, navigation plan, and wireframes/mockups.
2. Create relevant and appropriate content including text, graphics, and hyperlinks.
3. Develop a file management system for website content, utilizing proper naming conventions for files and folders.
4. Optimize media for web content (i.e., file size, resolution, compression).
5. Explore and apply color principles to websites.
6. Explore and apply current best practices for web typography.
7. Research and incorporate features that ensure a quality user experience (e.g., white space, page speed, interactivity, hyperlink differentiation, website consistency, responsiveness, accessibility, data usage).
8. Evaluate the design of existing websites and their source code.
9. Research current best practices and emerging technologies.
10. Critique websites for professional quality in look and layout based on design principles.

H. CONSTRUCTING WEBSITES: HTML

(The purpose of this section of indicators is to teach students to generate written HTML code without relying on a generator.) Web designers use HTML to structure web content. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Develop webpages using a text editor (e.g., Notepad, Notepad++, Textpad, and Textedit).
2. Explain the purpose of the doctype declaration.
3. Structure a webpage using appropriate HTML elements (e.g., html, head, title, body, meta, style).
4. Use HTML rules to create functional web pages (e.g., lowercase elements, proper nesting, quotes for attribute values).
5. Use a variety of HTML elements to create webpages (e.g., headings, lists, images, hyperlinks, span, div).
6. Compare and contrast block and inline elements.
7. Create relative and absolute hyperlinks.

8. Use special characters (e.g.,   © &quote; < > & &mdash).
9. Demonstrate the use of semantic elements (e.g., header, footer, section, article, nav, aside).
10. Embed third-party content into a web page (e.g., calendar, form, map, video, Bootstrap web components).

I. CONSTRUCTING WEBSITES: CSS

(The purpose of this section of indicators is to teach students to generate written CSS code without relying on a generator.) Web designers use CSS to format and layout web pages. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Create and modify CSS to format the styling of HTML elements and page layout.
2. Identify parts of CSS syntax (i.e., rule, declaration, selector, property, value).
3. Compare and contrast the placement and use of styles (e.g., inline, internal and external styles).
4. Use CSS to format HTML elements including, but not limited to:
   a. background (e.g., color, image);
   b. font (e.g., type, size, and color);
   c. text (e.g., align, line spacing);
   d. border (e.g., width, style, and color);
   e. list (e.g., style type, position).
5. Format page layout with CSS including, but not limited to:
   a. CSS box model (e.g., width, height, border, padding, margin);
   b. absolute and relative positioning;
   c. floating elements;
   d. converting between inline elements and block elements;
   e. responsive design.

J. CONSTRUCTING WEBSITES: JAVASCRIPT (OPTIONAL)

(The purpose of this section of indicators is to teach students to generate written JavaScript code without relying on a generator.) Web designers use JavaScript to enhance web pages. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Distinguish between variables and functions in writing JavaScript.
2. Demonstrate how JavaScript can enhance a project.
3. Implement a simple script that obtains input and displays it as output.

K. QUALITY ANALYSIS & USER EXPERIENCE

Web designers examine factors affecting a quality user experience. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Identify and use validation tools.
2. Comply with legal requirements and standards for accessibility on the web.

3. Optimize websites to accommodate users with special needs.
4. Discuss issues relating to usability on a variety of platforms and devices.
5. View multiple websites using various browsers and computing devices.
6. Identify and solve coding errors throughout the design process.

L. PUBLISHING AND MAINTAINING WEBSITES

Web designers explain the process for publishing and maintaining websites. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Explain the domain naming system.
2. Identify the process for obtaining a domain name, acquiring hosting, and uploading and maintaining a website.
3. Research features and costs of domain name and hosting providers.

M. CAREER DEVELOPMENT

Web designers explore and prepare for careers in the web design and development industry. The following accountability criteria are considered essential for students in Information Technology programs of study.

1. Compare and contrast various job positions in the web design and development industry including compensation, required credentials, educational pathways, and work environment.
2. Prepare an electronic portfolio of projects developed in the class.

Additional Materials and Resources

Academic Standards and Indicators

Computer Science Academic Alignment