ADVANCED WEBPAGE DESIGN AND DEVELOPMENT
(Course Code 5033)

COURSE DESCRIPTION: This advanced course is designed to provide students with the knowledge and skills necessary to pursue careers in web design and development. Students will develop an in-depth understanding and use of HTML, CSS, JavaScript, layout techniques, and other industry-standard practices. In addition, students will learn scripting technologies to create dynamic and interactive websites. Students will maintain a professional quality portfolio of web design work. Successful completion of this course will prepare students for industry 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NOTE: Websites created by students in this course are not to be published without following district guidelines.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: 10–12

COURSE CREDIT: 1 unit (120 hours)

PREREQUISITE: Fundamentals of Webpage Design and Development

COMPUTER REQUIREMENT: One computer per student

REQUIRED SOFTWARE: Text Editor

CERTIFICATION ALIGNMENT:

    CIW - Web Foundations Associate
    CIW - Site Development Associate
    Introduction to Programming using HTML and CSS by Microsoft
    NOCTI Web Design

RESOURCES: **MySCTextbooks**

A. SAFETY

Effective professionals know the academic subject matter, including safety as required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in any program 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

Effective professionals know the academic subject matter, including professional development, required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in any program 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

Effective professionals know the academic subject matter, including the ethical use of technology as needed in their role. The following accountability criteria are considered essential for students in any program 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, 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

Effective professionals know the academic subject matter, including positive work practices and interpersonal skills, as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Demonstrate punctuality.
2. Demonstrate self-representation.
3. Demonstrate work ethic.

4. Demonstrate respect.
5. Demonstrate time management.
6. Demonstrate integrity.
7. Demonstrate leadership.
8. Demonstrate teamwork and collaboration.
9. Demonstrate conflict resolution.
10. Demonstrate perseverance.
11. Demonstrate commitment.
12. Demonstrate a healthy view of competition.
13. Demonstrate a global perspective.
14. Demonstrate health and fitness.
15. Demonstrate self-direction.
16. Demonstrate lifelong learning.

E. PROFESSIONAL KNOWLEDGE

Effective professionals know the academic subject matter, including positive work practices and interpersonal skills, as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Demonstrate effective speaking and listening skills.
2. Demonstrate effective reading and writing skills.
3. Demonstrate mathematical reasoning.
4. Demonstrate job-specific mathematics skills.
5. Demonstrate critical-thinking and problem-solving skills.
6. Demonstrate creativity and resourcefulness.
7. Demonstrate an understanding of business ethics.
8. Demonstrate confidentiality.
9. Demonstrate an understanding of workplace structures, organizations, systems, and climates.
10. Demonstrate diversity awareness.
11. Demonstrate job acquisition and advancement skills.
12. Demonstrate task management skills.
13. Demonstrate customer-service skills.

F. CONSTRUCTING WEBSITES

Effective web designers demonstrate best web design and development practices. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Compare and contrast web design and web development.
2. Demonstrate best web design and development practices (e.g. planning, design, usability, debugging, validation, and navigation plan).
3. Utilize technical documentation as part of the design and development process.
4. Compare and contrast static and dynamic websites.
5. Explore websites that incorporate client-side scripting, server-side scripting, content management systems, and database integration.
6. Analyze parent-child relationships as it relates to file management.

7. Research and explain web compliance based on government and industry guidelines (e.g. Section 508, American Disability Act (ADA), and Payment Card Industry (PCI).

G. CONSTRUCTING WEBSITES: HTML

Effective web designers demonstrate advanced HTML coding. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Create a functional form with a variety of inputs (e.g. radio, check box, textarea, text) that incorporates JavaScript checking, and interacts with the data provided.
2. Create tables to organize and display data.
3. Apply industry standard use of meta-tags (e.g. title, description, keywords).
4. Examine best practices for incorporating streaming media (e.g. HTML5 video and audio elements)

H. CONSTRUCTING WEBSITES: CSS

Effective web designers create professional looking websites combining a variety of CSS properties and professional layouts. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Create websites using advanced CSS design techniques (e.g. Rounded corners, Border images, Gradients, shadows, 2D and 3D transforms, Transitions, animations).
2. Apply styles using CSS selectors (e.g. first-child, last-child, nth-child, *, >, ::after, ::before).
3. Demonstrate effective use of CSS positioning techniques (e.g. float, grid, flexbox) to create websites with different page layouts.
4. Define responsive design.
5. Describe CSS properties necessary to create responsive websites (e.g. viewport, grid view, media queries, and images).
6. Create websites that function on various device types (responsive design to address screen size, and considerations for touch screen devices).
7. Create a website using an HTML and CSS framework (e.g. HTML5 boilerplate, Bootstrap, and Foundation).

I. CONSTRUCTING WEBSITES: JAVASCRIPT

Effective web designers demonstrate advanced JavaScript coding. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Differentiate between JavaScript statement, code, blocks, comments, variables, operators, and syntax.
2. Create JavaScript that responds to events.
3. Use JavaScript to update the content of HTML elements, HTML attributes, and CSS styles.
4. Implement JavaScript functions that use variables, operators, data types, and objects.
5. Design algorithms involving conditionals and loops.
6. Manipulate strings and arrays.
7. Use JavaScript to perform form processing and validation.

8. Compare and contrast various JavaScript libraries (e.g. jQuery, Prototype, MooTools).

J. PUBLISHING AND MAINTAINING WEBSITES

Effective 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. Evaluate features and costs of domain name and hosting providers.
2. Compare and contrast the role of industry standard languages and tools (e.g. PHP, MySQL, JavaScript, jQuery, Content Management Systems (CMS), frameworks, and APIs).
3. Demonstrate the use of File Transfer Protocol (FTP).
4. Differentiate between secure and unsecure web protocols.
5. Explain circumstances that would necessitate encryption.
6. Research search engine algorithms in regards to crawling, indexing, and ranking of webpages.
7. Examine basic Search Engine Optimization (SEO) tools and best practices (e.g. webmaster tools, webmaster console, and analytics).
8. Describe the function of analytics for web site development and web services decision making.

K. CAREER DEVELOPMENT

Effective web designers 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. Research current web design and development job postings and analyze responsibilities, tasks, education, and skills.
2. Compare and contrast corporate and freelance web design opportunities.
3. Explain the role of portfolios in the design industry.
4. Create a biographical narrative to include on the portfolio website.
5. Evaluate sample work for inclusion in an electronic portfolio.
6. Assemble a portfolio website including a variety of work created in the course.

L. CONTENT MANAGEMENT (OPTIONAL)

Effective web designers use content managing systems for websites. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Compare and contrast commonly used content management systems (CMS) (e.g., WordPress.org, Drupal, Joomla).
2. Install and maintain an instance of a CMS.
3. Construct a site using a CMS.
4. Explore available templates, plug-ins, and widgets.
5. Design or modify CMS templates and style sheets using PHP and CSS.
6. Create users and assign appropriate roles.
7. Discuss issues related to website security when using a CMS.

M. DATABASE INTEGRATION (OPTIONAL)

Effective web designers integrate database programming for data storage. The following accountability criteria are considered essential for students in the Information Technology programs of study.

1. Describe the purpose of a database as it relates to web development.
2. Identify and describe relational databases.
3. Identify the use of Extensible Markup Language (XML) for the transportation and storage of data.
4. Incorporate a database into a website using a server-side scripting language such as PHP.

[Course Materials and Resources](#)

[Course Academic Standards and Indicators](#)