

Website Development

Level: 3

Career Cluster: Digital Technology

Program: Information Technology

Pathway(s): Web Design

Course Catalog Description

Course that prepares students to plan, design, and build functional websites using HTML, CSS, and user-centered design practices. Students apply industry-standard workflows, accessibility principles, and testing strategies to develop and present a complete website project that demonstrates technical skill and professional readiness.

Summary

Course in the Web Design pathway that builds on foundational design knowledge by engaging students in the full process of planning, designing, coding, testing, and presenting functional websites. Students develop technical proficiency using HTML and CSS while applying principles of information architecture, user experience, accessibility, and optimization to create responsive, user-centered web solutions. The course emphasizes real-world application through client-based planning, structured workflows, and iterative design processes that mirror industry practices. Students also analyze how the web functions and apply ethical, safe, and responsible digital practices when creating and sharing content. Throughout the course, students strengthen professional and career-ready skills by collaborating with peers, managing projects, communicating with stakeholders, and reflecting on their work in authentic workplace environments, culminating in a comprehensive final website project that demonstrates technical skill, design thinking, and professional communication.

Notes

The updated course represents a clear shift from a traditional, task-focused web development model to a more comprehensive, standards-aligned program emphasizing both technical proficiency and professional practice. The previous version primarily centered on developing websites through discrete skills such as project planning, site mapping, technical specifications, and understanding media use and licensing, with a strong emphasis on completing required development tasks. In contrast, the new course organizes these skills into structured learning progressions that integrate foundational web knowledge, digital citizenship, and ethical technology use with deeper emphasis on information architecture, user-centered design, and accessibility. The updated course expands coding expectations to include standards-based HTML and CSS development, testing, and iterative revision, while also incorporating performance optimization and cross-platform evaluation. There is a stronger focus on professional competencies, including project management, collaboration, leadership, and work-based learning experiences, culminating in a comprehensive final website project that requires students to plan, develop, test, present, and justify their work using industry-aligned processes.

Student Learning Outcomes

1. Career Exploration and Postsecondary Opportunities

Objective: *Students will analyze career pathways in information technology, exploring industry roles, workplace expectations, required education, certifications, professional organizations, and postsecondary opportunities available in Colorado in order to make informed academic and career decisions.*

- 1) Identify employment opportunities in various fields with a focus in the area of information technology
 - a. Recognize the work typically performed, tools and technology used, and nature of work environments
 - b. Identify potential certifications within the careers
 - c. Find membership organizations associated with the careers
 - d. Understand the necessary education associated within the careers
- 2) Define professionalism within the context of information technology
 - a. Criticism and evaluation
 - b. Presentation
 - c. Assessment
- 3) Recognize laws, regulations, and ethics significant to the fields of information technology
- 4) Identify postsecondary opportunities offered in the state of Colorado
 - a. Technical college, community college, 4-year institutions
 - b. Certificates, associates, bachelor, and advanced degree opportunities

2. Foundations of the Web and Digital Citizenship

Objective: *Students will explain how the web functions, apply digital citizenship principles, and evaluate safe, legal, and ethical technology practices in order to participate responsibly in online environments.*

- 5) Explain how websites, browsers, servers, and domain names work together to deliver content on the World Wide Web
- 6) Describe the purpose of common web technologies, file types, and page elements used in basic website development
- 7) Differentiate between the internet and the World Wide Web and summarize how information is transmitted online
- 8) Apply digital citizenship practices to online communication, collaboration, and content sharing
- 9) Demonstrate appropriate communication, privacy, and security behaviors in web-based environments
- 10) Evaluate the ethical use of digital media, file sharing, and online information
- 11) Analyze the social impact of the web and responsible technology use in local and global contexts

3. Website Planning and Client Communication

Objective: Students will gather project requirements, analyze audience and purpose, and develop planning documents that guide the design and production of a website.

- 12) Gather and organize information about a website project, including purpose, audience, content needs, and project constraints
- 13) Identify target audience characteristics, branding goals, and user needs
- 14) Analyze project requirements that may affect timeline, usability, accessibility, and technical performance
- 15) Develop a project brief and technical specifications for a website
- 16) Write a project brief that communicates the website's goals, message, and intended user experience
- 17) Produce technical specifications that address browser compatibility, screen size, accessibility, and maintenance needs

4. Information Architecture and Visual Design

Objective: Students will organize website content, design page layouts, and apply visual design principles to create clear, engaging, and user-centered web experiences.

- 18) Create planning documents that organize website structure and content relationships
- 19) Construct a site map or wireframe that shows navigation, page hierarchy, and content flow
- 20) Convert planning ideas into page-level wireframes that identify layout regions, content blocks, and interface elements
- 21) Apply visual design principles to improve readability, consistency, and user engagement
- 22) Select color, typography, spacing, and imagery that support a website's purpose and audience
- 23) Evaluate layout choices for clarity, balance, consistency, and usability

5. Web Page Development with HTML and CSS

Objective: Students will develop web pages using semantic HTML and CSS, apply coding best practices, and test pages for accuracy, consistency, and functionality.

- 24) Develop standards-based web pages using semantic HTML structure
- 25) Construct page content using headings, paragraphs, lists, links, images, and other common elements
- 26) Organize files and folders to support efficient website development and maintenance
- 27) Apply CSS to control the presentation and layout of web pages
- 28) Style text, color, spacing, and visual elements to create consistent page design
- 29) Test and refine code to correct errors and improve formatting across pages

6. Accessibility, Testing, and Optimization

Objective: Students will evaluate websites for accessibility, usability, and technical performance and revise their work to improve the user experience for a variety of audiences and devices.

- 30) Evaluate websites for accessibility, usability, and cross-platform performance
- 31) Apply accessibility practices such as meaningful headings, alternative text, readable color contrast, and clear navigation
- 32) Test pages across browsers and devices and interpret results to improve reliability and user experience
- 33) Revise website content and code based on testing feedback and established criteria
- 34) Diagnose common errors in code, content, and navigation and implement corrections
- 35) Justify revisions using feedback, testing evidence, and usability criteria

7. Work-Based Learning and Professional Practice

Objective: *Students will apply professional skills in authentic workplace contexts by managing projects, communicating with stakeholders, and reflecting on performance and growth.*

- 36) Apply workplace behaviors and project management practices during individual and collaborative web design tasks
- 37) Use timelines, checkpoints, and task lists to manage project progress and meet deadlines
- 38) Demonstrate professional communication, accountability, and responsiveness in client or team interactions
- 39) Reflect on work-based learning experiences to identify strengths, challenges, and next steps for improvement

8. Leadership and Collaboration

Objective: *Students will demonstrate leadership, collaboration, and professional responsibility by contributing to team goals, participating in critique, and supporting a productive project environment.*

- 40) Demonstrate leadership and collaboration skills during planning, development, and presentation activities
- 41) Contribute ideas, fulfill assigned roles, and support team members in completing shared goals
- 42) Evaluate peer and self-performance using feedback, critique, and reflection protocols
- 43) Present ideas and completed work clearly to a variety of audiences using appropriate technical and professional language

9. Final Assessment Project

Objective: *Students will create and present a complete website that demonstrates planning, design, development, testing, revision, and professional communication skills acquired throughout the course.*

- 44) Create a functional website project that demonstrates course standards and design expectations
- 45) Develop a website from concept to completion using planning documents, HTML, CSS, and design principles

46) Present and defend design decisions, demonstrate testing and revision evidence, and reflect on project outcomes

10. Career and Technical Student Organizations

Objective: *Using the [CTSO Resource Document](#), chapter activities will provide some of the best opportunities CTSO members will have to learn by doing. A successful [program of work](#) creates a positive learning atmosphere in the classroom. CTSO members learn how to accept responsibility, work as a team, manage a budget, and handle success and failure. Per the CTE Admin Handbook, CTSOs are embedded into curriculum.*

Professional Development

Prepare each member for entry into the workforce and provide a foundation for success in a career. Becoming a professional does not stop with acquiring a skill, but involves an increased awareness of the meaning of good citizenship and the importance of labor and management in the world of work.

Community Service

Promote and improve goodwill and understanding among all segments of the community through services donated by CTSO chapters, and to instill in its members a lifetime commitment to community service.

Business and Industry Connections

Increase awareness of quality job practices and attitudes, and increase the opportunities for employer engagement and eventual employment.

Financial Leadership

Plan and participate in activities to allow all members to carry out the chapter's projects. Educate members on their own personal finance for current and future success.

Public Relations

Make the general public aware of the good work that students in career and technical education are doing to better themselves and their community, state, nation, and world.

Social Activities

To increase cooperation in the school and community through activities that allow CTSO members to get to know each other in something other than a business or classroom setting.

Academic Standards Alignment

Colorado CTE courses are required to integrate academic and essential skills into course content. The following academic standards have been identified as aligned to this course and should be integrated throughout instruction.

[CO CTE Academic Standards Resources](#) (Rubrics, integration strategies, etc)

[CDE Colorado Academic Standards Online](#) (Online standards lookup tool)

Note: Mathematics and Science standards will be added in the future. Visit the [Colorado Academic Standards](#) page for the most current version.

Reading, Writing and Communicating Crosswalk

Course: Website Development

Colorado Academic Standards – Reading, Writing, and Communicating

Standard	Prepared Graduate Competency	Description	Course Evidence / Alignment
Standard 1: Oral Expression and Listening	Prepared Graduate 1 – Collaboration	Collaborate effectively as group members or leaders	Students collaborate in web development teams to divide roles, manage tasks, track progress, and complete a functional website.
Standard 1: Oral Expression and Listening	Prepared Graduate 2 – Oral Presentations	Deliver effective oral presentations	Students present website critiques, design decisions, workflows, and final website products to peers and instructors.
Standard 2: Reading for All Purposes	Prepared Graduate 4 – Informational Texts	Read a wide range of informational texts	Students read and analyze technical documentation, usability guidelines, design standards, and coding references.
Standard 2: Reading for All Purposes	Prepared Graduate 5 – Language in Context	Understand how language functions in different contexts	Students tailor website content, structure, and messaging to

			audience needs, accessibility standards, and platform requirements.
Standard 3: Writing and Composition	Prepared Graduate 7 – Informational Writing	Craft informational/explanatory texts	Students create written artifacts such as website critiques, flowcharts, technical notes, and project documentation.
Standard 3: Writing and Composition	Prepared Graduate 9 – Writing Process	Demonstrate mastery of the writing process	Students revise and refine documentation to ensure clarity, coherence, and professional quality.
Standard 4: Research Inquiry and Design	Prepared Graduate 10 – Research and Ethics	Gather and ethically use information	Students research design models, emerging web technologies, and legal considerations and apply information ethically.

Free Resource Links

1. Career Exploration and Postsecondary Opportunities

- CompTIA IT Career Roadmap (IT careers, certifications, pathways)
<https://www.comptia.org/content/it-careers-path-roadmap>
- O NET Online (job roles, skills, work environments)
<https://www.onetonline.org>
- CareerOneStop Technology Careers (career exploration, job outlook, education)
<https://www.careeronestop.org/ExploreCareers/explore-careers.aspx>
- Colorado Community College System (postsecondary programs, certificates, degrees)
<https://cccs.edu>

2. Foundations of the Web and Digital Citizenship

- Common Sense Education Digital Citizenship (online safety, ethics, media literacy)
<https://www.commonsense.org/education/digital-citizenship>
- Internet Society Learning Resources (how the internet works, web foundations)
<https://www.internetsociety.org/resources>
- Google Safety Center (privacy, security, digital responsibility)
<https://safety.google>
- Stay Safe Online (cybersecurity, safe practices, awareness)
<https://staysafeonline.org>

3. Website Planning and Client Communication

- Smartsheet Project Planning Templates (project planning, timelines, briefs)
<https://www.smartsheet.com/project-planning-templates>
- Lucidchart (diagramming, planning, communication)
<https://www.lucidchart.com>
- Milanote (creative briefs, idea organization, planning)
<https://www.milanote.com>
- Google Workspace (collaboration, documentation, communication)
<https://workspace.google.com>

4. Information Architecture and Visual Design

- Canva Design School (color, layout, typography)
<https://www.canva.com/learn/design>
- Adobe Color (color theory, palettes, contrast)
<https://color.adobe.com>
- Nielsen Norman Group Articles (usability, UX design principles)
<https://www.nngroup.com/articles>
- Interaction Design Foundation (UX design, visual design)
<https://www.interaction-design.org>

5. Web Page Development with HTML and CSS

- Mozilla Developer Network Web Docs (HTML, CSS, coding standards)
<https://developer.mozilla.org>
- W3Schools Web Development Tutorials (HTML, CSS, coding basics)
<https://www.w3schools.com>
- freeCodeCamp Responsive Web Design (HTML, CSS, projects)
<https://www.freecodecamp.org/learn>
- CodePen (front end coding, prototyping, testing)
<https://codepen.io>

6. Accessibility Testing and Optimization

- W3C Web Accessibility Initiative (WCAG, accessibility standards)
<https://www.w3.org/WAI>
- WebAIM (accessibility tools, evaluation, best practices)
<https://webaim.org>
- Google Lighthouse (performance, accessibility testing)
<https://developers.google.com/web/tools/lighthouse>
- Color Contrast Checker (color accessibility, readability)
<https://webaim.org/resources/contrastchecker>

7. Work Based Learning and Professional Practice

- LinkedIn Learning (professional skills, technical training)
<https://www.linkedin.com/learning>
- Indeed Career Guide (career preparation, workplace skills)
<https://www.indeed.com/career-advice>
- Glassdoor Career Resources (workplace insights, career growth)
<https://www.glassdoor.com>

8. Leadership and Collaboration

- MindTools (leadership, teamwork, communication)
<https://www.mindtools.com>
- Trello (project management, collaboration, workflow)
<https://trello.com>
- Asana (team coordination, task management)
<https://asana.com>
- Slack (communication, collaboration tools)
<https://slack.com>

9. Final Assessment Project

- GitHub Pages (web hosting, portfolios, publishing)
<https://pages.github.com>
- Netlify (deployment, hosting, site management)
<https://www.netlify.com>
- Wix (website builder, project showcase)
<https://www.wix.com>



Technology Student Association – National Competitive Events

Webmaster

Objective: *Students will design, build, launch, test, document, and explain a multi-page website that addresses the annual TSA Webmaster design challenge.*

- Research the annual TSA Webmaster topic and identify the website's purpose, audience, content needs, and technical requirements.
- Plan the website structure using sitemaps, wireframes, page layouts, flowcharts, or other web design planning tools.
- Develop a multi-page website that communicates the team's solution to the annual theme and problem.
- Apply web design practices related to navigation, accessibility, usability, visual consistency, browser compatibility, responsive layout, and file organization.
- Launch the website on a publicly accessible web server according to TSA submission requirements.
- Test and troubleshoot the website for broken links, syntax errors, layout issues, access problems, readability, and functionality.
- Participate in an interview explaining the website, design decisions, research, development process, and troubleshooting workflow.

Resources

- Technology Student Association – Webmaster competition guidelines
<https://tsaweb.org/competitions-programs/tsa/themes-problems>
- Mozilla Developer Network – HTML, CSS, and JavaScript documentation
<https://developer.mozilla.org/>
- W3Schools – Web development tutorials
<https://www.w3schools.com/>
- GitHub Pages – Website hosting for student projects
<https://pages.github.com/>



Technology Student Association – National Competitive Events

Software Development

Objective: *Students will design, develop, document, test, and present a software application that responds to the annual TSA Software Development challenge.*

- Analyze the annual TSA Software Development challenge and identify the intended users, purpose, and functional requirements.
- Plan the software application using appropriate design tools such as pseudocode, flowcharts, diagrams, wireframes, or interface mockups.
- Develop a functioning software product using programming practices appropriate to the selected platform.
- Create documentation that explains the software purpose, development process, features, testing, and revisions.
- Apply quality assurance practices through testing, debugging, accessibility review, browser/device testing, and usability refinement.
- Prepare a presentation or demonstration that explains the software solution and development decisions.
- Evaluate the final software using TSA criteria for functionality, design quality, documentation, usability, and presentation.

Resources

- Technology Student Association – Software Development competition guidelines
<https://tsaweb.org/competitions-programs/tsa/themes-problems>
- GitHub Docs – Version control and project collaboration
<https://docs.github.com/>
- Visual Studio Code Documentation
<https://code.visualstudio.com/docs>
- Mozilla Developer Network – Web development documentation
<https://developer.mozilla.org/>