

Web Design and Development Program of Study with Complementary Course Standards



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Vision

All Nevada students are equipped and feel empowered to attain their vision of success

Mission

*To improve student achievement and educator effectiveness by ensuring opportunities,
facilitating learning, and promoting excellence*



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Standards Development Members

| Name | Occupation/Title | Stakeholder Affiliation | School/Organization |
|-----------------|--|--------------------------------------|--|
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Business and Industry Validation

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives, or (2) a separate review panel is coordinated with industry experts to ensure the standards include the proper content, or (3) nationally recognized standards currently endorsed by business and industry.

The Web Design and Development standards were validated through active participation of business and industry representatives on the development team.

Introduction

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of a high school Web Design and Development program of study. These standards are designed for a two-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

- **Content Standards** are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.
- **Performance Standards** follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.
- **Performance Indicators** are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives. The indicators are followed by designations that reflect the course sequence (e.g., L1 for the first-year course of a two-year program and L2 for the second-year course, C is to designate the indicators to be taught in the complementary courses) as referenced in the Core Course Sequence table.

The crosswalks and alignments are located in the Program Supplemental Program Resources document. These will show where the performance indicators support the Nevada Academic Content Standards. For individual course descriptions, please reference the Supplemental Program Resource or the Nevada CTE Catalog.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to the Web Design and Development program. CTSOs are co-curricular national organizations that directly reinforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the skills needed to be successful in all careers and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards. The Standards Reference Code is an abbreviated name for the program, and the content standard, performance standard and performance indicator are referenced in the program standards. This abbreviated code for identifying standards uses each of these items. For example, WDD is the Standards Reference Code for Web Design and Development. For Content Standard 2, Performance Standard 3 and Performance Indicator 4 the Standards Reference Code would be WDD.2.3.4.

Web Design and Development

Program Information

Program of Study: Web Design and Development

Standards Reference Code: WEB

Career Cluster: Information Technology

Career Pathway(s): Web and Digital Communications

Program Length: 2-year, completed sequentially

CTSO: SkillsUSA

Program Structure Required Program of Study Courses

The core course sequencing is provided in the following table. Complementary Courses are available and provided later in this document. The following courses provide a completed program of study. The Lab is a complementary course available concurrently with the Web Design and Development II course.

Core Course Sequence (R) with Lab Course(s) (C)

| Required/ Complementary | Course Title | Abbreviated Name |
|----------------------------|-----------------------------------|-------------------|
| R | Web Design and Development I | WEB DESG DEV I |
| R | Web Design and Development II | WEB DESG DEV II |
| C | Web Design and Development II LAB | WEB DESG DEV II L |

CONTENT STANDARD 1.0: INTEGRATE CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)**Performance Standard 1.1: Explore the History and Organization of CTOSs**

- 1.1.1 Discuss the requirements of CTSO participation/involvement as described in Carl D. Perkins Law (L1, L2, C)
- 1.1.2 Research nationally recognized CTOSs (L1, L2, C)
- 1.1.3 Investigate the impact of federal and state government regarding the progression and operation of CTOSs (e.g., Federal Statutes and Regulations, Nevada Administrative Code [NAC], Nevada Revised Statutes [NRS]) (L1, L2, C)

Performance Standard 1.2: Develop Leadership Skills

- 1.2.1 Discuss the purpose of parliamentary procedure (L1, L2, C)
- 1.2.2 Demonstrate the proper use of parliamentary procedure (L1, L2, C)
- 1.2.3 Differentiate between an office and a committee (L1, L2, C)
- 1.2.4 Discuss the importance of participation in local, regional, state, and national conferences, events, and competitions (L1, L2, C)
- 1.2.5 Participate in local, regional, state, or national conferences, events, or competitions (L1, L2, C)
- 1.2.6 Describe the importance of a constitution and bylaws to the operation of a CTSO chapter (L1, L2, C)

Performance Standard 1.3: Participate in Community Service

- 1.3.1 Explore opportunities in community service-related work-based learning (WBL) (L1, L2, C)
- 1.3.2 Participate in a service learning (program related) and/or community service project or activity (L1, L2, C)
- 1.3.3 Engage with business and industry partners for community service (L1, L2, C)

Performance Standard 1.4: Develop Professional and Career Skills

- 1.4.1 Demonstrate college and career readiness (e.g., applications, resumes, interview skills, presentation skills) (L1, L2, C)
- 1.4.2 Describe the appropriate professional/workplace attire and its importance (L1, L2, C)
- 1.4.3 Investigate industry-standard credentials/certifications available within this Career Cluster™ (L1, L2, C)
- 1.4.4 Participate in authentic contextualized instructional activities (L1, L2, C)
- 1.4.5 Demonstrate technical skills in various student organization activities/events (L1, L2, C)

Performance Standard 1.5: Understand the Relevance of Career and Technical Education (CTE)

- 1.5.1 Make a connection between program standards to career pathway(s) (L1, L2, C)
- 1.5.2 Explain the importance of participation and completion of a program of study (L1, L2, C)
- 1.5.3 Promote community awareness of local student organizations associated with CTE programs (L1, L2, C)

CONTENT STANDARD 2.0: FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT**Performance Standard 2.1: Understand the History of Web Design and Development**

- 2.1.1 Describe the role of the World Wide Web Consortium (W3C) in defining web standards (L1)
- 2.1.2 Research the history of the World Wide Web (L1)
- 2.1.3 Compare and contrast the Internet and the World Wide Web (L1)

Performance Standard 2.2: Explain Layout and Design Theory

- 2.2.1 Explain and apply color theory (L1)
- 2.2.2 Explain and apply the principles of design (L1)
- 2.2.3 Explain and apply the elements of design (L1)
- 2.2.4 Explain and apply effective typography (L1)
- 2.2.5 Evaluate the use of white space (L1)

Performance Standard 2.3: Demonstrate Knowledge of Industry Terminology

- 2.3.1 Define common terminology and their acronyms (L1)
- 2.3.2 Differentiate between front-end and back-end development (L1)
- 2.3.3 Explain the various roles and careers related to web design (L1)

Performance Standard 2.4: Describe the Relationship Between Social Media and Web Development

- 2.4.1 Describe the role of social media in web development (L1)
- 2.4.2 Explain the correlation between social media platforms and web links (L1)
- 2.4.3 Describe the relationship of advertising, marketing, social media, and websites (L1)
- 2.4.4 Discuss current trends in social media (L1)
- 2.4.5 Create and implement a strategy that uses social networks to drive traffic to a website (L1)

Performance Standard 2.5: Describe E-Commerce

- 2.5.1 Define e-commerce as it relates to web development (L1)
- 2.5.2 Demonstrate how to integrate a shopping cart into a web page (L1)
- 2.5.3 Evaluate payment-processing options (L1)
- 2.5.4 Discuss security concerns as they relate to e-commerce (L1)

CONTENT STANDARD 3.0: ETHICAL AND SECURE USE OF INFORMATION**Performance Standard 3.1: Describe Copyright Laws in Relation to Web Development**

- 3.1.1 Research laws that govern intellectual property in diverse forms (L1)
- 3.1.2 Evaluate Creative Commons licensing and other free-content license types (L1)
- 3.1.3 Cite the boundaries of third-party work (L1)
- 3.1.4 Explain terms related to copyright, trademarks, patents, and other intellectual property (L1)

Performance Standard 3.2: Explain Security Issues in Relation to Web Development

- 3.2.1 Explain invasion of privacy in the use of technology (L1)
- 3.2.2 Model acceptable security practices (L1)
- 3.2.3 Analyze the implications of a personal digital footprint (L1)
- 3.2.4 Differentiate between secure and unsecure web protocols (L1)
- 3.2.5 Explain the implications of General Data Protection Regulations (GDPR) (L1)
- 3.2.6 Explain the implications of Nevada Consumer Privacy Act (L1)
- 3.2.7 Compare and contrast global privacy policies and cultural impacts (L1)
- 3.2.8 Describe how a security certificate protects a website (L1)

Performance Standard 3.3: Apply Personal and Professional Ethics

- 3.3.1 Model legal and ethical use of information (L1)
- 3.3.2 Describe the purpose of a non-disclosure agreement (NDA) (L1)
- 3.3.3 Analyze content for bias (L1)

CONTENT STANDARD 4.0: PLAN AND DESIGN A WEBSITE**Performance Standard 4.1: Web Design and Development Cycle**

- 4.1.1 Describe the web design and development cycle (L1)
- 4.1.2 Demonstrate the web design and development cycle (e.g., analyze, design, develop, implement, evaluate) (L1, L2)

Performance Standard 4.2: Develop a File Management System

- 4.2.1 Create a maintainable directory structure for a website (L1, L2)
- 4.2.2 Apply appropriate file naming protocols (L1, L2)
- 4.2.3 Describe the usage of correct file paths for relative and absolute links (L1, L2)
- 4.2.4 Recognize the relationship between local and remote site structures (L1, L2)
- 4.2.5 Develop a data backup procedures plan (L1, L2)

Performance Standard 4.3: Demonstrate Proper Layout Techniques

- 4.3.1 Identify commonly used layout techniques for web design (L1)
- 4.3.2 Develop an appropriate navigation system (site map) (L1)
- 4.3.3 Develop wireframes for initial responsive design concepts (L1)
- 4.3.4 Develop responsive design for various devices (L1)
- 4.3.5 Identify the uses of Cascading Style Sheets (CSS) (L1)

Performance Standard 4.4: Create Web Content

- 4.4.1 Discuss and differentiate voice, tone, and style as it applies to web writing (L1)
- 4.4.2 Determine the primary and secondary purposes of web content (L1)
- 4.4.3 Identify target audiences and reading levels for specific websites (L1, L2)
- 4.4.4 Identify and create a list of keywords and descriptions (meta tags) to include in web content for search engine optimization (SEO) (L1, L2)
- 4.4.5 Apply grammar and spelling conventions to content (L1, L2)
- 4.4.6 Evaluate existing content for web use (e.g., images, print documents, text, video) (L1)
- 4.4.7 Create a branding message that will present a professional image (L1)
- 4.4.8 List and describe best practices in content creation that foster indexing and ranking of websites (L1)

Performance Standard 4.5: Create and Edit Media for the Web

- 4.5.1 Describe common media file formats (L1, L2)
- 4.5.2 Identify appropriate software for media creation (L1, L2)
- 4.5.3 Create and edit media files (e.g., sound, video, graphics, interactive media, multimedia) (L1, L2)
- 4.5.4 Optimize media files for uploading using compression tools (L1, L2)
- 4.5.5 Embed media files in a web design (L1, L2)
- 4.5.6 Calculate and convert images to desired sizes and resolution (L1, L2)

Performance Standard 4.6: Demonstrate Knowledge of Challenges Associated with Accessibility and Usability

- 4.6.1 Describe regional, national, and international legal requirements and standards for accessibility on the web (L1)
- 4.6.2 Identify types of disabilities that should be considered when designing websites (L1)
- 4.6.3 Optimize websites to accommodate users with special needs (L1, L2)
- 4.6.4 Explain website usability procedures (L1)
- 4.6.5 Research Americans with Disabilities Act (ADA) compliance regulations and policies (L1)

CONTENT STANDARD 5.0: WEBSITE DEVELOPMENT**Performance Standard 5.1: Develop a Website Using Hypertext Markup Language (HTML)**

- 5.1.1 Explain the purpose of Hypertext Markup Language (HTML) in website development (L1)
- 5.1.2 Differentiate among the different versions of HTML (L1)
- 5.1.3 Identify HTML tags for authoring a web page document (L1)
- 5.1.4 Code a basic web page utilizing proper HTML document structure in a text editor (L1)
- 5.1.5 Utilize verification tools to verify code (L1)

Performance Standard 5.2: Describe Concepts and Use of Cascading Style Sheets

- 5.2.1 Describe the role of CSS in relation to web design (L1)
- 5.2.2 Identify the structure of CSS style rules (L1)
- 5.2.3 Describe CSS selector types (L1)
- 5.2.4 Differentiate between internal, external, and inline style sheets (L1)
- 5.2.5 Use CSS to style webpage content (e.g., typography, web fonts) (L1)
- 5.2.6 Use CSS to lay out webpage content (e.g., flexbox, grid, positioning: static, relative, absolute, fixed) (L1)
- 5.2.7 Utilize online validation tools for CSS (L1)
- 5.2.8 Describe the function of a CSS preprocessor (L2)

Performance Standard 5.3: Apply Foundations of Web Scripting

- 5.3.1 Explain the use of current web scripting technologies (L2)
- 5.3.2 Implement scripting (e.g., rollovers, form scripts) (L2)
- 5.3.3 Compare and contrast client (browser) scripting and server scripting (e.g., PHP, JavaScript) (L2)
- 5.3.4 Enhance interactivity of websites using current scripting trends (L2)
- 5.3.5 Compare and contrast static versus dynamic websites (L2)
- 5.3.6 Utilize online validation tools for web scripting (L2)

Performance Standard 5.4: Develop Databases

- 5.4.1 Identify and describe relational databases (L2)
- 5.4.2 Analyze various databases used in web development (L2)
- 5.4.3 Describe the purpose of a database as it relates to web development (L2)
- 5.4.4 Incorporate a database into a website where possible (e.g., local storage, external database) (L2)

Performance Standard 5.5: Utilize Content Management Systems in Web Development

- 5.5.1 Identify content management systems (CMS) (e.g., WordPress, Joomla) (L2)
- 5.5.2 Evaluate current trends in CMS (e.g., blogging, online magazine, corporate websites) and learning management system (LMS [e.g., Canvas]) (L2)
- 5.5.3 Explore WYSIWYG software (e.g., Dreamweaver) for web development (L2)

Performance Standard 5.6: Utilize Online Collaboration Resources

- 5.6.1 Define cloud computing (L2)
- 5.6.2 Compare various cloud computing platforms (e.g., Microsoft Azure, Amazon AWS, Google Cloud) (L2)
- 5.6.3 Explain the role of version control when developing with a team (L2)

CONTENT STANDARD 6.0: PUBLISHING A WEBSITE

Performance Standard 6.1: Understand Fundamentals of Web Hosting

- 6.1.1 Identify the various server operating systems used to host web pages (L2)
- 6.1.2 Describe how servers work in a hosting environment (L2)
- 6.1.3 Explain the relationship between client and server (L2)
- 6.1.4 Explain common web server maintenance routines (L2)
- 6.1.5 Describe the technical requirements involved in choosing a web host (L2)

Performance Standard 6.2: Demonstrate Publishing to the Web

- 6.2.1 Identify the purpose of Secure File Transfer Protocol (SFTP) (L2)
- 6.2.2 Demonstrate the use of SFTP (L2)
- 6.2.3 Preview and test web pages for compatibility using various browsers and output devices (L2)
- 6.2.4 Describe the process of locating and registering a domain name (L2)
- 6.2.5 Explain domain name servers (DNS) (L2)

Performance Standard 6.3: Maintain Web Content

- 6.3.1 Evaluate content with client for relevancy (L2)
- 6.3.2 Evaluate content for viability (L2)
- 6.3.3 Monitor validity of hyperlinks (L2)
- 6.3.4 Maintain and update all website documentation (e.g., prototype, site map, navigation) (L2)
- 6.3.5 Analyze web analytics for purposes of improving traffic, user experience, and meeting targeted goals (L2)

CONTENT STANDARD 7.0: ADVANCED AND EMERGING TECHNOLOGIES IN WEB DEVELOPMENT**Performance Standard 7.1: Develop a Web App**

- 7.1.1 Analyze current programming languages and/or platforms used in web app development (L2)
- 7.1.2 Explain the purpose of Application Programming Interface (API) in app development (L2)
- 7.1.3 Develop an app using a modern programming language and/or platform (L2)

Performance Standard 7.2: Explain Artificial Intelligence (AI)

- 7.2.1 Define Artificial Intelligence (L2)
- 7.2.2 Explain the role of AI in web development (L2)
- 7.2.3 Describe how AI changes the user experience (L2)
- 7.2.4 Explain the significance of data in the development of AI (L2)

Performance Standard 7.3: Research Non-Standard Web Connected Devices

- 7.3.1 Research Internet of Things (IoT) as it relates to web development (L2)
- 7.3.2 Explain the impact of digital assistants on web development (L2)

Performance Standard 7.4: Explore Virtual (VR) and Augmented (AR) Reality

- 7.4.1 Explore use of VR and AR in web design (L2)
- 7.4.2 Research emerging applications of VR and AR in non-entertainment venues (L2)

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Complementary Courses

State Complementary Skill Standards

State complementary skill standards are designed to clearly state what the student should know and be able to do upon completion of a **one-year** complementary course related to their career and technical education (CTE) program of study. **Completion of the qualifying Program of Study is required prior to enrollment in a complementary course.**

Employability Skills for Career Readiness Standards

Students have completed all program content standards and will pursue advanced study through investigation and in-depth research.

Complementary Course Standards Contributing Members

| Course Contribution(s) | Name | Occupation/Title | Stakeholder Affiliation | School/Organization |
|--------------------------------|-------------------|------------------|--------------------------------------|---|
| 2D Animation | Scott Bennett | Instructor | Postsecondary Educator | College of Southern Nevada, Las Vegas |
| 2D Animation | John Gonzalez | Service Manager | Business and Industry Representative | Findlay Auto Group, Henderson |
| 2D Animation | Tristan Hays | CTE Coordinator | Secondary Educator | Clark County School District |
| 2D Animation | Stephen Ludwig | Instructor | Secondary Educator | Spring Valley High School, Clark County School District |
| 2D Animation | Dawnne Smith | Instructor | Secondary Educator | Coronado High School, Clark County School District |
| 2D Animation | Todd Teague | Instructor | Secondary Educator | Edward C Reed High School, Washoe County School District |
| 2D Animation | Adam Tucker | Instructor | Secondary Educator | Shadow Ridge High School, Clark County School District |
| UI/UX For Digital Applications | James Black | Instructor | Secondary Educator | Desert Pines High School, Clark County School District |
| UI/UX For Digital Applications | Toni McDonough | Instructor | Secondary Educator | Spanish Springs High School, Washoe County School District |
| UI/UX For Digital Applications | Cassandra Smith | Instructor | Secondary Educator | Centennial High School, Clark County School District |
| UI/UX For Digital Applications | Denise Snow | Instructor | Secondary Educator | Nevada Virtual Learning Academy, Clark County School District |
| UI/UX For Digital Applications | Christina Carlson | Instructor | Secondary Educator | Reno High School, Washoe County School District |

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The 2D Animation complementary standards for Web Design and Development program of study were validated through active participation of business and industry representatives on the development team.

Complementary Course Information for Web Design and Development

Program Information

Qualifying Program of Study: Web Design and Development

Career Cluster: Information Technology

Career Pathway(s): Web AND Digital Communications

CTSO: SkillsUSA

Grade Level: 11-12

Program Structure for Complementary Courses

The complementary courses are provided in the following table. **The qualifying program of study must be completed prior to enrolling in the complementary courses** (except labs that are done concurrently with the second-year course). A program does not have to utilize the complementary courses for students to complete their program of study.

Complementary Courses

| Required/ Complementary | Course Title | Abbreviated Name |
|----------------------------|---|------------------|
| C | 2D Animation for Web Design and Development | 2D ANIMATE WDD |
| C | UI/UX for Digital Applications for Web Design and Development | UI UX DIGI WDD |
| C | Web Design and Development Advanced Studies | WEB DESG DEV AS |
| C | Industry-Recognized Credential – Web Design and Development | IRC WEB DESG DEV |
| C | CTE Work Experience – Information Technology | WORK EXPER IT |

Complementary Course Standards

2D Animation

CONTENT STANDARD 1.0: THE FIELD OF ANIMATION

Performance Standard 1.1: Purposes and Uses of Animation

- 1.1.1 Research careers in animation
- 1.1.2 Describe trends in animation
- 1.1.3 Explain types of animation (i.e., traditional, stop motion, motion graphic, computer-generated imagery [CGI], and interface animation)

Performance Standard 1.2: Communicate Ideas Using Appropriate Industry Terminology

- 1.2.1 Formulate written communications using industry terminology
- 1.2.2 Practice verbal communication using industry terminology
- 1.2.3 Prepare and deliver a visual presentation utilizing appropriate industry terminology

Performance Standard 1.3 Apply the Animation Production Process

- 1.3.1 Summarize the general production process
- 1.3.2 Practice the production process
- 1.3.3 Manage production assets
- 1.3.4 Practice time management to meet production deadlines
- 1.3.5 Model fair use in production of animated works

CONTENT STANDARD 2.0: PRE-PRODUCTION

Performance Standard 2.1: Implement Concept Development Practices

- 2.1.1 Practice brainstorming and ideation to develop a concept
- 2.1.2 Conduct visual research to provide reference for a project
- 2.1.3 Produce thumbnails, roughs, and comprehensive layouts for presentation
- 2.1.4 Design and develop environments
- 2.1.5 Design and develop 2D animated assets and characters

Performance Standard 2.2: Demonstrate Knowledge of Visual Design

- 2.2.1 Apply the elements and principles of design
- 2.2.2 Apply the twelve principles of animation
- 2.2.3 Explain the role of visual language in an animation project
- 2.2.4 Apply the principles of animation to create animated sequences

Performance Standard 2.3: Create Storyboards

- 2.3.1 Illustrate actions with sequential panels
- 2.3.2 Evaluate and revise storyboards for effectiveness and feasibility
- 2.3.3 Describe appropriate camera placement for shot composition

CONTENT STANDARD 3.0: 2D ANIMATION TECHNIQUES**Performance Standard 3.1: Apply Methodologies of 2D Animation**

- 3.1.1 Apply straight ahead and pose to pose techniques
- 3.1.2 Apply keyframing, tweens, and breakdowns
- 3.1.3 Simulate a naturally occurring or mechanical cycle/loop

Performance Standard 3.2: Perform Motion Design

- 3.2.1 Demonstrate an object following a path
- 3.2.2 Apply masking techniques
- 3.2.3 Simulate depth
- 3.2.4 Implement camera settings (depth of field, focal length, etc.)
- 3.2.5 Create lighting
- 3.2.6 Animate kinetic typography
- 3.2.7 Practice particle systems and visual effects
- 3.2.8 Implement motion tracking
- 3.2.9 Coordinate animated objects to sound

Performance Standard 3.3: Create Character Animation

- 3.3.1 Design a character
- 3.3.2 Create rigging for characters (parent/child, joint/bone chain, etc.)
- 3.3.3 Practice lip sync with audio

CONTENT STANDARD 4.0: POST-PRODUCTION**Performance Standard 4.1: Create Final Output**

- 4.1.1 Demonstrate editing and compositing techniques
- 4.1.2 Select and render appropriate format for distribution
- 4.1.3 Conduct peer and self-evaluations using rubrics

Complementary Course Standards

UI/UX For Digital Applications

CONTENT STANDARD 1.0: USER INTERFACE/USER EXPERIENCE (UI/UX) INDUSTRY PRACTICES

Performance Standard 1.1: Explore UI/UX in Industry

- 1.1.1 Define UI/ UX
- 1.1.2 Explore careers in UI/ UX
- 1.1.3 Compare UI/UX
- 1.1.4 Describe ways UI/UX complement and connect with each other
- 1.1.5 Explain various platforms that utilize UI/UX
- 1.1.6 Map roles of UI and UX in a project
- 1.1.7 Analyze project management tools and software
- 1.1.8 Compare front-end design vs. back-end builds

Performance Standard 1.2 Practice Design Techniques

- 1.2.1 Create wireframes, prototypes, user journeys ad user personas
- 1.2.2 Implement the design cycle in a project, (i.e., Identify, research, ideation, evaluate, prototype, test, and improve)
- 1.2.3 Explain the application of responsive vs adaptive design
- 1.2.4 Explain Data-Driven Design vs. Predictive Design
- 1.2.5 Apply website standard typography to a project
- 1.2.6 Apply elements and principles of design

CONTENT STANDARD 2.0: USER EXPERIENCE (UX)

Performance Standard 2.1: Identify User Needs

- 2.1.1 Research audience needs, values, abilities, and limitations
- 2.1.2 Complete a competitor analysis
- 2.1.3 Develop a plan for solving user problems
- 2.1.4 Critique the plan
- 2.1.5 Identify needs for user acquisition & retention
- 2.1.6 Match application with the real-world human behaviors and senses

Performance Standard 2.2: Practice Communication Skills

- 2.2.1 Interact with a team during all stages of a project
- 2.2.2 Collaborate with stakeholders during all stages of a project
- 2.2.3 Create a client brief and contract
- 2.2.4 Present ideas to clients and internal team members
- 2.2.5 Compare sprints vs. crunching working methods
- 2.2.6 Discuss the elements of the critique process (e.g., respect for peer work, ability to give and receive criticism, etc.)

Performance Standard 2.3: Explain the Nature of E-commerce

- 2.3.1 Discuss the functionality of commerce sites versus informational sites
- 2.3.2 Explain the purpose of a buy path
- 2.3.3 Describe user support topics (e.g., FAQs, returns, chat boxes, etc.)
- 2.3.4 Explain the importance of Search Engine Optimization (SEO)
- 2.3.5 Use data analysis to improve website
- 2.3.6 Research secure ways to access web sites and apps

CONTENT STANDARD 3.0: USER INTERFACE (UI)**Performance Standard 3.1: Implement Industry Practices In UI**

- 3.1.1 Apply consistency across project
- 3.1.2 Examine universal usability
- 3.1.3 Critic and revise based on informative feedback
- 3.1.4 Discuss technical limitations of platform and device
- 3.1.5 Debug and resolve issues in a project
- 3.1.6 Test and revise with users (i.e., soft and hard launch)
- 3.1.7 Discuss the purpose of allowing user control
- 3.1.8 Utilize appropriate file type for various applications

Performance Standard 3.2: Examine Ethical and Legal Issues

- 3.2.1 Analyze interface for Americans with Disabilities Act (ADA) compliance
- 3.2.2 Research laws governing brand issues, trademark, and other proprietary rights
- 3.2.3 Discuss consequences of violating copyright, privacy, and data security laws
- 3.2.4 Define and debate fair use, including authorships, rights of use for work and likeness, and credit lines

Performance Standard 3.3: Emerging Technology and Trends

- 3.3.1 Explain why UI/UX needs to adapt to emerging technologies
- 3.3.2 Describe sustainable design, (i.e., lifecycle of product, environmentally friendly, fiscally responsible)
- 3.3.3 Research intuitive and jester-based interfaces in UI/UX
- 3.3.4 Discuss the application of augmented reality (AR), virtual reality (VR), and artificial intelligence (AI)
- 3.3.5 Discuss evolving UI design trends (e.g., minimalist, skeuomorphic, 3D isometric, Flat Design styles, etc.)
- 3.3.6 Research the impacts of UX/UI in voice assistant technology (e.g., Amazon Alexa, Google Home, Apple's Siri, Microsoft's Cortana, etc.)

CONTENT STANDARD 4: PORTFOLIO DEVELOPMENT**Performance Standard 4.1: Create and Maintain a Portfolio**

- 4.1.1 Research and compare the various types of personal portfolios
- 4.1.2 Develop UI/UX portfolios