

Web Design and Development Curriculum Framework



This document was prepared by:

Office of Career Readiness, Adult Learning, and Education Options
Nevada Department of Education
755 N. Roop Street, Suite 201
Carson City, NV 89701

www.doe.nv.gov

Nevada State Board of Education

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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



Introduction

The Nevada Career and Technical Education (CTE) Curriculum Frameworks are a resource for Nevada's public schools and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.

This curriculum framework ensures the following:

- CTE course(s) and course sequence teaches the knowledge and skills required by industry through applied learning methodology and, where appropriate, work-based learning experiences that prepare students for careers in high-wage, high-skill, and/or in-demand fields. Regional and state economic development priorities shall play an important role in determining program approval. Some courses also provide instruction focused on personal development.
- CTE course(s) and course sequence includes leadership and employability skills as an integral part of the curriculum.
- CTE course(s) and course sequence is part of a rigorous program of study and includes sufficient technical challenge to meet state and/or industry-standards.

**Nevada Department of Education
Curriculum Framework for
Web Design and Development**

Program Information

Program Title:	Web Design and Development
State Skill Standards:	Web Design and Development
Standards Reference Code:	WEB
Career Cluster:	Information Technology
Career Pathway:	Web and Digital Communications
Program Length:	2-year, completed sequentially
Program Assessments:	Web Design and Development Workplace Readiness Skills
CTSO:	SkillsUSA / FBLA
Grade Level:	9-12
Industry Certifications:	See Nevada’s Approved Certification Listing

Program Purpose

The purpose of this program is to prepare students for postsecondary education and employment in the Web Design and Development industry.

The program includes the following state standards:

- Nevada CTE Skill Standards: Web Design and Development
- Employability Skills for Career Readiness
- Nevada Academic Content Standards (alignment shown in the Nevada CTE Skill Standards):
 - English Language Arts
 - Mathematics
 - Science
- Common Career Technical Core (alignment shown in the Nevada CTE Skill Standards)

Career Clusters

The National Career Clusters® Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study (POS). In total, there are 16 Career Clusters in the National Career Clusters Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career. As an organizing tool for curriculum design and instruction, Career Clusters provide the essential knowledge and skills for the 16 Career Clusters and their Career Pathways. ^{1 and 2}

¹ Career Clusters | Advance CTE. (2022). Retrieved 31 August 2022, from <https://careertech.org/Career-Clusters>

² The National Career Clusters® Framework. (2022). American Institutes for Research. Retrieved 31 August 2022, from <https://www.air.org/sites/default/files/CTEClusters.pdf>

Program of Study

The program of study illustrates the sequence of academic and career and technical education coursework that is necessary for the student to successfully transition into postsecondary educational opportunities and employment in their chosen career path (NAC 389.803).

Program Structure

The core course sequencing, with the complementary courses provided in the following table, serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught. Complete program sequences are essential for the successful delivery of all state standards in each program area. A program does not have to utilize the complementary courses for students to complete their program of study.

Web Design and Development

Required Core Course Sequence (R) with Complementary Courses (C)

Required/ Complementary	Course Title	Abbreviated Name	CIP Code	SCED Subject Area	SCED Course Identifier	SCED Course Level	SCED Unit Credit	SCED Course Sequence	SCED Course Number
R	Web Design and Development I	WEB DESG DEV I	11.0801	10	201	G	1.00	12	10201G1.0012
R	Web Design and Development II	WEB DESG DEV II	11.0801	10	201	G	1.00	22	10201G1.0022
C	Web Design and Development II LAB	WEB DESG DEV II L	11.0801	10	201	G	1.00	22	10201G1.0022
C	Web Design and Development Advanced Studies	WEB DESG DEV AS	11.0801	10	201	E	1.00	11	10201E1.0011
C	CTE Work Experience -- Information Technology	WORK EXPER IT	99.0011	10	298	G	1.00	11	10298G1.0011
C	Industry Recognized Credential – Web Design and Development	IRC WEB DESG DEV	11.0801	10	999	E	1	11	10999E1.0011

State Skill Standards

The state skill standards are designed to clearly state what the student should know and be able to do upon completion of an advanced high school career and technical education (CTE) program. The standards are designed for the student to complete all standards through their completion of a program of study. The standards are designed to prepare the student for the end-of-program technical assessment directly aligned to the standards (NAC 389.000 [1]).

Employability Skills for Career Readiness Standards

Employability skills have for many years been a recognizable component of the standards and curriculum in career and technical education programs. The twenty-one standards are organized into three areas: (1) Personal Qualities and People Skills, (2) Professional Knowledge and Skills, and (3) Technology Knowledge and Skills. The standards are designed to ensure students graduate high school properly prepared with skills employers prioritize as the most important. Instruction on all twenty-one standards must be part of each course of the CTE program (NAC 389.800 [1]).

Curriculum Framework

The Nevada CTE Curriculum Frameworks are organized utilizing the recommended course sequencing listed in the program of study and the CTE Course Catalog. The framework identifies the recommended content standards, performance standards, and performance indicators that should be taught in each course.

Career and Technical Student Organizations (CTSOs)

To further the development of leadership and technical skills, students must have opportunities to participate in one or more of the Career and Technical Student Organizations (CTSOs). CTSOs develop character, citizenship, and the technical, leadership and teamwork skills essential for the workforce and their further education. Their activities are considered a part of the instructional day when they are directly related to the competencies and objectives in the course (NAC 389.800 [3]).

Workplace Readiness Skills Assessment

The Workplace Readiness Skills Assessment has been developed to align with the Nevada CTE Employability Skills for Career Readiness Standards. This assessment provides a measurement of student employability skills attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified in the Program Structure table as SCED Course Level “G” and SCED Course Sequence 22 or 33 (NAC 389.800 [1]).

End-of-Program Technical Assessment

An end-of-program technical assessment may be implemented for those programs with current industry validated standards to align with the Nevada CTE Skill Standards for this program. This assessment provides a measurement of student technical skill attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified in the Program Structure table as SCED Course Level “G” and SCED Course Sequence 22 or 33 (NAC 389.800 [1]).

Certificate of Skill Attainment

Each student who completes a course of study must be awarded a certificate which states that they have attained specific skills in the industry being studied and meets the following criteria: A student must maintain a 3.0 grade point average in their approved course of study, pass the Workplace Readiness Skills Assessment, and pass the end-of-program technical assessment, if available (NAC 389.800 [4]).

CTE Endorsement on a High School Diploma

A student qualifies for a CTE endorsement on their high school diploma after successfully completing the following criteria: (1) completion of a CTE course of study in a program area, (2) completion of academic requirements governing receipt of a standard diploma, and (3) meet all requirements for the issuance of the Certificate of Skill Attainment (NAC 389.815).

CTE College Credit

CTE College Credit is awarded to students based on articulation agreements established by each college for the CTE program, where the colleges will determine the credit value of a full high school CTE program based on course alignment. An articulation agreement will be established for each CTE program designating the number of articulated credits each college will award to students who complete the program.

CTE College Credit is awarded to students who: (1) complete the CTE course sequence with a grade-point average of 3.0 or higher, (2) pass the state end-of-program technical assessment, if available, for the program of study, and (3) pass the Workplace Readiness Assessment for employability skills.

Pre-existing articulation agreements will be recognized until new agreements are established according to current state policy and the criteria shown above.

Please refer to the local high school's course catalog or contact the local high school counselor for more information (NAC 389.800 [3]).

Academic Credit for CTE Coursework

Career and technical education courses meet the credit requirements for high school graduation (1 unit of arts and humanities or career and technical education). Some career and technical education courses meet academic credit for high school graduation. Please refer to the local high school's course catalog or contact the local high school counselor for more information (NAC 389.672).

Core Courses

Recommended Student Performance Standards

Course Information

Course Title: Web Design and Development I
Abbreviated Name: WEB DESG DEV I
Credits: 1
Prerequisite: None
CTSO: SkillsUSA / FBLA

Course Description

This course is designed to introduce students to the basic elements of web design and development. Students will learn about content placement, use of color and graphics, and typography using industry standard software. Students are introduced to various web design languages to build their websites, design concepts, and layout theory. Students will become familiar with marketing and other uses of websites; as well as security, ethical, legal, usability, and accessibility issues related to websites. The appropriate use of technology and industry-standard equipment is an integral part of this course.

Technical Standards

CONTENT STANDARD 1.0: INTEGRATE CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOS)

Performance Standard 1.1: Explore the History and Organization of CTSOs

Performance Indicators: 1.1.1-1.1.3

Performance Standard 1.2: Develop Leadership Skills

Performance Indicators: 1.2.1-1.2.6

Performance Standard 1.3: Participate in Community Service

Performance Indicators: 1.3.1-1.3.3

Performance Standard 1.4: Develop Professional and Career Skills

Performance Indicators: 1.4.1-1.4.5

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

Performance Indicators: 1.5.1-1.5.3

CONTENT STANDARD 2.0: FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT

Performance Standard 2.1: Understand the History of Web Design and Development

Performance Indicators: 2.1.1-2.1.3

Performance Standard 2.2: Explain Layout and Design Theory

Performance Indicators: 2.2.1-2.2.5

Performance Standard 2.3: Demonstrate Knowledge of Industry Terminology

Performance Indicators: 2.3.1-2.3.3

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

Performance Indicators: 2.4.1-2.4.5

Performance Standard 2.5: Describe E-Commerce

Performance Indicators: 2.5.1-2.5.4

CONTENT STANDARD 3.0: ETHICAL AND SECURE USE OF INFORMATION

Performance Standard 3.1: Describe Copyright Laws in Relation to Web Development

Performance Indicators: 3.1.1-3.1.4

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

Performance Indicators: 3.2.1-3.2.8

Performance Standard 3.3: Apply Personal and Professional Ethics

Performance Indicators: 3.3.1-3.3.3

CONTENT STANDARD 4.0: PLAN AND DESIGN A WEBSITE

Performance Standard 4.1: Web Design and Development Cycle

Performance Indicators: 4.1.1-4.1.2

Performance Standard 4.2: Develop a File Management System

Performance Indicators: 4.2.1-4.2.5

Performance Standard 4.3: Demonstrate Proper Layout Techniques

Performance Indicators: 4.3.1-4.3.5

Performance Standard 4.4: Create Web Content

Performance Indicators: 4.4.1-4.4.8

Performance Standard 4.5: Create and Edit Media for the Web

Performance Indicators: 4.5.1-4.5.6

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

Performance Indicators: 4.6.1-4.6.5

CONTENT STANDARD 5.0: WEBSITE DEVELOPMENT

Performance Standard 5.1: Develop a Website Using Hypertext Markup Language (HTML)

Performance Indicators: 5.1.1-5.1.5

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

Performance Indicators: 5.2.1-5.2.7

Employability Skills for Career Readiness Standards**CONTENT STANDARD 1.0: DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1: Demonstrate Personal Qualities and People Skills

Performance Indicators: 1.1.1-1.1.7

Performance Standard 1.2: Demonstrate Professional Knowledge and Skills

Performance Indicators: 1.2.1-1.2.10

Performance Standard 1.3: Demonstrate Technology Knowledge and Skills

Performance Indicators: 1.3.1-1.3.4

Alignment to the Nevada Academic Content Standards*

English Language Arts: Language Standards
Reading Standards for Literacy in Science and Technical Subjects
Speaking and Listening Standards
Writing Standards for Literacy in Science and Technical Subjects

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

*Refer to the Web Design and Development Standards for alignment by performance indicator.

Course Information

Course Title: Web Design and Development II
Abbreviated Name: WEB DESG DEV II
Credits: 1
Prerequisite: Web Design and Development I
Program Assessments: TBD
Workplace Readiness Skills
CTSO: SkillsUSA / FBLA

Course Description

This course is a continuation of Web Design and Development I. This course is designed for advanced students to create websites for a variety of purposes using advanced techniques and processes. Areas of study include automation, interactivity in websites, as well as databases, web servers, content management systems, and a more extensive knowledge of website construction. Students will explore emerging technologies in the web design and development field such as artificial intelligence and augmented reality. Project-based learning, collaboration, and portfolio development are essential elements of this class. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

Technical Standards**CONTENT STANDARD 1.0: INTEGRATE CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOS)**

Performance Standard 1.1: Explore the History and Organization of CTSOs

Performance Indicators: 1.1.1-1.1.3

Performance Standard 1.2: Develop Leadership Skills

Performance Indicators: 1.2.1-1.2.6

Performance Standard 1.3: Participate in Community Service

Performance Indicators: 1.3.1-1.3.3

Performance Standard 1.4: Develop Professional and Career Skills

Performance Indicators: 1.4.1-1.4.5

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

Performance Indicators: 1.5.1-1.5.3

CONTENT STANDARD 4.0: PLAN AND DESIGN A WEBSITE

Performance Standard 4.1: Web Design and Development Cycle

Performance Indicators: 4.1.2

Performance Standard 4.2: Develop a File Management System

Performance Indicators: 4.2.1-4.2.5

Performance Standard 4.4: Create Web Content

Performance Indicators: 4.4.3-4.4.5

Performance Standard 4.5: Create and Edit Media for the Web

Performance Indicators: 4.5.1-4.5.6

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

Performance Indicators: 4.6.3

CONTENT STANDARD 5.0: WEBSITE DEVELOPMENT

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

Performance Indicators: 5.2.8

Performance Standard 5.3: Apply Foundations of Web Scripting

Performance Indicators: 5.3.1-5.3.6

Performance Standard 5.4: Develop Databases

Performance Indicators: 5.4.1-5.4.4

Performance Standard 5.5: Utilize Content Management Systems in Web Development

Performance Indicators: 5.5.1-5.5.2

Performance Standard 5.6: Utilize Online Collaboration Resources

Performance Indicators: 5.6.1-5.6.3

CONTENT STANDARD 6.0: PUBLISHING A WEBSITE

Performance Standard 6.1: Understand Fundamentals of Web Hosting

Performance Indicators: 6.1.1-6.1.5

Performance Standard 6.2: Demonstrate Publishing to the Web

Performance Indicators: 6.2.1-6.2.5

Performance Standard 6.3: Maintain Web Content

Performance Indicators: 6.3.1-6.3.5

CONTENT STANDARD 7.0: ADVANCED AND EMERGING TECHNOLOGIES IN WEB DEVELOPMENT

Performance Standard 7.1: Develop a Web App

Performance Indicators: 7.1.1-7.1.3

Performance Standard 7.2: Explain Artificial Intelligence (AI)

Performance Indicators: 7.2.1-7.2.4

Performance Standard 7.3: Research Non-Standard Web Connected Devices

Performance Indicators: 7.3.1-7.3.2

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

Performance Indicators: 7.4.1-7.4.2

Employability Skills for Career Readiness Standards**CONTENT STANDARD 1.0: DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1: Demonstrate Personal Qualities and People Skills

Performance Indicators: 1.1.1-1.1.7

Performance Standard 1.2: Demonstrate Professional Knowledge and Skills

Performance Indicators: 1.2.1-1.2.10

Performance Standard 1.3: Demonstrate Technology Knowledge and Skills

Performance Indicators: 1.3.1-1.3.4

Alignment to the Nevada Academic Content Standards*

English Language Arts: Language Standards
Speaking and Listening Standards
Writing Standards for Literacy in Science and Technical Subjects

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

*Refer to the Web Design and Development Standards for alignment by performance indicator.

Complementary Courses

Programs that utilize the complementary courses can include the following:

- Advanced Studies course
- Lab course(s)
- CTE Work Experience course
- Industry-Recognized Credential course

Course Information

Course Title: Web Design and Development Advanced Studies

Abbreviated Name: WEB DESG DEV AS

Credits: 1

Prerequisite: Completion of Web Design and Development

CTSO: SkillsUSA / FBLA

Course Description

This course is offered to students who have completed all content standards in a program and desire to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

Technical Standards

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

Employability Skills for Career Readiness Standards

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

Sample Topics:

- Internship
- School-based enterprise
- Artificial intelligence
- Machine learning

Course Information**Course Title: Web Design and Development II LAB****Abbreviated Name: WEB DESG DEV II L****Credits: 1****Prerequisite: Concurrent enrollment in Web Design and Development II****CTSO: SkillsUSA / FBLA****Course Description**

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth lab experience that applies the processes, concepts, and principles as described in the classroom instruction. The coursework will encourage students to explore and develop advanced skills in their program area. The appropriate use of technology and industry-standard equipment is an integral part of this course.

Course Information**Course Title: CTE Work Experience – Information Technology****Abbreviated Name: WORK EXPER IT****Credits: 1****Prerequisite: Completion of Level 2 course in the qualifying program of study****CTSO: SkillsUSA / FBLA****Course Description**

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth CTE work experience that applies the processes, concepts, and principles as described in the classroom instruction. This course will encourage students to explore and develop advanced skills through work-based learning directly related to the program of study. The course must follow NAC 389.562, 389.564, 389.566 regulations.

Course Information

Course Title: Industry-Recognized Credential – Web Design and Development

Abbreviated Name: IRC WEB DESG DEV

Credits: 1

Prerequisite: Completion of Web Design and Development Program of Study

CTSO: SkillsUSA / FBLA

Course Description

This course is offered to students who have completed all content standards in a program of study and desire to pursue an Industry-Recognized Credential that aligns with the standards and skills associated with the Web Design and Development Program of Study. This course is designed to expand the students' opportunities to pursue certification aligned with employment standards in the industry aligned with this program of study. The supervising teacher will provide instruction aligned with the certification requirements, monitor progress toward certification, and provide the students with appropriate testing or certification opportunities associated with the intended Industry-Recognized Credential that is the subject of the course. This course may be repeated for additional instruction and credit.