

***WEB DESIGN AND DEVELOPMENT
CURRICULUM FRAMEWORK***



This document was prepared by:

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All Nevadans ready for success in the 21st century

MISSION

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



INTRODUCTION

The Nevada CTE Curriculum Frameworks are a resource for Nevada’s public 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.

The intent of this document is to provide a resource to districts as they develop and implement CTE programs and curricula.

This program ensures the following thresholds are met:

- The CTE course 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, 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.
- The CTE course and course sequence includes leadership and employability skills as an integral part of the curriculum.
- The CTE course and course sequence is part of a rigorous program of study and includes sufficient technical challenge to meet state and/or industry-standards.

The CTE program components include the following items:

- Program of Study
- State Skill Standards
- Employability Skills for Career Readiness Standards
- Career Technical Student Organizations (CTSOs)
- Curriculum Framework
- CTE Assessments:
 - Workplace Readiness Skills Assessment
 - End-of-Program Technical Assessment
- Certificate of Skill Attainment
- CTE Endorsement on a High School Diploma
- CTE College Credit

**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: 3 Levels (L1, L2, L3C)
Program Assessments: Web Design and Development
Workplace Readiness Skills
CTSO: FBLA / SkillsUSA
Grade Level: 9-12
Industry Certifications: CIW Site Development Associate / Adobe Certified Associate (ACA), Photoshop, Dreamweaver, Flash

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.*

*Cite: National Association of State Directors of Career Technical Education Consortium. (2012). Retrieved from <http://www.careertech.org/career-clusters/glance/careerclusters.html>

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 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 and has a designated level. Complete program sequences are essential for the successful delivery of all state standards in each program area.

WEB DESIGN AND DEVELOPMENT**Core Course Sequence**

COURSE NAME	
Web Design and Development I	L1
Web Design and Development II	L2
Web Design and Development III	L3C

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 and has a designated level. A program does not have to utilize all of the complementary courses in order for their students to complete their program of study. Complete program sequences are essential for the successful delivery of all state standards in each program area.

WEB DESIGN AND DEVELOPMENT**Core Course Sequence with Complementary Courses**

COURSE NAME	LEVEL
Web Design and Development I	L1
Web Design and Development II	L2
Web Design and Development II LAB*	L2L
Web Design and Development III	L3C
Web Design and Development III LAB*	L3L
Web Design and Development Advanced Studies*	AS

*Complementary Courses

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. (Paragraph (a) of Subsection 1 of NAC 389.800)

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Employability skills, often referred to as “soft 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. (Paragraph (d) of Subsection 1 of NAC 389.800)

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. (Paragraph (a) of Subsection 3 of NAC 389.800)

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 by the letter “C”. (e.g., Level = L3C) (Paragraph (d) of Subsection 1 of NAC 389.800)

END-OF-PROGRAM TECHNICAL ASSESSMENT

An end-of-program technical assessment has been developed 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 by the letter “C”. (e.g., Level = L3C) (Paragraph (e) of Subsection 1 of NAC 389.800)

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. (Subsection 4 of NAC 389.800)

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 for the program; 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. (Paragraph (b) of Subsection 3 of NAC 389.800)

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 COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS****COURSE INFORMATION:****COURSE TITLE: Web Design and Development I****ABBR. NAME: Web Desg Dev I****CREDITS: 1****LEVEL: L1****CIP CODE: 11.0801****PREREQUISITE: NONE****CTSO: FBLA / SKILLSUSA****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, typography, and message using industry-standard software. Students are introduced to various web design languages, design concepts, and layout theory. Students will become familiar with marketing and other uses of websites; as well as ethical and legal issues related to websites.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0: FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT**

Performance Standard 1.1: Understand the History of Web Design and Development

Performance Indicators: 1.1.1-1.1.3

Performance Standard 1.2: Apply Layout and Design Theory

Performance Indicators: 1.2.1-1.2.6

Performance Standard 1.3: Demonstrate Knowledge of Industry Terminology

Performance Indicators: 1.3.1-1.3.3

Performance Standard 1.4: Describe the Relationship Between Social Media and Web Development

Performance Indicators: 1.4.1-1.4.4**CONTENT STANDARD 2.0: ETHICAL AND SECURE USE OF INFORMATION**

Performance Standard 2.1: Understand Copyright Laws in Relation to Web Development

Performance Indicators: 2.1.1-2.1.2, 2.1.4

Performance Standard 2.2: Understand Security Issues in Relation to Web Development

Performance Indicators: 2.2.3

Performance Standard 2.3: Apply Personal and Professional Ethics

Performance Indicators: 2.3.1**CONTENT STANDARD 3.0: CONSTRUCT A WEBSITE**

Performance Standard 3.1: Develop a File Management System

Performance Indicators: 3.1.1-3.1.5

Performance Standard 3.2: Demonstrate Proper Layout Techniques

Performance Indicators: 3.2.1-3.2.3, 3.2.5

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- Performance Standard 3.3: Create Web Content
Performance Indicators: 3.3.1-3.3.3, 3.3.5-3.3.6
- Performance Standard 3.4: Create and Edit Media for the Web
Performance Indicators: 3.4.1-3.4.7
- Performance Standard 3.5: Demonstrate Knowledge of Challenges Associated with Accessibility and Usability
Performance Indicators: 3.5.2, 3.5.4
- CONTENT STANDARD 4.0: PUBLISHING A WEBSITE**
- Performance Standard 4.3: Maintain Web Content
Performance Indicators: 4.3.1-4.3.4
- CONTENT STANDARD 5.0: WEB 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
- Performance Standard 5.5: Utilize Content Management Systems in Web Development
Performance Indicators: 5.5.1
- Performance Standard 5.6: Utilize Online Collaboration Resources
Performance Indicators: 5.6.1-5.6.2

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*:

- K-12 Computer Science:** Networks and the Internet
 Computing Systems
 Impacts of Computing
- English Language Arts:** Reading Standards for Literacy in Science and Technical Subjects
 Writing Standards for Literacy in Science and Technical Subjects
 Speaking and Listening
- Mathematics:** Mathematical Practices
- Science:** Science and Engineering Practices

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

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS****COURSE INFORMATION:****COURSE TITLE:** Web Design and Development II**ABBR. NAME:** Web Desg Dev II**CREDITS:** 1**LEVEL:** L2**CIP CODE:** 11.0801**PREREQUISITE:** Web Design and Development I**CTSO:** FBLA / SkillsUSA**COURSE DESCRIPTION:**

This course is a continuation of Web Design and Development I. This course is designed for intermediate students to create websites for a variety of purposes. Students will develop their knowledge of content, placement, use of color and graphics, typography, and message. Students will use various web design languages, design concepts, and layout theories to create their websites. Students will examine the role of marketing, market research, ethics, and legal issues as it relates to websites. 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.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0: FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT**

Performance Standard 1.3: Demonstrate Knowledge of Industry Terminology

Performance Indicators: 1.3.4

Performance Standard 1.4: Describe the Relationship Between Social Media and Web Development

Performance Indicators: 1.4.2-1.4.4

Performance Standard 1.5: Describe E-Commerce

Performance Indicators: 1.5.1-1.5.4**CONTENT STANDARD 2.0: ETHICAL USE OF INFORMATION**

Performance Standard 2.1: Understand Copyright Laws in Relationship to Web Development

Performance Indicators: 2.1.2-2.1.3

Performance Standard 2.2: Describe Security Issues in Relation to Web Development

Performance Indicators: 2.2.1-2.2.2, 2.2.4-2.2.8

Performance Standard 2.3: Apply Personal and Professional Ethics

Performance Indicators: 2.3.1, 2.3.3**CONTENT STANDARD 3.0: CONSTRUCT A WEBSITE**

Performance Standard 3.2: Demonstrate Proper Layout Techniques

Performance Indicators: 3.2.4

Performance Standard 3.3: Create Web Content

Performance Indicators: 3.3.4, 3.3.7-3.3.8

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Performance Standard 3.4: Create and Edit Media for the Web

Performance Indicators: 3.4.3, 3.4.7-3.4.8

Performance Standard 3.5: Demonstrate Knowledge of Challenges Associated with Accessibility and Usability

Performance Indicators: 3.5.1, 3.5.3, 3.5.5

CONTENT STANDARD 4.0: PUBLISHING A WEBSITE

Performance Standard 4.1: Describe Fundamentals of a Web Hosting

Performance Indicators: 4.1.3

Performance Standard 4.2: Demonstrate Publishing to the Web

Performance Indicators: 4.2.1-4.2.5

Performance Standard 4.3: Create Web Content

Performance Indicators: 4.3.5

CONTENT STANDARD 5.0: DEMONSTRATE KNOWLEDGE OF WEB PROGRAMMING

Performance Standard 5.3: Apply Foundations of Web Scripting

Performance Indicators: 5.3.1-5.3.6

Performance Standard 5.6: Utilize Online Collaboration Resources

Performance Indicators: 5.6.2

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*:

K-12 Computer Science: Networks and the Internet
Computing Systems
Impacts of Computing
Algorithms and Programming

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

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

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

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS****COURSE INFORMATION:****COURSE TITLE: Web Design and Development III****ABBR. NAME: Web Desg Dev III****CREDITS: 1****LEVEL: L3C****CIP CODE: 11.0801****PREREQUISITE: Web Design and Development II****PROGRAM ASSESSMENTS: Web Design and Development
Workplace Readiness Skills****CTSO: FBLA / SkillsUSA****COURSE DESCRIPTION:**

This course is a continuation of Web Design and Development II. 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, animation and interactivity in websites, as well as web servers, and a more extensive knowledge of website construction. 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: FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT**

Performance Standard 1.3: Demonstrate Knowledge of Industry Terms

Performance Indicators: 1.3.4

Performance Standard 1.4: Describe the Relationship Between Social Media and Web Development

Performance Indicators: 1.4.2, 1.4.4-1.4.5**CONTENT STANDARD 2.0: ETHICAL AND SECURE USE OF INFORMATION**

Performance Standard 2.2: Describe Security Issues in Relation to Web Development

Performance Indicators: 2.2.2, 2.2.5-2.2.6

Performance Standard 2.3: Apply Personal and Professional Ethics

Performance Indicators: 2.3.1-2.3.3**CONTENT STANDARD 4.0: PUBLISHING A WEBSITE**

Performance Standard 4.1: Describe Fundamentals of Web Hosting

Performance Indicators: 4.1.1-4.1.2, 4.1.4-4.1.5

Performance Standard 4.2: Demonstrate Publishing to the Web

Performance Indicators: 4.2.3**CONTENT STANDARD 5.0: WEB DEVELOPMENT**

Performance Standard 5.4: Develop Databases

Performance Indicators: 5.4.1-5.4.5

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Performance Standard 5.5: Utilize Content Management Systems in Web Development

Performance Indicators: 5.5.2-5.5.3

Performance Standard 5.6: Utilize Online Collaboration Resources

Performance Indicators: 5.6.3

CONTENT STANDARD 6.0: EMERGING TECHNOLOGIES IN WEB DEVELOPMENT

Performance Standard 6.1: Develop a Web App

Performance Indicators: 6.1.1-6.1.4

Performance Standard 6.2: Explain Artificial Intelligence (AI)

Performance Indicators: 6.2.1-6.2.5

Performance Standard 6.3: Research Non-standard Web Connected Devices

Performance Indicators: 6.3.1-6.3.2

Performance Standard 6.4: Explore Virtual (VR) and Augmented (AR) Reality

Performance Indicators: 6.4.1-6.4.2

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*:

K-12 Computer Science: Networks and the Internet
Computing Systems
Impacts of Computing
Algorithms and Programming

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

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

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

COMPLEMENTARY COURSE(S):**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Programs that utilize the complementary courses can include the following courses. The Advanced Studies course allows for additional study through investigation and in-depth research.

COURSE INFORMATION:

COURSE TITLE: Web Design and Development Advanced Studies

ABBR. NAME: Web Design Dev AS

CREDITS: 1

LEVEL: AS

CIP CODE: 11.0801

PREREQUISITE: Web Design and Development III

CTSO: FBLA/SkillsUSA

COURSE DESCRIPTION:

This course is offered to students who have achieved 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 achieved all program content standards and will pursue advanced study through investigation and in-depth research.

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

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

SAMPLE TOPICS:

- Internship
- School-based Enterprise
- Teaching assistant

COMPLEMENTARY COURSE(S):**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Programs that utilize the complementary courses can include the following courses. The lab courses allow additional time to be utilized in developing the processes, concepts, and principles as described in the classroom instruction. The standards and performance indicators for each lab course are shown in the corresponding course listed in the previous section.

COURSE INFORMATION:

COURSE TITLE: Web Design and Development III LAB
ABBR. NAME: Web Desg Dev II L
CREDITS: 1
LEVEL: L2L
CIP CODE: 11.0801
PREREQUISITE: Concurrent Enrollment in Web Design and Development II
CTSO: FBLA / SkillsUSA

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: Web Design and Development III LAB
ABBR. NAME: Web Desg Dev III L
CREDITS: 1
LEVEL: L3L
CIP CODE: 11.0801
PREREQUISITE: Concurrent Enrollment in Web Design and Development III
CTSO: FBLA / SkillsUSA

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.