

## CompuScholar, Inc.

### Alignment to the Mississippi 2023 Software Development Standards

### Web and Programming Concepts (902147)

#### Mississippi Standards Information:

State Page	<a href="#">Mississippi Curriculum Standards</a>
Standards Link:	<a href="#">2023 Software Development Standards (docx)</a>
Course Code	902147

#### CompuScholar Course Details:

Course Title:	<a href="#">Web Design</a>
Course ISBN:	978-0-9887070-3-0
Course Year:	2024

#### Course Description

CompuScholar's **Web Design** curriculum is commonly used for **Web Design** courses in many states. The course covers introductory HTML and CSS concepts, including page layout, elements, CSS rules, tables, positioning, audio and video, pseudoselectors, and other classic web design topics.

#### Web and Programming Concepts (Units 1 - 6)

**Note 1:** Citation(s) for a "Lesson" refer to the "**Lesson Text**" page where instruction of concepts is found.

Additional hands-on practice can be found in the nearby "**Chapter Activity**" pages within that chapter.

**Note 2:** The "Instructional Video" components are optional supplements designed to introduce or reinforce the main lesson concepts and are not cited as standards-bearing content.

**Note 3:** Citation(s) to "Supplemental" or "Suppl." Chapters refer to Supplemental Chapters found at the end of the course.

Unit 1: Orientation and Ongoing Skills	CITATIONS
<b>1. Identify school policies and safety procedures related to the software development pathway.</b>	
a. Examine the school handbook, the acceptable-use policy for technology, and other safety procedures for building-level situations.	Chapter 16, Lesson 1
b. Preview the course outline and its relevance in today's workforce.	See Web Design - Course Planner and Syllabus pinned to the top of the course

c. Recognize appropriate safety measures related to technology in the computer lab and online safety such as phishing, other sources of viruses, malware, etc.	Chapter 16, Lesson 2
d. Explore legalities and ethical use of various computational artifacts and resources.	Chapter 11, Lesson 1 Chapter 16, Lessons 1, 2
<b>2. Recognize opportunities to participate in student organizations related to technology and computer science.</b>	
a. Identify student organizations available at school for technology and computer science.	Supplemental Lesson 13
b. List student competitions available through each organization.	Supplemental Lesson 13
<b>3. Demonstrate knowledge of 21st-century skills.</b>	
a. Demonstrate effective collaboration and teamwork.	Chapter 14 (team project)
b. Demonstrate creativity and imagination.	Chapter 14, Lessons 1, 2 Chapter 14, Activities 1, 2
c. Utilize critical thinking through effective reasoning, making judgements, and decisions.	Chapter 14, Lessons 1, 2 Chapter 14, Activities 1, 2
d. Execute problem-solving techniques.	Chapter 3, Lessons 1, 2 Chapter 6 Activity Chapter 12, Lesson 1 Chapter 14, Lesson / Activity 3
e. Demonstrate proper email etiquette.	Chapter 16, Lesson 1
f. Demonstrate effective communication in groups.	Chapter 13, Lesson 1 Chapter 14 (team project) Chapter 17 Activity Supplemental Lesson 4
g. Demonstrate presentation skills.	Chapter 14, Lesson / Activity 3
<b>4. Explore career opportunities within computer science in the specialty areas of programming, cybersecurity, data science, robotics, artificial intelligence, human-computer interaction, and web development. DOK 3</b>	
a. Research career opportunities for employment in each of the specialty areas listed above.	Supplemental Lesson / Activity 8
b. Examine the requirements, skills, wages, education, and employment opportunities in each of the specialty areas listed above.	Supplemental Lesson / Activity 8
c. Describe how at least one of the specialty areas listed above is used in a career field outside of computer science (e.g., automotive, health care, fashion design, etc.).	Supplemental Lesson / Activity 8

<b>5. Examine code and utilize debugging techniques to identify errors.</b>	
a. Work together in a team to investigate code.	Chapter 14, Lesson / Activity 3 Chapter 17, Activity 1
b. Provide recommendations to correct or improve.	Chapter 14, Lesson / Activity 3 Chapter 17, Activity 1

Unit 2: Introduction to Web Programming, HTML, and Layout	CITATIONS
<b>1. Explore the creation of a web page using Hypertext Markup Language (HTML) and/or Extensible Hypertext Markup Language (XHTML).</b>	
a. Explain web page creation, discussing web browsers, standards, and accessibility.	Chapter 1, Lessons 1, 2 Chapter 2 Chapter 13, Lesson 2 Chapter 16, Lesson 3
b. Contrast text editors and graphical user interface (GUI) editors.	Chapter 16, Lesson 4
c. Explain HTML and XHTML and the standards of each.	Chapter 1, Lesson 2 Chapter 2, Lesson 4 Chapter 16, Lesson 3
<b>2. Research the governing bodies that set standards for the internet.</b>	
a. Explain the internet governing bodies.	Chapter 1, Lessons 1, 2 (W3C) Chapter 13, Lesson 3 (W3C)
b. Discuss the Internet Society and Internet Architecture Board (IAB).	N/A
c. Describe the Internet Research Task Force (IRTF) and Internet Engineering Task Force (IETF).	N/A
d. Discuss the World Wide Web Consortium (W3C), Internet Corporation for Assigned Names and Numbers (ICANN), and Request for Comments (RFC).	Supplemental Lesson 2 (ICANN)
<b>3. Demonstrate web page layout and elements.</b>	
a. Demonstrate an effective layout for a web page (e.g., wire frames and site maps).	Chapter 13, Lesson 1 / Activity Chapter 14, Lesson 1 / Activity 1
b. Discuss color and web design.	Chapter 6, Lesson 2 Chapter 10, Lesson 1
c. Explore font usage.	Chapter 7, Lesson 1 Chapter 20, Lesson 4
d. Explain website usability testing.	Chapter 13, Lessons 1, 2 Chapter 14, Lesson 3 / Activity 3
<b>4. Explain HTML and/or XHTML.</b>	
a. Explain markup tags.	Chapter 2, Lesson 3 (and throughout the course)
b. Discuss and use document structure tags.	Chapter 2, Lesson 4 Chapter 3, Lessons 1, 2
• Explore sectioning.	Chapter 17, Lessons 2, 3, 4

• Explore grouping elements (e.g., unordered, ordered, and definition lists, etc.).	Chapter 4, Lessons 1, 3
• Explore text-level elements.	Chapter 3, Lessons 2, 3
c. Use comments and good coding practices (emphasizing readability).	Chapter 4, Lesson 2

<b>Unit 3: Hyperlinks, Graphical Elements, Image Techniques, and Navigation Concepts</b>	<b>CITATIONS</b>
<b>1. Demonstrate the use of hyperlinks.</b>	
a. Explain and code hyperlinks.	Chapter 5 (All lessons)
b. Use image and internal links.	Chapter 5, Lesson 2 Chapter 11, Lesson 2
c. Explain the elements of navigation design.	Chapter 5, Lesson 3 Chapter 13, Lesson 1 Chapter 24 (All lessons)
d. Demonstrate primary and secondary navigation.	Chapter 24 (All lessons)
e. Discuss navigation hierarchy.	Chapter 13, Lesson 1 Chapter 24 (All lessons)
f. Discuss site structure, uniform resource locators (URLs), and file names.	Chapter 1, Lesson 3 Chapter 2, Lessons 1, 2 Chapter 5, Lesson 4
g. Discuss familiar navigation conventions.	Chapter 5, Lesson 3 Chapter 10, Lesson 4 Chapter 13, Lesson 1 Chapter 24 (All lessons)
<b>2. Use graphical elements to enhance a web page.</b>	
a. Explain and use the horizontal rule.	Chapter 4, Lesson 1
b. Discuss image and the use of them in a web page.	Chapter 11 (All lessons)
c. Discuss image file formats and explain image optimization.	Chapter 11, Lesson 1
d. Discuss and implement colors and the web-safe color palette.	Chapter 6, Lesson 2
e. Explain special characters using character codes.	Chapter 4, Lesson 2
f. Use page colors and backgrounds.	Chapter 6, Lesson 2 Chapter 8, Lesson 2
g. Create image maps.	Supplemental Lesson 10

h. Explain interlacing.	N/A
i. Discuss the use of animated GIF images.	N/A

Unit 4: Tables and Forms	CITATIONS
<b>1. Demonstrate the use of tables.</b>	
a. Create tables using tags.	Chapter 12, Lessons 1, 3
b. Use table and data alignment options.	Chapter 12, Lesson 2
c. Explain and use column and row spanning.	Chapter 12, Lesson 3
<b>2. Construct forms.</b>	
a. Describe form uses and form fields.	Supplemental Lesson 11 / Activity
b. Create forms using various form controls.	Supplemental Lesson 11 / Activity

Unit 5: Cascading Style Sheets (CSS)	CITATIONS
<b>1. Examine basic CSS techniques.</b>	
a. Discuss the history of CSS.	Chapter 6, Lesson 1
b. Discuss basic CSS components and rules.	Chapter 6, Lessons 1, 3, 4
<b>2. Demonstrate cascading style sheets.</b>	
a. Use CSS language to build a web page.	Chapters 6, 7, 8, 9, 20, 21, etc.
b. Apply selection techniques.	Chapter 6, Lessons 3, 4 Chapter 7, Lesson 3 Chapters 22, 23
c. Incorporate fonts into a web page using various methods such as @import.	Chapter 7, Lesson 1 Chapter 20, Lesson 4
d. Apply the CSS box model.	Chapter 7, Lesson 2
e. Use color in CSS.	Chapter 6, Lessons 1, 2
f. Compare and contrast embedded, inline, and external styles.	Chapter 6, Lessons 1, 3, 5

g. Build a basic style sheet.	Chapter 6, Lesson 5 (and thereafter in many exercises)
h. Apply CSS to lists.	Chapter 10, Lesson 3
i. Apply CSS to tables.	Chapter 11, Lessons 2, 3
j. Apply CSS to positioning elements.	Chapter 9 (All lessons)

Unit 6: Capstone – Web and Programming Concepts	CITATIONS
<b>1. Using software tools and programming skills learned in this course, apply the software development life cycle (SDLC) process to solve a student-selected, instructor approved industry/community relevant problem (Individual, small group, or large group).</b>	
a. Research a problem that can be developed into an appropriate and manageable project.	Chapter 14, Lesson 1 / Activity 1
b. Create a project proposal that must be approved by the instructor before beginning the project.	Chapter 14, Lesson 1 / Activity 1
c. Use the SDLC process, including pseudocode and wireframes, to plan, design, develop, test, and implement the project.	Chapter 14 (All lessons and activities)
d. Utilize graphs, charts, and tables to analyze and display the data.	Chapter 12 (Tables only)
e. Follow technical writing guides to convey project data and results.	Chapter 14, Lesson 1 / Activity 1
f. Develop the project in a way that can be easily shared with others so they can retrace steps and build on successes.	Chapter 14 (All lessons and activities)
g. Demonstrate effective interpersonal communication skills in a team or professional setting.	Chapter 14 (All lessons and activities)
h. Explore different development models such as agile, waterfall, spiral, etc. and choose one for the project.	N/A
<b>2. Implement Planning and Design Phase of the SDLC.</b>	
a. Gather project requirements and define the scope of the project.	Chapter 14, Lesson 1 / Activity 1 Supplemental Lesson 4 / Activity
b. Using appropriate tools and materials, create a wireframe or prototype while considering the project requirements (e.g., accessibility, reliability, aesthetics, and the user experience).	Chapter 13, Lesson 1 / Activity Chapter 14, Lesson 1 / Activity 1
c. Create pseudocode to outline the project.	N/A
d. Identify tasks and timeline to complete the project.	Chapter 14, Lesson 1 / Activity 1 Supplemental Lesson 4 / Activity
e. Create a project management schedule to track progress and ensure completion.	Chapter 14, Lesson 1 / Activity 1

f. Discuss and utilize various project management tools (e.g., virtual meetings, shared documents, Gantt charts, software applications, etc.).	N/A
g. Plan for and conduct mid-project check-ins.	Chapter 14 (Series of 3 phased activities)
<b>3. Implement Development Phase of SDLC.</b>	
a. Build a layout and implement functionality.	Chapter 14, Lesson 2 / Activity 2
b. Utilize peer code reviews.	Chapter 14, Lesson 2 / Activity 2
<b>4. Implement Test Phases of SDLC.</b>	
a. Simulate process of user acceptance testing and quality assurance testing.	Chapter 14, Lesson 3 / Activity 3
<b>5. Present and justify a final product to an authentic audience.</b>	
a. Produce professional quality technical documents satisfying criteria listed in the assignment.	Chapter 14, Lesson 1 / Activity 1 Supplemental Lesson 4 / Activity
b. Using appropriate technology and professional manner, present project elements to an authentic audience.	Chapter 14, Lesson 1 / Activity 1 Supplemental Lesson 4 / Activity
c. Collect the following work materials in a portfolio to demonstrate proper use of the design process.	See below - All project elements may be added to a portfolio
• Project requirements	Chapter 13, Lesson 1 / Activity Chapter 14, Lesson 1 / Activity 1 Chapter 28 (Second team project) Supplemental Lesson 4 / Activity
• Wire frames	Chapter 13, Lesson 1 / Activity Chapter 14, Lesson 1 / Activity 1 Chapter 28 (Second team project) Supplemental Lesson 4 / Activity
• Pseudocode	N/A
• Product specifications	Chapter 14, Lesson 1 / Activity 1 Chapter 28 (Second team project) Supplemental Lesson 4 / Activity
• Testing methodologies and results	Chapter 14, Lesson 3 / Activity 3 Chapter 28 (Second team project)
• Technical writing samples	Supplemental Lesson 7