



Web Development I

EXAM INFORMATION

Items

43

Points

62

Prerequisites

NONE

Grade Level

9-12

Course Length

ONE YEAR

Career Cluster

INFORMATION TECHNOLOGY

Performance Standards

INCLUDED

Certificate Available

YES

DESCRIPTION

Web Development is a course designed to guide students in a project-based environment in the development of up-to-date concepts and skills that are used in the development of today's websites. Students will learn the fundamentals of how the Internet works. They will learn and use the basic building blocks of the World Wide Web: HTML5 coding, Cascading Style Sheets (CSS), and JavaScript. They follow the steps to create a website by planning, designing, developing, deploying, and maintaining of the website projects. Students will learn and use different scripting technologies to create more dynamic and interactive websites. They will learn what it takes for a career in Web Development as they complete projects and create their own web site.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Basic Internet Principles	19%
2- Object Oriented Programs	45%
3- Testing and Documenting Programs	26%
4- Data Structures	10%
5- Template Library Containers (Optional)	



STANDARD 1

STUDENTS WILL UNDERSTAND THE BASIC PRINCIPLES OF HOW THE INTERNET IS CONSTRUCTED, HOW IT FUNCTIONS, AND HOW IT IS USED

- Objective 1** Identify the infrastructure required to access the Internet.
1. Explain hardware and software used to connect to the Internet. (modem, browser, wifi, cabling, etc.)
 2. Explain the role of an Internet Service Provider (ISP)
- Objective 2** Understand Internet development & functions.
1. Understand how the Internet was developed
 2. Understand the purpose web servers, routers, packets, IP Address, the “backbone”, Intranet, bandwidth, and firewalls.
 3. Understand the purpose of domains.
 1. Explain the purpose of an IP address.
 2. Explain the purpose of a domain name and identify its parts (protocol, sub-domain, domain, top level domain, file path, file name).
 4. Differentiate between types of IP addresses.
 1. Describe a static IP address.
 2. Describe a dynamic IP address
 3. Differentiate between ipv4 and ipv6.
- Objective 3** Understand the function of a Domain Name Server.
1. Explain the function of a Domain Name Server (DNS).
 2. Demonstrate how to register a domain name.

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2

STUDENTS WILL APPLY GOOD OBJECT-ORIENTED DESIGN AND ANALYSIS METHODS TO DEVELOP AN OBJECT-ORIENTED PROGRAM AND REFINE THEIR PROGRAMMING PRINCIPLES SKILLS

- Objective 1** Using a sophisticated integrated development environment (IDE) and appropriate design procedures, construct reasonably complex programs.
1. Use pointers
 2. Use inheritance and polymorphism
 3. Use overloaded operators
 4. Use programmer written function templates
 5. Use programmer written class templates
 6. Use standard exception handling techniques
 7. Correctly manage memory
 8. Use recursion
 9. Use classes and algorithms from the Standard Template Library

- Objective 2** Use appropriate design procedures.



1. Design and use simple and complex data structures to solve sophisticated problems.
2. Design and use graphical user interfaces.

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

STUDENTS WILL BE ABLE TO TEST AND DOCUMENT THEIR PROGRAMS

- Objective 1 Test and debug programs to assure their quality and usability.
- Objective 2 Document programs for understandability and maintainability.
1. By providing in-line comments
 2. By standardized class and file headers
 3. By using elements of good programming style.

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF DIFFERENT DATA STRUCTURES

- Objective 1 Use arrays
- Objective 2 Use stacks and queues
- Objective 3 Use linked lists
- Objective 4 Use Binary trees and multiway trees
- Objective 5 Use graph data structures

Standard 4 Performance Evaluation included below (Optional)

STANDARD 5 (Optional)

STUDENTS WILL USE STANDARD TEMPLATE LIBRARY CONTAINER OBJECTIVES

- Objective 1 Discuss the basic principles of many software data structures, including efficiencies and tradeoffs.
- Objective 2 Implement and use several data structures
1. Review of exponents/logs
 2. Big-O complexity
 3. Algorithm Analysis
 4. Computational Complexity
 5. Stacks, Queues, Unsorted List, Sorted List, unique element restrictions
 6. Parsing mathematical expressions
 7. Binary Search Tree (BST)
 8. Balanced trees
 9. Hashing



10. Advanced Recursion
11. Searching and sorting algorithms
12. Graphs
13. External methods

Standard 5 Performance Evaluation included below (Optional)



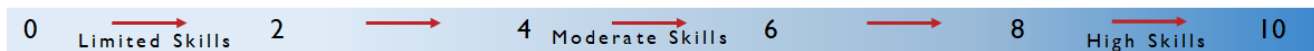
Web Development I Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name _____

Class _____

PERFORMANCE RATING SCALE



STANDARD 1 Basic Principles of the Internet

Score:

- Demonstrate a basic knowledge of how the internet is constructed, how it functions, and how it is used

STANDARD 2 Object-Oriented Design

Score:

- Use XHTML standards and coding to create “well formed” web pages

STANDARD 3 Testing and Documenting Programs

Score:

- Format web pages using CSS formatting

STANDARD 4 Data Structures

Score:

- Plan, Design add content, and maintain web pages

STANDARD 5 Standard Template Library Containers

Score:

- Explore career in Web Development and prepare a portfolio of projects created

PERFORMANCE STANDARD AVERAGE SCORE: