

CTI 110 Web, Programming, and Database Foundation

COURSE DESCRIPTION:

Prerequisites: None

Corequisites: None

This course covers the introduction of the tools and resources available to students in programming, mark-up language and services on the Internet. Topics include standard mark-up language Internet services, creating web pages, using search engines, file transfer programs; and database design and creation with DBMS products. Upon completion students should be able to demonstrate knowledge of programming tools, deploy a web-site with mark-up tools, and create a simple database table.

Course Hours per Week: Class, 2. Lab, 2. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completing requirements for this course, the student will be able to:

1. Apply basic principles of programming logic.
2. Create a simple website with mark-up tools.
3. Create a simple database table.

OUTLINE OF INSTRUCTION:

- I. Web Page Design
 - A. HTML Basics
 - i. Creating links in HTML
 - ii. Bulleted Lists
 - iii. Formatting Text
 - iv. Adding Images
 - v. Debugging and Validation
 - B. Using Cascading Style Sheets (CSS)
 - i. CSS Basic formatting
 - ii. CSS Selectors
 - iii. CSS Debugging and Validation
 - C. Designing a Page Layout
 - i. CSS Layout and Design
 - ii. CSS Grid
- II. Programming with Python
 - A. Introduction to Python
 - i. Working with the Python Interactive Shell
 - ii. Writing and Running Simple Python Scripts
 - iii. Python Syntax
 - iv. User Input, Comments, and Indentations
 - B. Data Types
 - i. Numerical Data

- ii. Strings
 - iii. Lists
 - iv. Booleans
- C. Control Statements
 - i. Program Flow
 - ii. Decision Making using the if and if/else Statements
 - iii. Loops using the while and for statements
 - iv. The range Function
 - v. Nesting Loops
 - vi. Breaking Out of Loops using the break, continue, and pass Statements)
- III. Database Design
 - A. Database Systems
 - B. Data Models
 - C. The Relational Database Model
 - D. Introduction to Structured Query Language (SQL)

REQUIRED TEXTBOOK AND MATERIAL:

The textbook and other instructional material will be determined by the instructor.