WEB 250 Database Driven Websites

COURSE DESCRIPTION:

Prerequisites: None
Corequisites: None

This course introduces dynamic (database-driven) website development. Topics include the use of basic database CRUD statements (create, read, update and delete) incorporated into web applications, as well as in software architecture principles. Upon completion, students should be able to design and develop database driven web applications according to industry standards.
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. Write PHP code to accept HTML form input, perform operations, and generate output.
2. Retrieve, insert, update, and delete data in SQL databases using PHP.
3. Develop database driven web applications using PHP, SQL, and the MySQL database.

OUTLINE OF INSTRUCTION:

I. Introduction to Web Development with PHP
   A. The Architecture of a Web Application
   B. The Product Discount Application
   C. How to Edit and Test a PHP Application
   D. How to Use NetBeans to Develop a PHP Application

II. How to Code a PHP Application
   A. Basic PHP Skills
   B. How to Get Data from a Request
   C. How to Work with Data
   D. The Product Discount Application
   E. How to Code Control Statements
   F. The Future Value Application
   G. How to use the PHP Documentation

III. Introduction to Relational Databases and MySQL
   A. An Introduction to Relational Databases
   B. The SQL Statements for Data Manipulation
   C. An Introduction to MySQL
   D. How to Use phpMyAdmin

IV. How to use PHP with a MySQL Database
   A. How to Connect to a Database and Handle Exceptions
   B. How to Get and Modify Data
   C. The Product Viewer Application
   D. The Product Manager Application

V. How to Test and Debug a PHP Application
   A. An Introduction to Testing and Debugging
   B. How to Debug with Xdebug and NetBeans

VI. How to Work with Form Data
   A. How to Get Data from a Form
   B. How to Display Data on a Web Page

VII. How to Code Control Statements
   A. How to Code Conditional Expressions
   B. How to Code the Selection Structures
   C. How to Code the Iteration Structures

VIII. How to Work with Strings and Numbers
   A. How to Work with Strings
   B. How to Work with Numbers
   C. Other Skills for Working with Strings and Numbers

IX. How to Work with Dates/How to Create and Use Arrays
   A. How to Use Timestamps to Work with Dates
   B. How to Use Objects to Work with Dates
   C. How to Create and Use an Array
   D. How to Create and Use and Associative Array
   E. How to use Functions to Work with Arrays
   F. How to Work with Arrays of Arrays
   G. The Task List Manager Application

X. How to Use the MVC Pattern to Organize Your Code
   A. How to Use the MVC Pattern
   B. The Product Manager Application
   C. The Product Catalog Application

XI. How to Work with Cookies and Sessions
   A. How to Work with Cookies
   B. How to Work with Sessions
   C. The Shopping Cart Application

XII. How to Create and Use Functions
   A. Basic Skills for Working with Functions
   B. How to Create and Use a Library of Functions
   C. Advanced Skills for Working with Functions
   D. The Shopping Cart Application

XIII. How to Create and Use Objects

A. How to Create and Use Classes
B. How to Code Class Constants, Properties, and Methods
C. The Object-Oriented Product Manager Application
D. Additional Skills for Working with Objects
E. How to Work with Inheritance

XIV. How to use Regular Expressions, Handle Exceptions, and Validate Data
A. How to Use Regular Expressions
B. How to Handle Exceptions
C. The Registration Application

XV. How to Design a Database
A. How to Design a Data Structure
B. How to Normalize a Data Structure
C. How to Apply the Third Normal Form
D. A Database Design Tool

XVI. How to Use SQL to Work with a Database
E. How to Select Data from a Single Table
F. How to Select Data from Multiple Tables
G. How to Code Summary Queries
H. How to Code Subqueries
I. How to Insert, Update, and Delete Rows

REQUIRED TEXTBOOK AND MATERIAL:

PHP and MySQL, 3rd Edition, Murach, ISBN: 978-1-943872-38-1