This course will cover the fundamentals of Web-based software development using the PHP scripting language together with HTML and MySQL Open Source Database. The process of software development will be discussed to include: designing, writing source code, executing, and testing and debugging. Data types, arithmetic and logical expressions, debugging, looping, branching, modularization, simple database access, simple database structures and simple HTML will be discussed in lectures and practiced through lab projects. Web-based Internet applications will be designed and created.
1. Given a set of requirements for a small business or scientific problem, prepare the software development specification.

2. Design the software components and database structures for code sections.

3. Create a project with the correct file and database structure.

4. Partition the programs into appropriate functions and Web pages.

5. Design a simple Web-based user interface to satisfy the user interactions.

6. Code all the necessary expressions, branches, loops, functions, classes.

7. Add the appropriate error handling routines.

**COURSE OBJECTIVES:**

1. Assess, analyze, and design software solutions for simple to moderately complex business and database problems for Web-based presentation.

2. Properly document the solution.

3. Write the software code, mathematical formulas/expressions, and algorithms in the PHP language and design the database using MySQL.

4. Eliminate coding and logic errors using sophisticated debugging tools.

5. Understand and apply basic optimization techniques.

6. Break a large software solution into manageable modules.

7. Manage static and dynamic memory allocations.

8. Interact with input, output devices and files.

9. Implement applications using MySQL database system and PHP for Web-based information systems.

**COURSE CONTENT:**

**LECTURE CONTENT:**

A. Software Development Process
   1. Collecting Requirements
   2. Preparing Specifications
   3. Designing Solution Options Including Structure Charts and Flow Charts
   4. Coding PHP Scripts and SQL query statements
   5. Documenting Requirements, Specifications, Solution Options, and User Guides
   6. Designing the database structure
   7. Executing and Debugging

B. Programming Concepts
   1. Data Types
   2. Variables and Constants
   3. Arithmetic and Logical Expressions
   4. Conversion of Business and Scientific Formulas to Mathematical Expressions
   5. Branching and Looping
   6. Modularization
   7. Functions and Web Forms
   8. Parameter Passing
   9. Simple Database design and implementation
   10. Pointers
   11. Arrays and Strings
   12. Files and Databases
   13. HTML presentation logic
   14. Web development for commerce and information systems
   15. Errors and Debugging
16. Event-Driven and GUI Programming

LABORATORY CONTENT:

1) Given a set of requirements for a small business or scientific problem, prepare the software development specification
2) Design the software components and draw flow-charts for the complex code sections
3) Create a project with the correct database structure
4) Develop webpages to implement the solution
5) Design a simple user interface to satisfy the user interactions
6) Code all the needed expressions, branches, loops, functions and databases
7) Add the appropriate error handling routines

METHODS OF INSTRUCTION:

A. Lecture:
B. Lab:
C. Independent Study:

INSTRUCTIONAL TECHNIQUES:

COURSE ASSIGNMENTS:

Reading Assignments
   Text
   Websites

Out-of-class Assignments

Writing Assignments

Students will be required to complete software development projects presented to them in the form of business automation problems requiring solution implementation. Students will be required to write documentation for their projects.

METHODS OF STUDENT EVALUATION:

Midterm Exam
Final Exam
Short Quizzes
Written Assignments
Essay Examinations
Objective Examinations
Projects (ind/group)
Problem Solving Exercises
Oral Presentations
Skills Demonstration

Demonstration of Critical Thinking:

Students will be demonstrating their laboratory projects. Optional research papers and classroom presentations will further demonstrate their ability in critical thinking and problem solving.

Required Writing, Problem Solving, Skills Demonstration:

Students will be required to complete software development projects presented to them in the form of business automation problems requiring solution implementation. Students will be required to write documentation for their projects.

TEXTS, READINGS, AND RESOURCES:

TextBooks:
CS G127-Introduction to Programming With PHP and MySQL


**LIBRARY:**

Adequate library resources include:

**Comments:**

**Attachments:**

[Attached Files]