El Camino College

COURSE OUTLINE OF RECORD - Official

I. GENERAL COURSE INFORMATION

Subject and Number: Computer Science 12

Descriptive Title: Programming for Internet Applications Using PHP, JavaScript, and HTML

Course Disciplines: Computer Science

Division: Mathematical Sciences

Catalog Description: In this introductory Internet programming course, students learn the fundamentals of Internet programming with JavaScript and Hypertext Preprocessor (PHP), a widely used, open source, general-purpose server-side programming language. Students design and write applications that extend web servers. These applications use backend databases to process data submitted through web forms and provide access to dynamically generated web pages with the retrieved data from the database.

Conditions of Enrollment: **Prerequisite**

Computer Science 1 or

Computer Information Systems 16 or

Computer Information Systems 134
with a minimum grade of C in prerequisite
or

equivalent

Course Length: [X] Full Term [ ] Other (Specify number of weeks):
Hours Lecture: 5.00 hours per week [ ] TBA
Hours Laboratory: 5.00 hours per week [ ] TBA
Course Units: 5.00

Grading Method: Both
Credit Status Associate Degree Credit

Transfer CSU: [X] Effective Date: 4/16/2012
Transfer UC: [ ] No

General Education:

El Camino College: _____

CSU GE: _____
IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. Design and implement an interactive web page.

2. Develop a client-side script to create a drop down menu for a web page.

3. Design and implement a program to process data gathered from a web form.

4. Design and implement a server-side program to connect to a database and interact with it.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Design interactive web pages.

    Presentation

2. Write client-side scripts using JavaScript.

    Performance exams

3. Write server-side scripts in the PHP language.

    Performance exams

4. Process data from online forms.

    Performance exams

5. Define and use cookies, redirection, applications, and sessions.

    Reading reports

6. Demonstrate basic server-side database access using PHP programs.

    Performance exams

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic

Lecture	9	I	Interactive Web Pages
			    A. Design
			
			        1. Style
			
			        2. Content
			
			    B. XHTML
			
			        1. Tags
			
			        2. Usage

Lab	10	II	Labs for Interactive Web Pages

			A. Design
			1. Style
			2. Content
			B. XHTML
			1. Tags
			2. Usage

Lecture	10	III	JavaScript
			  A. Scripting
			
			  B. JavaScript syntax
			
			  C. JavaScript logic

Lab	7	IV	Labs for JavaScript
			  A. Scripting
			
			  B. JavaScript syntax and logic
			    1. Data
			       i. Arithmetic operations
			       ii. String processing
			    2. Decision making
			       i. If, if else if
			       ii. switch
			    3. Loops
			    4. Functions
			    5. Regular expressions
			    6. System classes

Lecture	30	V	PHP Language Basics
			  A. Data types
			
			  B. Input and Output
			
			  C. Data manipulation
			
			  D. Conditional statements
			
			  E. Repetition statements
			
			  F. Files
			
			  G. Functions

Lab	20	VI	Labs for PHP Language Basics
			  A. Data from web pages and files
			
			  B. Conditions to validate user input
			
			  C. Looping statements
			
			  D. Functions

Lecture	4	VII	Storing and Retrieving Data
			  A. PHP variables
			
			  B. Input process
			    1. Data from keyboard
			    2. Data from files
			    3. Data from forms

Lab	5	VIII	Labs for Storing and Retrieving Data
			  A. PHP variables
			  B. Input process
			     1. Data from keyboard
			     2. Data from files
			     3. Data from forms

Lecture	6	IX	Large Amounts of Data
			  A. Arrays
			  B. Storing data in an array
			  C. Processing arrays

Lab	5	X	Labs for Large Amounts of Data
			  A. One-dimensional arrays
			  B. Joining arrays
			  C. Splitting strings

Lecture	2	XI	Strings
			  A. Object String in PHP
			  B. Regular expressions in PHP

Lab	6	XII	Labs for Strings
			  A. Data from online forms using strings
			  B. Regular expressions to verify data
			  C. Inputted data
			  D. Return results to the user online

Lecture	15	XIII	Object-Oriented Programming Principles
			  A. Developing classes
			  B. Object-oriented programs using classes and functions
			  C. Composition
			  D. Inheritance

Lab	15	XIV	Labs related to Object-Oriented Programming Principles
			  A. Simple classes
			  B. Composition
			  C. Inheritance

Lecture	5	XV	Databases
			  A. Database concepts
			  B. Server-side databases

Lab	7	XVI	Labs for Databases
			  A. Server-side databases
			  B. PHP programs to set up and access web databases
			  C. PHP programs to query databases

Lecture	2	XVII	Script Implementation A. Cookies

			B. Redirection
			C. Applications
			D. Sessions

Lab	5	XVIII	Lab for Implementation Script
			    A. Cookies
			    B. Redirection
			    C. Applications
			    D. Sessions

Lecture	7	XIX	Site Implementation
			    A. Finalize design
			    B. Test components
			    C. Integrate components
			    D. Testing final product

Lab	10	XX	Lab for Site Implementation
			    A. Graphical User Interface (GUI)
			    B. Validation
			    C. Debugging
			    D. Test with multiple browsers

Total Lecture Hours	90		
Total Laboratory Hours	90		
Total Hours	180		

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. **PRIMARY METHOD OF EVALUATION:**

Problem solving demonstrations (computational or non-computational)

B. **TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:**

Develop a website using PHP programming and other tools to have the features listed below.

1. Maintain a list of user accounts.

    a. Users may log on or log off, and many features are available only to users who are logged on.

    b. Each user has a login name and a human name. The login name must contain only letters and digits. The user logs in by entering the login name.

    c. Anyone may create an account. The creator must choose a login

name and provide a human name. If the chosen login name contains illegal characters, or already exists, refuse to create the account and give reasonable feedback to the user.

2. Implement account password; allow the user to set a password when the account is created, and to change it later. Require a correct password for login.

3. Maintain a list of items for bidding.

    a. Each item is an auction. It has an owner, a closing date, and a collection of bids.

    b. Any logged-in user may add an item. Require the user to enter a description and closing date, and set the list of bids initially empty.

    c. Any logged-in user may delete any of his own items; an item may be deleted only by its owner.

    d. Present a list of items currently available. For each one, show the owner, description, closing date, number of bids and high bid (if any).

4. Maintain a list of bids for each item in the item list.

    a. Any logged-in user may bid on any item which has not closed.

    b. The bid must be an integer amount and must exceed the current high bid, if there is one.

    c. When a bid is submitted, you must check that it meets all requirements. If not, generate an appropriate message and do not record the bid.

    d. Each allowed bid creates a record containing the bidder, the amount of the bid, and the date and time the bid was submitted.

    e. Anyone may display the list of bids for any item. This listing shows the bidder, amount and date for each bid, in chronological order.

    f. An item's list of bids is deleted when the item is deleted.

5. Any data entered by a user which is sent back in HTML, such as item descriptions, must be escaped so that it displays literally. This is both an appearance and a security issue.

6. Be sure that your program cannot be broken or compromised by mal-formed input data. Generally, you will need to check that input is what it should be (integers are integers), or at least be sure the consequences of bad data are minor.

C. **COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:**

1. Create a web page to use a PHP program which prints the current time in various formats and colors depending on the query string. Your PHP program is intended to interpret a simple query string which controls how the time is displayed, and load the page title with correct background and text colors. The query string has three fields separated by colons. The first is the time format, the second is the text color and the third is the background color.

2. Write a PHP program to produce an on-line hangman game. The game chooses a word of at least five characters at random, and the player tries to figure out what word has been chosen by guessing letters. The player must find the word with no more than six incorrect guesses.

D. **OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:**

Objective Exams

Homework Problems

Other (specify):

Completed web site

Computer demonstrations

Writing and evaluating computer programs

V. INSTRUCTIONAL METHODS

Demonstration
Laboratory
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Skill practice

Required reading

Problem solving activities

Other (specify)

Write computer programs

Estimated Independent Study Hours per Week: 5

VII. TEXTS AND MATERIALS

A. **UP-TO-DATE REPRESENTATIVE TEXTBOOKS**
   Robin Nixon. Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5 (Learning Php, Mysql, Javascript, Css & Html5). 4 ed.   O'Reilly, 2014.

B. **ALTERNATIVE TEXTBOOKS**

C. **REQUIRED SUPPLEMENTARY READINGS**
   Foundation Website Creation with HTML5, CSS3, and JavaScript 2012th Edition
   Friends of ED, an Apress Company, 2012

D. **OTHER REQUIRED MATERIALS**

VIII. CONDITIONS OF ENROLLMENT
   A.   Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Computer Science-1 or	Sequential
Course Prerequisite Computer Information Systems-16 or	Sequential
Course Prerequisite Computer Information Systems-16 or	Other Knowledge and Skills
Course Prerequisite Computer Information Systems-134 or	Sequential
Course Prerequisite Computer Information Systems-134 or	Other Knowledge and Skills
Non-Course Prerequisite	The student will be exempted from the prerequisite if she/he can demonstrate sufficient programming knowledge in a high level programming language (such

as C/C++, C#, Visual Basic, Java, PHP,...) through work portfolio or oral and/or written examination by the department of computer science faculty.

B.   Requisite Skills

Requisite Skills
Proficiency in a high level programming language such as C#, Java, C/C++, or Visual Basic and familiarity with Windows operating system. CIS 134 -   Examine web architecture and the Microsoft.NET Framework.   CIS 134 -   Appraise the role of the web page to e-Business and the Internet.   CIS 16 -   Choose an appropriate data structure for modeling a simple problem.   CIS 16 -   Identify basic programming concepts   CSCI 1 -   Represent data utilizing simple numeric and character data types in a program and use them with input-output processes of the particular implementation of C++ being used.   CSCI 1 -   Design programming solutions requiring decision-making, using appropriate C++ selection statements, such as if-then, if-then-else and switch.   CIS 134 -   Utilize dynamic client- and server-side website programming tools, languages, and technologies such as Visual Studio.NET, ASP.NET, C#, HTML (Hypertext Markup Language), CSS (Cascading Style Sheets), and XML (Extensible Markup Language).   CSCI 1 -   Design, implement and manipulate string class data types as objects in order to store string type data.

C.   Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification

D.   Recommended Skills

Recommended Skills

E.   Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by Massoud Ghyam on 11/02/2010.

BOARD APPROVAL DATE: 04/16/2012

LAST BOARD APPROVAL DATE: 05/16/2016

Last Reviewed and/or Revised by Massoud Ghyam on 11/01/2015

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