BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

CSCI 32 - Web Development II **3 Unit(s)**

Prerequisite(s): CSCI 31
Recommended Prep: Reading Level IV; English Level IV; Math Level III
Transfer Status: CSU
34 hours Lecture
51 hours Lab

In this course students learn to develop applications for the World Wide Web. Topics include the fundamentals of web server platforms, programming languages for web development, using databases to persist information for a web application, and web application frameworks. Students will design, implement, and deploy a complete web application using a current programming language, database technology, and web server.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Design and implement a complete web application using a current programming language, database technology, and web server platform.
B. Deploy and maintain a complete web application on a web server.
C. Identify, compare, and contrast the main features of the programming languages and database technologies that are most commonly used by web developers.
D. Evaluate web application frameworks in terms of their underlying technologies, architecture, and suitability for use in different web applications.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. Programming languages for web development	2.00
2. Databases for web applications	4.00
3. Designing a database for a web application	4.00
4. Creating a database for a web application	4.00
5. Programming a web application	12.00
6. Securing a web application	2.00
7. Deploying and maintaining a web application	2.00
8. Web application frameworks	4.00
Total Hours	34.00

Lab

Topics	Hours
1. Programming languages for web development	3.00
2. Databases for web applications	6.00
3. Designing a database for a web application	6.00
4. Creating a database for a web application	6.00

5.	Programming a web application	18.00
6.	Securing a web application	3.00
7.	Deploying and maintaining a web application	3.00
8.	Web application frameworks	6.00
Total Hours		51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Collaborative Group Work
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Demonstrations
E. Multimedia Presentations

V. METHODS OF EVALUATION

A. Quizzes
B. Projects
C. Class participation
D. Mid-term and final examinations

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Read the article on cross-site scripting (XSS) provided by the instructor. Pay particular attention to the source(s) of XSS vulnerabilities and solutions for this problem. Be prepared to discuss XSS problems with respect to your web application in class.
   2. Select and read a minimum of two articles on use cases and web design provided by the instructor. Make a list of the use cases you believe will be the most common in your web application and be prepared to share your list in class.

B. Writing Assignments
   1. Based on the small business scenario provided by the instructor, prepare a 1-2 page proposal for a web application for the small business. Your proposal should include the technologies you will use and rationale for each.
   2. Using the programming language, sample data set, and database schema assigned by the instructor, write the functions needed to (1) validate a set of POST data, (2) prepare a SQL statement to insert the data into the database, and (3) execute an SQL query to complete the insert.

C. Out-of-Class Assignments
   1. Research a minimum of three web application frameworks, each written in a different programming language. Prepare a 5-10 minute multimedia presentation to compare and contrast the main features of the frameworks you select. Be prepared to present what you have learned to the class.
   2. Prepare regular expressions that can be used to identify and validate phone numbers and email addresses in your web application. Test your regular expressions on the data set provided by the instructor. Be prepared to present your regular expressions in class.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Welling, Luke, Thomson, Laura. PHP and MySQL Web Development. 5th Edition. Addison-Wesley Professional, 2016.
B. Hartl, Michael. Ruby on Rails Tutorial: Learn Web Development with Rails. 3rd Edition.

Addison-Wesley Professional, 2015.
C. Delamater, Mary. Murach's ASP.NET 4.5 Web Programming with C# 2012. 5th Edition. Mike Murach & Associates, 2013.

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