

**Kutztown University  
Kutztown, Pennsylvania**

**Computer Science Department  
College of Liberal Arts and Sciences**

I. Course Description: CSC 242: Web Programming

This course is an introduction to the basic concepts of client/server scripting on the Web. Topics will include: Web architecture, standards, and infrastructure, client/server architecture on the Web, markup languages and style sheets, client-side data validation and form processing, client-side cookie usage, server-side data processing, information storage, and backend databases, security issues on both the client-side and server-side, and issues involved with Web interface development.

3 s.h. 3 c.h. Prerequisite: CSC 135

II. Rationale

Computer applications on the World Wide Web influence many aspects of our daily lives. It is important that IT students understand the concepts and technologies that are used for scripting applications on Web. This course provides a solid introduction upon which students learn about the issues that are involved with Web programming, including both client-side and server-side scripting. Students will have the opportunity to implement typical Web application problems using both client-side and server-side scripting languages.

III. Course Objectives

Upon completion of the course the student will be able to:

- A. Describe and explain the client/server architecture.
- B. Explain typical client/server applications.
- C. Identify key client-side scripting languages used on the Web.
- D. Explain data validation and form processing issues on the client-side.
- E. Explain issues of cookie usage on the client-side
- F. Discuss issues involved with Web interface development.
- G. Discuss client-side and server-side security issues

- H. Demonstrate the use of server-side backend databases.
- I. Explain issues involved with server-side data processing and storage
- J. Identify key server-side scripting languages used on the Web

#### IV. Course Assessment

The course assessment will be a subset of tests, projects, papers, presentations, quizzes, homework, team presentations, and a final examination.

#### V. Course Outline

##### A. Introduction

1. Introduction to client/server terminology & architecture
2. Discussion of basic Web protocols
3. Structure of the World Wide Web and Internet
4. Consider a typical problem in client/server application

##### B. Presentation Technologies

1. Discussion of HTML/XHTML
1. Cascading Style Sheets (CSS) and DHTML

##### C. Client-Side Scripting

1. Discussion of client/server scripting languages and technologies
2. Look at a client-side scripting language
3. Implementation using a client-side scripting language

##### D. Client-Side Information Retention

1. Look at Cookie usage
2. Discussion of security issues associated with cookies
3. Identify web-sites that uses cookies

##### E. Web site organization and development

1. Look at issues involved with developing a web interface
2. Discussion of usability, security, and organization of information
3. Discussion of characteristics of users of web sites

##### F. Server-Side Scripting

1. Communication with the client
2. Processing and storing the client information
3. Look at a server-side scripting language

4. Implementation using a server-side scripting language
- G. Backend Databases
1. Discussion of server-side backend databases
  2. Construction of a relational database
  3. Connecting to the backend database from scripting language
- H. Project Implementation
1. Implementation of a classical client/server problem
  2. Implementation of client-side solution
  3. Implementation of server-side solution
- VI. Instructional Resources
- Bates B., *Web Programming*, 3<sup>rd</sup> Edition, John Wiley, 2006
- Deitel H., Deitel, P. & Goldberg, A., *How to Program the Internet and World Wide Web (3<sup>rd</sup> Edition)*, Prentice Hall, 2004
- Felke-Morris, Terry, *Web Development and Design Foundations with XHTML (3<sup>rd</sup> Edition)*, Addison Wesley, 2007
- Freeman, Elisabeth & Freeman, Eric, *Head First HTML with CSS and XHTML*, O'Reilly, 2005
- Holzner, Steve, *Teach Yourself XML in 21 Days (3<sup>rd</sup> Edition)*, 2004
- Melon, Julie, *PHP 5 fast & easy web development*, Thomson Course Technology, 2004
- McDuffie Tina Spain, *JavaScript Concepts & Techniques Programming Interactive Web Sites*, SAMS Teach Yourself. 2002.
- Kalata, Kate, *Introduction to ASP .Net (2<sup>nd</sup> Edition)*, Thomson Course Technology, 2004
- Koch Peter-Paul, *PPK on JavaScript*, New Riders, 2007
- Lazar J. *Web Usability A User-Centered Design Approach*, John Wiley, 2005
- Lemay, Laura, *Teach Yourself PERL in 21 Days*, SAMS Teach Yourself, 2002
- Sebesta, Robert, *Programming the World Wide Web*, Addison Wesley Professional, 2002.

Shelly, Gary B., Cashman, Thomas J., Kosteba, Linda, *Web Design: Introductory Concepts and Techniques*, 2<sup>nd</sup> Edition, Course Technology, 2006

Sklar, J., *Principles of Web Design*, 3<sup>rd</sup> Edition, Course Technology, 2006

Watt, A. & Watt, J., *JavaScript in 21 Days*, SAMS Teach Yourself. 2002.

Yuen, P.K. & Lau, L., *Practical Web Technologies*, Addison Wesley, 2003

World Wide Web Consortium Web Site, <http://www.w3.org/>

Web Content Accessibility Guidelines 2.0, <http://www.w3.org/WAI/GL/WCAG20/>

W3 Schools, *Web Development Tutorials*, <http://www.w3schools.com/>