

Introduction to Web Programming T0241

3 ECTS

Rationale: Web is currently one of the most popular and useful application built on the top of the Internet using internet technologies. The course is designed as not only theoretical but as much as possible practical introduction to the technologies based on and related to Web. The course provides the students with basic knowledge and skills for developing dynamic and active Web pages and complex sites. It introduces a number of modern scripting languages as well as the mechanisms for their use for diverse Web applications, including E-business.

Catalog Description: Information and Distributed Systems Infrastructure. Client/Server Computing Paradigm. Internet and Web Programming Mechanisms. The Classic Technology: Common Gateway Interface (CGI). Client and Server-side Programming. Connecting to Databases – PHP and MySQL. Servlets and JSP Technologies. Comparing JSP and ASP. Introduction to Ajax.

Pre-requisites: None

Course Outline:

I. Information and Distributed Systems Infrastructure

1. Basic Terminology
2. Networks, Internet, Intranet and Extranet
3. Client/Server Computing Paradigm
4. Open Systems and Communication Protocols
5. Middleware: Views, Definitions, Functions
6. Client/Server Working Mechanism: Application Programming Interface (API), Sockets, Client and Server Implementation

II. Web and Programming

1. Web Elements: Browser and Web Document. Static, Active and Dynamic pages
2. Programming paradigms and Web programming. Object-oriented vs. Object-based programming.
3. What should and should not be programmed on the Web. Tasks suitable for programming on the Web.
4. Choice of programming language for Web programming.

III. Client-side Programming

1. JavaScript for Web Programming: Introduction to the Language
2. JavaScript: Object Hierarchy and working with objects.
3. JavaScript: Event-Driven Programming

IV. Server-side Programming

1. Approaches to running Server Programs
2. The Classic Technology: Common Gateway Interface (CGI): Definition, Characteristics
3. CGI Programming Mechanism: GET and POST methods. Simple Examples using Perl
4. Introduction to PHP Programming Language. PHP for Web Programming

V. Databases and Web Programming

1. Introduction to Databases and MySQL Database System
2. PHP and MySQL: Connecting and Working together

VI. Other Technologies

1. Java Servlets and Java Server Pages (JSP)
2. Active Server Pages (ASP): Comparison with JSP
3. JavaScript and Server-side Programming
4. Introduction to Ajax
5. Cookies: Characteristics, JavaScript Implementation
6. Wireless Application Protocol (WAP) and WAP Applications

Laboratory Sessions: Client and Server implementation in Java. Web pages and HTML. Forms and forms elements. JavaScript - basic elements and constructs. Embedding JavaScript programs in HTML. PHP - basic elements and constructs. PHP for Web Programming. PHP and MySQL. Servlets and JSP. Installing and Working with Apache and Tomcat Servers.

Textbook: Lecture Notes (in PowerPoint slides)

Reference Books:

A. Berson:

Client/Server Architecture, 2nd ed., McGraw-Hill Series on Computer Communications, 1996.

G. McComb:

Web Programming Languages, John Wiley & Sons, Inc., 1997.

Chris Bates

Web Programming. Building Internet Applications, 2nd ed., John Wiley & Sons, Ltd., 2002.

Douglas E. Comer:

Computer Networks and Internets with Internet Applications, 3rd ed., Prentice Hall International, Inc., 2001.

Marty Hall:

Core Web Programming, Prentice Hall PTR, Upper Saddle River, NJ 07458, 1998.

W. Jason Gilmore:

Beginning PHP 5 and MySQL. From Novice to Professional, Apress, 2004

Madhushree Ganguli:

Making Use of JSP, Wiley Publishing Inc., 2002

R. Chandak, P. Chandak:

Web Programming with Microsoft Tools, QUE, 1997.

S. Singhal, et al.:

WAP-The Wireless Application Protocol. Writing Applications for the Mobile Internet, Addison-Wesley, 2001.

P. Wilton:

Beginning JavaScript, Wrox Press Inc., 2000.

L. Wall, T. Christiansen, J. Orwant:

Programming Perl (3d Edition), O'Reilly & Associates, 2000.

Deitel, Deitel and Nieto:

e-Business & e-Commerce – How to Program, Prentice-Hall Inc., 2001.

M. Hendricks et al.:

Professional Java Web Services, Wrox Press Ltd., 2001.

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