

Politehnica University

FILS

Prof. Luca Dan Serbanati

Web Application Development, IV/8(2), 2C-1L-1P, E, 5

Course description	<p>The course provides an extensive overview of client and server side technologies used in developing web applications. On the client side, we learn how to create attractive and well-functioning web pages using XHTML, tables and forms, Cascading Style Sheets and JavaScript. Web page design and layout is discussed. Server side web development focuses on web development with servlets and JSP, and on accessing a database in a web application. Several full-scale web applications provide ample practice for web technologies discussed in the course.</p> <p>Java servlets and JavaServer Pages allow developers to leverage the power of the Java platform and create object-oriented, scalable, n-tier applications to create dynamic data-driven Web applications.</p>
Prerequisite(s) & Corequisite(s)	<p>“Object Oriented Programming”, “Computer Networks”, and “Software Development Methods”.</p>
Textbook(s) and web materials	<p>Distributed Systems Tanenbaum A.S., Van Steen T., Distributed Systems: Principles and Paradigms, Prentice Hall, 2 ed., 2006</p> <p>Web Programming Hall M., Core Servlets and Java Server Pages, Prentice Hall, 2006 Fields D.K., Kolb M.A., Web Development with Java Server Pages, Manning, 2000</p> <p>Web Services Monson-Haefel R., J2EE Web Services, Addison-Wesley Professional , 2003.</p>
Course objectives	<p>The objective of this course is to explore the methods and techniques of web applications development from . Upon successful completion of the course, the student should be able to:</p> <ul style="list-style-type: none">• relate the history of the internet and the WWW and its impact on the deployment of distributed applications• describe the different client-server architectures• explain the client/server model of the WWW and the associated protocols• discuss the benefits of client-side interactivity for web applications• develop and utilise simple JavaScript functions and event handlers• employ dynamic HTML and Cascading Style Sheets (CSS)• discuss the role of the 'server' in the development of secure and reliable web applications• estimate the performance of a single web server to deliver static and dynamic content• employ servlets and Java Server Pages for creation of dynamic web pages• develop server-side software with web services• combine these concepts and skills to create a web application.
Topics covered	<p>I. Distributed Computing</p>

- Introduction to Distributed Computing
- Business Applications
- Middleware
- Software Components
- Inter-Components Communications
- II. Introduction to Web
 - Network Connectivity
 - The HTTP Protocol
- III. Web Client Side Programming
 - Introduction to HTML
 - Programming con JavaScript
 - Introduction to DHTML&CSS
- III. Web Server - Side Programming
 - Programming with Servlets
 - Request Processing
 - Response Generation
 - Session Tracking
 - Extending Servlets with Database Connectivity
 - Servlet Anatomy
 - Programming with Java Server Pages
 - JSP Components
 - Leveraging the Tag Extension mechanism (JSP Tag Libraries)
 - Developing custom tags
 - Leveraging the JSP 2 Expression Language (EL)
 - Model-View-Controller (MVC) Architecture
- IV. Web Services
 - Communication Standards
 - Introduction to XML
 - Introduction to SOAP
 - Introduction to WSDL
 - Web Services

Laboratory

This is a list of the main laboratory topics:

1. HTML Programming
2. HTML and JavaScript Programming
3. Web Programming with Servlet and JDBC API
4. Cookies and Session Tracking
5. Programming with JSPs
6. Using the Model 2 Architecture
7. Programming Web Services

Attendance at each laboratory is required!

Project

The project to be undertaken may be a team or one person project .
 When the project is a team-based project each student is expected to work as a member of your group in this course and cooperate with his/her colleagues. Each group will be responsible for assigning tasks to its team members, but the instructor must be informed about this assignment.
 Each of the seven homework assignments will contribute to fulfil the final project. The project is a requirement for the competition of the course and will

be graded individually, thus it is the responsibility of the students to document and give full details on his/her contribution to the project.
The project has to be entirely implemented.

Grading

Grading will be as follows:

- 40% Final exam consists of a written answer to a quiz and a closed-book test consisting in analysis and design of a small application.
- 20% Homework assignments and personal contribution to laboratory classes. The points per assignment will vary depending importance and effort.
- 40% Project assignments. The points will vary depending the proposed solution, CASE tools usage, documentation quality, and effort.