

1. Course Code

2249

2. Course Title

Web Application Development

3. Teacher

WANNOUS, Muhammad

4. Term

Spring 1

5. Course Overview and Objectives

This course introduces the way the web operates and the design of web applications using the popular programming languages Java and JavaScript. It starts with an introduction to the HTTP (and maybe FTP) protocol and namespace of the web, and then continues to cover the design of web web application for the client side (HTML, CSS, and JavaScript) and server side (Java).

The course also covers the deployment of web applications in Apache Tomcat HTTP server. The course includes a project to complete by its end.

6. Course Goals (Attainment Targets)

- (1) Describe how the web works
- (2) Describe the characteristics of the HTTP protocol
- (3) Practice designing web pages using HTML, CSS, and JavaScript
- (4) Practice using Java to create server side web application
- (5) Practice deploying a web application on Apache Tomcat
- (6)

7. Correspondence relationship between Educational goals and Course goals

Educational goals of the school			Course Goals
High level ICT skills	Basic academic skills		(1) (2)
	Specialized knowledge and literacy		(3) (4) (5)
Human skill (Tankyu skill)	Ability to continually improve own strengths		
	Ability to discover and resolve the problem in society	Problem setting	
		Hypothesis planning	
		Hypothesis testing	
		Practice	
	Fundamental Competencies for Working Persons	Ability to step forward	
		Ability to think through	
Ability to work in a team			
Professional ethics			

8. Course Requirements (Courses / Knowledge prerequisite for this course)

This course requires programming skills. Students are recommended to take this course after 'Data Structures and Object Oriented Programming (Java)' (2291) and 'Fundamentals of Database Systems' (2205).

The programming project is in Java, but you can use any other programming language that you are comfortable with.

9. Textbooks (Required Books for this course)

For this course, a set of lecture slides, handouts, and reports will be distributed in timely manner through Moodle.

10. Reference Books (optional books for further study)

Servlets & JSP: A Tutorial, 2nd edition, 9781771970273

JavaScript & jQuery, 9781449399023

www.w3schools.com

11. Evaluation

Goals	Evaluation method & point allocation					
	examination	Quiz	Reports	Presentation	Deliverables	Other
(1)		○				
(2)		○				
(3)		○			○	
(4)					○	
(5)					○	
(6)						
Allocation		40			60	

12. Notes

This course contains both theoretical and practical parts. Be prepared for for designing web pages and coding (in JavaScript and in Java).

Quizzes and projects have deadlines and they won't be postponed unless a serious issue occurs.

13. Course plan

(Notice) This plan is tentative and might be changed at the time of delivery

Lesson 1: (Course orientation, How the WEB works)

(Discussion and Lecture, 90 minutes)

[1] Course syllabus

[2] Grading

[3] How the WEB works?

- + The Internet
- + Client-Server architecture
- + The web browser

Lesson 2: (TCP Protocols for the WEB)

(Discussion and Lecture, 90 minutes)

[1] HTTP Protocol

- + Request
- + Response
- + Methods
- + Parameters

[2] FTP

- + File storage and retrieval

Lesson 3: (Development environment) (Practice 90 minutes)

[1] Development environment setup

- + Java Development Kit (JDK)
 - + NetBeans IDE
 - + SQLite (MySQL)
 - + Firefox (Chrome)
 - + Apache Tomcat
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Lesson 4: (Application interface -1)

(Lecture 30 minutes, Practice 60 minutes)

[1] HTML

- + Tags
- + Attributes
- + Forms

[2] CSS

Lesson 5: (Application interface -2)

(Lecture 30 minutes, Practice 60 minutes)

[1] JavaScript

- + Variables and types
 - + Arrays
 - + Flow Control
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Lesson 6: (Application interface -3)

(Lecture 30 minutes, Practice 60 minutes)

[1] jQuery

- + Introduction
 - + Events
 - + Animations
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Lesson 7: (Server-side -1)

(Lecture 30 minutes, Practice 60 minutes)

[1] Java Servlet

- + Getting parameters from the request
 - + Connecting to the database
 - + Responding
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Lesson 8: (Server side -2)

(Lecture 30 minutes, Practice 60 minutes)

[1] JavaServer Pages (JSP)

- + From Servlets to JSP
 - + Mixing Java with HTML and JavaScript
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Lesson 9 : (Course project-1)	(Practice, 90 minutes)
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- [1] Course project (course management system)
- + Application design
 - + Interface design

Lesson 10 : (Course project-2)	(Practice, 90 minutes)
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- [1] Server side application
- + Adding courses
 - + Adding lecturers
 - + Adding students

Lesson 11 : (Course project-3)	(Practice, 90 minutes)
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- [1] Server side application
- + Listing and deleting courses
 - + Listing and deleting lecturers
 - + Listing and deleting students

Lesson 12 : (Web Application Debugging)	(Practice, 90 minutes)
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- [1] Debugging
- + Debugging interfaces (JavaScript)
 - + Debugging server-side pages
- [2] Capturing network traffic
- + Developer's console

Lesson 13-14 : (Final Project)	(Parctice, 180 minutes)
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From this session, the students will be divided into groups to work on selected number of additional features in the application.

Each group will select a set of features to add to the application.

- 1- Add a new table for the course room in the database.
- 2- Add new functions to add, list, and delete rooms.
- 3- Show the schedule of each student.
- 4- Show the utilization of the rooms.
- 5- Show the schedule of each lecturer.
- 6- Detect conflicts in schedule.

Lesson 15 : (Wrap up)

(Discussion, 90 minutes)

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- [1] Discuss and review the topics covered in this course.
- [2] Suggestions of improvements.
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