EE4717/IM4717 Web Application Design
An Overview

Lecturer & Course Coordinator :

Associate Professor CHONG Yong Kim
E-mail: eykchong@ntu.edu.sg
Tel: 67904535

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LEARNING OBJECTIVE & EXPECTED OUTCOME

- **Objective** : provide students with a clear understanding of the architecture of web applications, as well as skills and knowledge to design and construct such applications.
- **Expected outcome**: students should be able to design and implement a good web application or portal
- **Course content:**
  - Working with Web Servers
  - Web App Design Principles
  - Client-side Web Application Programming with HTML5, CSS3, JavaScript
  - Server-side Web Application Programming with PHP and SQL
  - Design Project

Web App Demo

- Lab facilities and guidance are provided for students to practice web development skills, go through the steps of web applications development cycle, i.e. design, implementation and deployment, with an in-house group project.

Books

- Recommended textbooks:

- Title: Basics of Web Design : HTML5&CSS3, 2nd Ed. International Edition

  Author: Terry Felke-Morris

  ISBN: 978-1-29202-546-9

  Publisher: Pearson Education Limited.

- Title: Modern JavaScript: Develop and Design

  Authors: Larry Ullman

  ISBN: 978-0321812520

  Publisher : Peachpit Press

- Title: PHP and MySQL Web Development

  Authors: Luke Welling; Laura Thomson

  ISBN: 978-0-672-32916-6

  Publisher : Sams Publication

Teaching slides are based on materials extracted from the recommended textbooks and slides from authors and publishers.

EE4717 Web Application Design – Teaching Plan

- 1st Lecturer: Assoc Prof CHONG Yong Kim
  - Weeks 1 – 5
  - Working with Web Servers
  - Web App Design Principles
  - Client-side Web Application Programming with HTML5, CSS3
- 2nd Lecturer: Dr ANG Yew Hock
  - Weeks 6 – 11
  - Client-side Web Application Programming with JavaScript
  - Server-side Web Application Programming with PHP and SQL
- Design Project (to be selected from a given list of projects).
  - List of projects will be available in week 2
  - Design project starts from week 3 and ends in week 11
  - Project Demos are in weeks 12-13

Coursework and Continuous Assessment (CA)

- Coursework : 50% of the total course marks.
- Examination (Open-Book) : 50% of the total course marks.

- Coursework marks are based on FOUR (4) CA components (summed to 100 marks) :
  - Progress Assessments (PA1 & PA2) (20 marks)
    - Student's in-class involvement and work on the Case Studies.
  - Project Report (Design) (20 marks)
  - Project Demo (30 marks)
  - Project Report (30 marks)

Weekly Schedule

WEEK	DATE	MON	TUE	WED		THUR		FRI	Topics to be covered	Activities / Continuous Assessment
		1330 - 1630	1330 - 1630	0830 - 1130	1330 - 1630	0830 - 1130	1330 - 1630	1330 - 1630		
		GROUP								
		F31	F32	F33	F34	F35	F36	F37		
		S2-B3b-08	S2-B3b-08	S2-B3b-08	S2-B3b-08	S2-B3b-08	S2-B3b-08	S2-B3b-08		
1	08 Aug - 13 Aug 2016	CYK/1	National Day (CYK/1)	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	Overview, Web Server Config. HTML5 Basics	
2	15 Aug - 20 Aug 2016	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	HTML5 Basics, CSS3	Case Study (Part 1)
3	22 Aug - 27 Aug 2016	CYK/1	CYK/1	CYK/1	CYK/1	Union Day (CYK/1)	Union Day (CYK/1)	CYK/1	CSS3, Table & Forms	Case Study (Part 2)
4	29 Aug - 03 Sep 2016	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	Web App Design	(10%) Progress Assessment (1)
5	05 Sep - 10 Sep 2016	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	CYK/1	Web App Design Hands-on	(20 %) Project Report (Design) (Due: Week 6)
6	12 Sep - 17 Sep 2016	Hari Raya Haji (AYH)	AYH	AYH	AYH	AYH	AYH	AYH	JavaScript	
7	19 Sep - 24 Sep 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	PHP	Case Study (Part 3)
	26 Sep - 01 Oct 2016	RECESS								
8	03 Oct - 08 Oct 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	SQL	Case Study (Part 4)
9	10 Oct - 15 Oct 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	Advanced PHP	(10 %) Progress Assessment (2)
10	17 Oct - 22 Oct 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	Adding JavaScript, PHP, SQL To Web Apps	(30 %) Project Report (Due: Week 11)
11	24 Oct - 29 Oct 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	Adding JavaScript, PHP, SQL To Web Apps	
12	31 Oct - 05 Nov 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	Project Demo	(30 %) Project Demo
13	07 Nov - 12 Nov 2016	AYH	AYH	AYH	AYH	AYH	AYH	AYH	Project Demo	

Design Project

- Students will form project groups: 2 students per group.
- Each project group selects a design project from a list of projects given by the instructor in week 2.
  - Analyze the project title and propose a list of application requirements and functional requirements.
  - Be realistic about your goals with respect to the time you can devote to this 2 AU course.
- The project management:
  - brainstorming, application requirements, application functionalities, design approaches, design decisions, implementations of the design, and testing of the software system.
  - Web application implementation must include HTML5, CSS3, JavaScript, PHP, and SQL for each student.

Software Engineering Practice

- Phases of software development: **Waterfall model**
  1. *Requirements specification (Requirements analysis)*
  2. *Software system design*
  3. *Implementation and Integration*
  4. *Testing*
  5. Deployment
  6. Maintenance
- Reviews take place before moving to the next phase which allows for the possibility of changes
- Reviews may also be employed to ensure that the phase is indeed complete;
- Waterfall model discourages revisiting and revising a prior phase.
- Exercise flexibility only when necessary. Get things right the first time.

Points to take note

- Every student will be given a virtual web server and a web account to host his/her websites.
- All web applications must be developed on the virtual web server. However, you are advised to keep an up-to-date backup on your own storage devices.
- Demos with web servers installed on personally owned computer are not acceptable.
- Demos will be done on the instructor's PC by visiting the websites on the virtual web server on which your web applications are hosted.

What should be in the project report?

1. Project Title
   - Must have a title for your project.
2. Project Summary
   - Tell people what your project is about. Revise your submitted project summary to no more than 200 words.
3. Analysis of application requirements and Specifications
   - Pretend you are from a company requesting for such a web application and you are also the end users of the application. Work out the requirements on the application. Give a list of the requirements.
4. Functional Requirements and Specifications.
   - Based on the user requirements, develop the list of functional requirements and the specifications of functionalities.
5. Web Application Implementations
   - Describe how the designs are implemented
6. Testing of Web Applications.
   - Testing that all the functional requirements are met.

Details of design

- High Level design
  - Present the overall web application design showing how the functional specifications are met. Present the sitemap and task work flow. Present the overall page layout of the application.

- Detailed level design
  - Present the design on functionalities and show details using storyboards or flow chart. Present the layout of each page.

Report Submission

- Blackboard (NTULearn) will be used for project group forming, design documents and report submissions.
- These are Turnitin submissions and originality checks will be performed. Similarity Scores will be ignored, but the Turnitin report forms part of the assessment.
- Source codes must be placed in the Appendix in text form.
- Please make sure that you are familiar with the on-line system.
- The deadlines for these submissions are HARD deadlines.
- Penalty will be incurred for late submission following the common guidelines for laboratory reports.

Plagiarism:

There is severe penalty. So you have been warned.