IE 4727 Web Application Design

Overview

Lecturer: Dr. Hu Xiao

Email: xiao.hu@ntu.edu.sg

Tel: 67904543

An Overview

1. **Learning Objective**
2. Teaching Plan
3. Continuous Assessment
4. Weekly Schedule
5. Design Project

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
- 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.

Web App Demo

Learning Objective & Expected Outcome

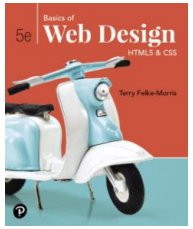
➢ Intended Learning Outcomes (ILO) :

Upon the completion of the course, you should be able to:

1. Understand the development process of a web application
2. Analyze and identify the web application requirements and functional requirements
3. Construct the site map, storyboards and wireframes for the web pages
4. Design and implement basic web page content on VS Code using HTML5 and CSS3 style sheets
5. Design and implement client-side interactive form validation using JavaScript and React.js
6. Design and implement server-side functions using PHP scripts
7. Create and manage server-side web application database using MySQL

References

- Recommended textbooks:

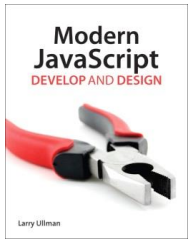


❑ Title: Basics of Web Design : HTML5 & CSS, 5th Edition

Author: Terry Felke-Morris

ISBN: 978-0135225486

Publisher: Pearson Education Limited.

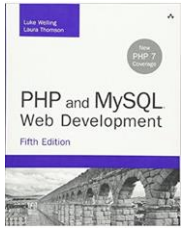


❑ Title: Modern JavaScript: Develop and Design, 1st Edition

Authors: Larry Ullman

ISBN: 978-0321812520

Publisher : Peachpit Press



❑ Title: PHP and MySQL Web Development, 5th Edition

Authors: Luke Welling; Laura Thomson

ISBN: 978-0321833891

Publisher : Pearson Education

Teaching Plan

- 1st Lecturer: Dr. Hu Xiao
  - Weeks 1 – 5
  - Working with Web Servers
  - Web App Design Principles
  - Client-side Web Application Programming with HTML5, CSS3
  - Introduction to React.js
- 2nd Lecturer: Dr. Wesley TAN Chee Wah, Dr. Zhang Wen Wen,Dr. Zhang Jia Rui
  - 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: 100% of the total course marks. Students are required to arrange make-up assessments with the course coordinator or tutors if they have a medical certificate (MC). Failure to submit an MC or make prior arrangements will result in the assessments being graded as ABS (absent).

- Coursework marks are based on Six (6) CA components (summed to 100 marks):
  - Progress Assessments (Hands-on exercises and Case Studies)
    - PA 1 (15 marks)
    - PA 2 (15 marks)
  - -- Progress Assessments (Quiz)
    - Quiz 1 (10 marks)
    - Quiz 2 (10 marks)
  - Project Report (20 marks)
  - Project Demo (30 marks)

Weekly Schedule

- **Lectures (Weeks 1 – 9)**
  - Weekly 1 – 1.5 hours pre-recorded video lectures
  - Students to go thru the video lectures anytime at home, before coming for the Lab sessions
  - Available in NTULearn
- **Lab Sessions**
  - Weekly

	(Weeks 1–11) 2-Hour	(Weeks 12&13) 3-Hour
– Groups: F31, F33, F34, F36:	09:30 – 11:30	09:30–12:30
– Groups: F32, F35, F37:	13:30 – 15:30	13:30–16:30
– Group: EPLE1 (Part-Time):	19:00 – 21:00	19:00–22:00

  - Conducted in Computer Engineering Lab II (S2-B3a-06)
  - To work on Hands-on exercises & Case Studies (individually)
  - To design & implement Design Project (group)

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 3 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.
  - More Information: NTULearn main course site-> Content->*HX_IE4727 Project List and Guidelines_2025.*

Web Server

- Every student will be given a free and open-source cross-platform web server (XAMPP) to host his/her websites.
- All web applications must be developed on the local 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 lab PC, by visiting the websites on the local 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.
   - More Information: NTULearn main course site-> Content->
   - *HX_IE4727 Report Template 2025S1.*

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. Turnitin report forms part of the assessment. (Similarity < 20%).
- 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.

Thanks

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