1. Course Code

2249

2. Course Title

G11e: Web Application and Database

3. Teacher

SUN, Yi

4. Term

Spring 1

5. Course Requirements (Courses / Knowledge for this course) and Important Information

6. Course Overview and Objectives

This course introduces the way the web operates and the design of web applications in the fashionable programming languages PHP and JavaScript.
It starts with an introduction to the server-client architecture and the HTTP protocol. It then continues to cover the design of web application for the client-side (HTML, CSS, and JavaScript) and server-side (PHP).
You will also learn how to design and use databases to provide data storage and query services for the Web application.
The course also covers the deployment of web applications in Apache HTTP server & Mysql server. The course includes a project to complete by its end.

7. Course Outline

1. Course orientation and development environment tools and setup.
2. How the web works, the server-client architecture, & URLs
3. Client side (HTML & CSS)
4. Client side (HTML & CSS)
5. Client side (JavaScript & Ajax)
6. Client side (Responsive Design & Bootstrap)
7. Server side (Basic of PHP Language)
8. Server side (Cookie, Sessions, Get, Post)
9. Database (The concept of Database, relational database, table design)
10. Database (SQL scheme)
11. Database(Using the Database in Web application)
12. Server side(CRUD operation in Web application)
13. Server side (Web Application Exercise)
14. Final work: use the PHP and database to build a simple web application.
15. Final Presentation
16.

8. Textbooks (Required Books for this course)

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

9. Reference Books (optional books for further study)

www.w3schools.com

10. Course Goals (Attainment Targets)

(1) Practice designing web pages using HTML, CSS, and JavaScript
(2) Describe the technologies used to construct the server-side components
(3) Practice using PHP to create a server-side web application
(4) Practice using Database in web application
(5) Practice using MVC framework to construct the web application
(6) Practice deploying a web application in a web server
(7)
(8)

11. 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) (6)
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			

12. Evaluation

Goals	Evaluation method & point allocation					
	examination	Quiz	Reports	Presentation	Deliverables	Other
(1)					○	
(2)				○		
(3)					○	
(4)					○	
(5)				○	○	
(6)				○	○	
(7)						
(8)						
Allocation				40	60	

13. Evaluation Criteria

Examination	
Quiz	
Reports	
Presentation	In the final presentation, students will be asked to explain the features of the web application they designed and the technical details used. They will also describe the challenges and solutions they have encountered during the development process.
Deliverables	The course has three exercises and one project. One exercise involves designing a web page and coding it in HTML, CSS, and JavaScript. The second exercise involves writing PHP pages that complete the logic necessary to achieve certain functions. The last exercise involves writing a simple application that utilizes the MVC design pattern. The instructor will provide the information related to each exercise in timely manner. As for the final project, it involves designing a complete web application that has a number of functions. Each student should deliver a web archive file for the final project, and the instructure will deploy it on his computer for testing.
Other	

14. Active Learning

Hourly percentage of active learning within the whole class time		70%
1	Active learning such as problem solving assignment using the knowledge and skills acquired in class.	All the time
2	Active learning such as group works and discussions.	Sometimes
3	Outcome presentations and feedbacks.	Not at all
4	Students actively make decisions on how the class should be conducted.	Not at all

15. Notes

16. Course plan

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

Lesson 1: (Course orientation and development environment tools and setup) (Discussion and Lecture, 45 minutes & Practice 45 minutes)

[1] Course syllabus
[2] Grading
[3] Development environment

Lesson 2: (How the web works, the server-client architecture, & URLs) (Discussion and Lecture, 90 minutes)

[1] How the WEB works?
[2] The server-client architecture
+ The web browser (client)
+ Apache & PHP (server)
[3] Deploying a web application
[4] URLs

Lesson 3: (Client side (HTML & CSS)) (Lecture 30 minutes, Practice 60 minutes)

[1] HTML
+ Tags
+ Attributes
+ Forms

Lesson 4: (Client side (HTML & CSS)) (Lecture 30 minutes, Practice 60 minutes)

[1] CSS
+ classes
+ Box model

Lesson 5: (Client side (JavaScript & Ajax))	(Lecture 30 minutes, Practice 60 minutes)

[1] JavaScript
  + Basics
  + Document Object Model
  + Changing attributes
  + Adding nodes
  + Objects
  + JavaScript Object Notation
[2] Ajax

Lesson 6: (Client side (Responsive Design & Bootstrap))	(Lecture 30 minutes, Practice 60 minutes)

[1] Responsive design
  + Principles
  + Bootstrap

Lesson 7: (Server side (Basic of PHP Language))	(Lecture 30 minutes, Practice 60 minutes)

Introduce the fundamentals of PHP Language, and write the simple response web page.
  + Variable
  + Flow control
  + Function

Lesson 8: (Server side (Cookie, Sessions, Get, Post))	(Lecture 30 minutes, Practice 60 minutes)

[1] Cookie & Session
  + Storing and retrieving objects
  + Destroying Cookie & sessions
[2] GET method
[3] POST method

Lesson 9 : (Database (The concept of Database, relational database, table design))	(Lecture 30 minutes, Practice 60 minutes)

[1] The concept of database
[2] relational database
[3] Design the table
[4] ER Models

Lesson 10 : (Database (SQL scheme))	(Practice, 90 minutes)

[1]The basic of the SQL Language.
  + create database, create table
  + select, insert into, delete update
[2] Manage the Database middleware.
  + mysqldump
  + backup

Lesson 11 : (Database(Using the Database in Web application))	(Lecture 30 minutes, Practice 60 minutes)

[1] database connector for PHP
[2] Use the PHP to access database.

Lesson 12 : (Server side(CRUD operation in Web application))	(Lecture 30 minutes, Practice 60 minutes)

[1] Learn How to impliment the CRUD(Creat, Read, Update, Delete) operation by PHP.

Lesson 13 : (Server side (Application Exercise))	(Practice 90 minutes)

[1] Learn how to use the PHP to develop the web application

Lesson 14 : (Final work: use the PHP and database to build a simple web application.)	(Practice, 90 minutes)

Use the PHP and database to build a simple web application.

Lesson 15 : (Final project: image repository)	(Practice, 90 minutes)

Presentation and discussion of the final individual work.