COURSE SYLLABUS

CSC13008 – Web Application Development

1. GENERAL INFORMATION

Course name:	Web Application Development
Course name (in Vietnamese):	Phát triển ứng dụng web
Course ID:	CSC13008
Knowledge block:	Software Engineering
Number of credits:	4
Credit hours for theory:	45
Credit hours for practice:	30
Credit hours for self-study:	90
Prerequisite:	Introduction to Programming, Introduction to Database
Prior-course:	
Instructors:	MSc. TRAN THI BICH HANH MSc. NGUYEN HUY KHANH MSc. NGO NGOC DANG KHOA MSc. MAI ANH TUAN

2. COURSE DESCRIPTION

The course is designed to provide students

3. COURSE GOALS

At the end of the course, students are able to

ID	Description	Program LOs

G1	Work in pairs or teams of three to develope a small to medium-sized real world web application	
G2	Self-study, read and comprehend English documents and give presentations for topics related to web application development	
G3	Understand the architecture of web applications and internet technologies	
G4	Apply a web application development process to develop a small or medium-size web application	
G5	Design and build static websites using HTML5 and CSS3	
G6	Design and build dynamic web applications with database using NodeJS	

4. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	Ability to work in pairs or teams of three to develop a small to medium-sized web application	ITU
G2.1	Explain specialized English terminologies of the subject	I
G2.2	Prepare posters or slides for presentation	U
G3.1	Explain basic concepts about Web & Internet	I
G3.2	Describe the architecture of client-side and server-side Web Application	IT
G3.3	Explain principles of web design	IT
G3.4	Apply principles of web design to design user interfaces for web application	U
G4.1	Use web technologies, tools and environments	TU

G4.2	Plan, develop, debug, implement, and deploy interactive we applications	TU
G5.1	Explain standards for HTML and style sheets (CSS)	IT
G5.2	Explain the concepts Document Object Model (DOM) and Asynchronous JavaScript and XML (AJAX)	IT
G5.3	Apply basic coding in HTML and CSS	TU
G5.4	Use HTML and CSS for responsive web design	TU
G5.5	Validate web pages according to W3C standard	TU
G6.1	Understand the JavaScript and technical concepts behind Node JS	IT
G6.2	Structure a Node application in modules	TU
G6.3	Build a Web Server in Node and understand how it really works	TU
G6.4	Build a web application and API using Express	TU
G6.5	Connect to a SQL or Mongo database in Node	TU
G6.6	Apply client/server communication techniques such as session, cookies, email and secure web applications	TU

5. TEACHING PLAN

ID	Topic	Course outcomes	Teaching/Learning Activities (samples)
1	Course Introduction	G2.1, G2.2, G3.1, G3.2	Lecturing

			A1-Group Reading & Presentation
2	Principles of Web Design	G2.2, G3.3, G4.1	Lecturing A2-Group Presentation P1-Draft Prototype
3	Structure with HTML5	G5.1, G5.3, G5.5, G4.1	Lecturing Q&A, Discusion HW1-HTML5
4	Design with CSS3 and Bootstrap	G5.1, G5.4, G5.5, G4.1	Lecturing Demonstration, discussion HW2-CSS3 P2-Final Prototype
5	Dynamic behavior with JavaScript	G5.2, G4.1	Lecturing Demonstration, discussion A3-Exercises HW3-JavaScript LW1-Building a Website as designed
6	Create Web Server with NodeJS and Express framework	G6.1, G6.2, G6.3, G6.4, G4.1	Lecturing Demonstration, discussion HW4-NodeJS P3-Front-End
7	Template engines	G6.4, G4.1	Case study, discussion Demonstration LW2-Web Server
8	Working with Database	G6.5, G4.1	Case study, discussion Demonstration

9	Working with Database	G6.5, G4.1	Case study, discussion Demonstration LW3-Dynamic Web
10	State Management	G6.6, G4.1	Case study, discussion Demonstration LW4-User Authentication P4-Back-End
11	Advanced Techniques	G6.6, G4.1	Case study, discussion A4-Group Presentation P5-Final Project submitted

6. ASSESSMENTS

ID	Topic	Description	Course outcomes	Ratio (%)
A1	**Assignments**			**30%**
A11	Class Activities: A1-4	A1-2, 4: Group Reading & Presentation A3: Small exercises in class	G2.1, G2.2, G3.1, G3.2, G3.3	10%
A12	Homework: HW1-4	HW1-4: Reading comprehension and quizzes	G2.1, G5.1, G5.2, G6.1	10%
A13	Lab work: LW1–LW4	LW1-4: practicing based on knowledge taught in class	G4.1, G5.3, G5.4, G5.5, G6.2, G6.3, G6.4, G6.5	10%
A2	**Projects**	Applied knowledge in real world project		**70%**

A21	P1- Draft Prototype		G3.4	5%
A22	P2- Final Prototype		G3.4	5%
A23	P3- Front-End		G5.3, G5.4, G5.5	15%
A24	P4- Back-End		G6.2, G6.4, G6.5	15%
A25	P5- Final Project	Oral exam.	G1.1, G4.2, G6.6	30%

7. RESOURCES

Textbooks

- Jennifer Niederst Robbins (4th edition). *Learning Web Design*. O'Reilly
- Manuel Kiessling (2013). *The Node Beginner Book*. Leanpub
- Mike Cantelon et al (2013). *Node.js in action*. Manning
- Sandro Pasquali (2013). *Mastering Node.js*. Packt Publishing

Others

- www.w3schools.com

Tools

- Visual Studio Code
- PostgreSQL/MySQL/MongoDb
- DBeaver/Navicat
- Node.js, NPM, NestJs
- Git Version Control
- Web Browsers

8. GENERAL REGULATIONS & POLICIES

- All students are responsible for reading and following strictly the regulations and policies of the school and university.

- Students who are absent for more than 3 theory sessions are not allowed to take the exams.
- For any kind of cheating and plagiarism, students will be graded 0 for the course. The incident is then submitted to the school and university for further review.
- Students are encouraged to form study groups to discuss on the topics. However, individual work must be done and submitted on their own.