IS207 - Web Application Development

Module designation	**IS207 - Web Application Development** The course introduces applications related to the subject in real life, equipping students with methods to design, implement, and deploy a website in practical situations. It covers skills in programming web applications, how to deploy and operate a website, and website maintenance. The course provides knowledge of static web programming languages such as HTML, HTML5, CSS, CSS3, Bootstrap, Javascript, JQuery, as well as dynamic web programming languages like PHP, MySQL database management, Ajax programming techniques, and the principles of communication (information exchange) between the client and the server. It also introduces some frameworks that support organizing code with PHP, such as the deployment of the CodeIgniter framework. Students apply their personal communication and teamwork skills to accomplish the course project.
Semester(s) in which the module is taught	4
Person responsible for the module	MSc. Mai Xuan Hung, MSc. Vu Minh Sang, MSc. Ta Viet Phuong
Language	Vietnamese, English
Relation to curriculum	Specialization
Teaching methods	Lecture, lesson, assignment, project, seminar, examination.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 195 - Contact hours: Lecture: 45 hours, Lab: 30 hours - Self-study hours: 120 hours
Credit points	Number of credits: 4 (6.5 ECTS credits) - Lecture: 3 - Laboratory: 1
Required and recommended prerequisites for joining the module	Database, Object-oriented programming

Module objectives/intended learning outcomes

CLO	CLOs description	ILOs
G1	Know how to survey some websites and their applications in real-life. Understand the concepts related to web programming as well as the principles of operation between the client and server in web programming.	ILO2 (2.2)
G2	Understand and proficiently use static web programming languages: HTML, HTML5, CSS, CSS3, Bootstrap, JavaScript, JQuery, and DOM.	ILO2 (2.2)
G3	Understand and proficiently apply dynamic web programming language: PHP, along with MySQL for database management	ILO2 (2.2)
G4	Analysis and design of a common e-commerce website	ILO4 (4.1)
G5	Understand the working mechanism of organizing code using the MVC (Model-View-Controller) architectural pattern. Know some frameworks that support code in PHP language. Using the CodeIgniter Framework	ILO2 (2.2)
G6	Evaluate, implement the system, operate, and maintain the website	ILO4 (4.1), ILO5(5.5)

CLO	ILO	CLOs description	Competency level
G1.1	2.2	Understand the necessity of the subject. Understand concepts related to Web programming, understand the operating principles between Client and Server in Web programming.	S3
G1.2	3.1	Document survey skills, specifically: - Know how to learn some Websites and applications of Websites, some open source Websites serving different purposes in practice. - Extract search data, cite relevant information sources.	S3
G2.1	2.2	Understand and apply static web programming languages: HTML, HTML5, CSS, CSS3, and Bootstrap.	K3
G2.2	2.2	Understand and apply web scripting languages: JavaScript, JQuery, DOM, and Ajax programming techniques	K3
G3.1	2.2	How to run a PHP page on the server. Understand and use the PHP programming language.	K3
G3.2	2.2	Understand and apply the MySQL database management system, including connecting to a MySQL database and executing MySQL queries in PHP.	K3
G4.1	3.1 3.2 3.3	Analysis of the functions of the e-commerce website. User role permissions for the system	S3

	G4.2	4.1	Designing the user interface and database for a common e-commerce website.	S3
	G5.1	2.2 3.2	Understanding the architecture of the Model-View-Controller (MVC) system and grasping how to organize code using the MVC design pattern	S4
	G5.2	2.2 3.2	Understand the concept of Framework, framework architecture. Know some popular frameworks that support code organization using the MVC model. Using the CodeIgniter Framework	S3
	G6.1	4.1 5.5	Evaluate, install the system, operate, and maintain the website	S4

(**Competency level**: K: Knowledge, S: Skill, A: Attitude)

Content

Theory

Week/ Duration (4 hours)	**Content**	**CLOs**	**Assessment elements**
1	Chapter 1: Overview	G1.1, G1.2	A1
2, 3	Chapter 2: Static Web Programming Languages	G.2.1, G2.4	A1, A2, A3
4	Chapter 3: Scripting Web Programming Language	G2.2	A2, A3
5,6	Chapter 4: PHP, MySQL	G3.1, G3.2	A1 , A3
7	Chapter 5: Analysis and design of e-commerce website	G4.1, G4.2	A1
8	Chapter 6: Data Transmission Mechanism and Ajax Programming Techniques	G3.1, G3.2	A1, A3
9,10	Chapter 7: MVC & Framework	G5.1, G5.2	A1
11	Chapter 8: Installation, Operation, Maintenance, and Review	G6.1	A1

Lab

Week/ Duration (5 hours)	**Content**	**CLOs**	**Assessment elements**
1	Static web programming using HTML, CSS, and Bootstrap.	G2.1	A1, A2, A3
2	Web scripting programming languages: JavaScript and jQuery.	G2.2	A1, A2, A3
3	Dynamic web programming language: PHP.	G3.1	A1, A3
4	MySQL database management system PHP with MySQL Vietnamese language in PHP & MySQL..	G3.2	A1, A3
5	Ajax programming technique	G3.1	A1, A3
6	FrameWork CodeIgniter	G5.2	A1

<table>
<tr><td>Examination forms</td><td><table>
<tr><th>Assessment elements</th><th>CLOs</th><th>Percentage</th></tr>
<tr><td>A1. Practical exercises, Project+Seminar, Assignments</td><td>G2, G3, G4, G5</td><td>30%</td></tr>
<tr><td>A2. Midterm theory exam</td><td>G1,G2,G3,G5,G6</td><td>20%</td></tr>
<tr><td>A3. Final theory exam</td><td>G2, G3</td><td>50%</td></tr>
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<tr><td>Study and examination requirements</td><td>- Registering and working on projects at home, with each group consisting of 1 to 4 students. Group discussions in class will involve 8 students
- The groups will start their activities in the classroom during the third week
- The project reports are divided into 2 stages
• Preliminary report stage: Defining the objectives and functionalities of the categorized projects (due in the 9th week)
• Final completion stage: Presenting the final project report (due in weeks 14 and 15), with each group having a 20-minute presentation time
- Students are expected to actively listen during lectures, participate in discussions, exchanges, and presentations as part of the group work process in class. Students are required to read the lecture slides before coming to class and diligently complete the registered Project with their team members
- Students are required to complete the practical exercises in the practical section
- Students must attend at least 80% of the in-class sessions and participate in the group project presentation
- The final exam: Essay-based.</td></tr>
<tr><td>Reading list</td><td>[1] Nguyen Dinh Thuan, Mai Xuan Hung, Textbook of Web Application Development, Viet Nam National University Ho Chi Minh city publishing house.
[2] Luke Welling and Laura Thomson, PHP and MySQL Web Development, Fifth Edition
[3] PHP Notes for Professional (2019)
My Notes for Professional (2019)</td></tr>
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