TON DUC THANG UNIVERSITY
FACULTY OF INFORMATION TECHNOLOGY
DIVISION OF SOFTWARE ENGINEERING

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

Ho chi minh city, May 18, 2020

COURSE SYLLABUS
ADVANCED WEB PROGRAMMING
COURSE CODE: 503106

1. General information:

Credits	3(2,1)					
Time allocation	**Theory/Exercise (periods):**	30	**Practice/Discussion (periods):**	30	**Self-Study (hours):**	90
Prerequisite	No				**Prerequisite Code**	No
Prior-Completion	Web Programming and Applications (F7480103), Web Programming and Applications (F7480101)				**Prior-Completion Code**	503073 (F7480103), 503073 (F7480101)
Co-requisite	No				**Co-Requisite Code**	No
Program	2 programmes				**Programme Code**	F7480103, F7480101

2. Course objectives:

No.	Course Objectives (COs)
1	Learners understand basic architecture, principles of NodeJS, ExpressJS. Learners learn the syntax of Javascript, States in NodeJS and grasp the principles of web security and use of support tools.
2	Learners can build dynamic web pages using NodeJS, ExpressJS and Javascript. Learners can combine MongoDB database with NodeJS in dynamic website.
3	Learners are able to apply the knowledge they have learned about the web to build a dynamic website outside of reality.
4	Learners are trained in thinking skills, programming skills, skills to use support tools to solve problems related to the website in accordance with the process for the purpose of building quality websites.

3. Course learning outcomes (CLOs):

No.	CLOs	ELOs
1	Remember web programming languages Javascript in NodeJS	7480103-ELO4,7480101-ELO4
2	Understand the structure and operation of a NodeJS website, State in website	7480103-ELO4,7480101-ELO4
3	Applicate tools, HTML, Javascript, NodeJS, ExpressJS to create website	7480103-ELO7,7480101-ELO7
4	Analyze the actual issues from which to use the web programming language to create the website	7480103-ELO11,7480101-ELO11
5	Evaluate the level of security, the usability of the website	7480103-ELO11,7480101-ELO11

4. Brief course content:

The topics of the module include:

- How to create website using NodeJS, HTML, CSS.
- Increase interaction with users using the Javascript language.
- Build dynamic website using NodeJS and MongoDB database.
- Security issues in the website.

5. Student's tasks:

The highest professional standards are expected of all students who study this course. The collective class reputation and the value of the program's experience hinges on this. This includes:

- Being on-time and in your seat when class starts
- Staying until the end of class. Should students have to leave class early, please have the courtesy of letting the instructor know before the beginning of the period and leave quietly so as not to disturb the other members of the class.
- Being constructive to the learning environment. Mobilephones (both smart and inept) and other electronic devices need to be set to silent during class at all times.
- Being "present" in the class and focused on class material. The lectures will sometimes cover extra material (e.g., exercises, discussions) not contained in lecture notes. Students are responsible for everything covered or assigned in class. If students miss a class, it is entirely their responsibility to determine what they have missed including any administrative announcements lecturer may have made.
- Coming prepared to contribute to the class.
- Communication with the lecturer.
- Students have to attend at least 80% of class hours (if this regulation is not fulfilled, students are not eligible to take their final exam).

6. Course materials:

- Required text:

[1] Ethan Brown, 2014, Web Development with Node and Express: Leveraging the JavaScript Stack, O'Reilly Media, United States

- Recommended texts:

[2] Azat Mardan, 2014, Pro Express.js: Master Express.js: The Node.js Framework For Your Web Development, Apress, New York

[3] Evan Hahn, 2016, Express in Action: Writing, building, and testing Node.js applications, Manning Publications, United States

- Other readings:

[4] Mike Cantelon, Marc Harter, T.J. Holowaychuk, Nathan Rajlich, 2014, Node.js in Action, Manning Publications, United States

[5] Valentin Bojinov, 2016, RESTful Web API Design with Node.js, Packt Publishing, Birmingham UK

7. Description of evaluation:

Evaluation categories	Weight (%)	Types of questions	CLOs *(Recorded as [1], [2], ...)*
Process evaluation 1	10	Process Exercise	[1], [2], [3]
Process evaluation 2	20	Essay	[1], [2], [3], [4]
Mid-term test	20	Practice test	[1], [2], [3]
Final examination	50	Report	[1], [2], [3], [4], [5]

8. Schedule:

Session	Content	Organization of teaching				Self-Study	CLOs	Prerequisite-related content	Student's tasks
		T	E	P	D				
	Chapter 1: Introduction - NodeJS & ExpressJS	**3**	**0**	**0**	**0**	**6**			

01	1.0. The JavaScript Revolution 1.1. Getting Node 1.2. Introducing Express 1.3. Using the Terminal 1.4. A Simple Web Server with Node **Teaching methods:** - Lectures - Discussion	3	0	0	0	6	[1], [2]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 1, 2 - Read [2], chapter 1
	Chapter 2: The Request and Response Objects, Templates	**6**	**0**	**6**	**0**	**18**			
02	2.1. The Parts of a URL 2.1.1 The Request Object 2.1.2 The Response Object 2.1.3 Getting More Information 2.1.4 Boiling It Down 2.1.5. Examples **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 6 - Read [3], chapter 2 - Read [5], chapter 2,3
3	2.2. Choosing a Template Engine 2.3. Jade: A Different Approach 2.4. Handlebars Basics 2.4.1. Server-Side Templates 2.4.2. Views and Layouts 2.4.3. Partials 2.2.4. Client-Side Handlebars **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 7 - Read [2], chapter 5 - Read [4], chapter 4, 5
	Chapter 3: Form Handling	**3**	**0**	**3**	**0**	**9**			
4	3.1. Sending Client Data to the Server 3.2. HTML Forms 3.3. Encoding 3.4. Different Approaches to Form Handling 3.5. Form Handling with Express 3.6. Handling AJAX Forms 3.7. File Uploads 3.8. jQuery File Upload **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 8 - Read [2], chapter 4
	Chapter 4: Cookies and Sessions	**3**	**0**	**3**	**0**	**9**			
5	4.1. Externalizing Credentials 4.2. Cookies in Express 4.3. Examining Cookies 4.4. Sessions 4.4.1. Memory Stores 4.4.2. Using Sessions 4.5. Using Sessions to Implement Flash Messages **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 9 - Read [3], chapter 8
	Chapter 5: Middleware - Persistence - Routing	**6**	**0**	**9**	**0**	**21**			
6	5.1. Middleware 5.1.1 Common Middleware 5.1.2. Third-Party Middleware 5.2. Persistence 5.2.1. Filesystem Persistence 5.2.2. Cloud Persistence 5.2.3. Database Persistence 5.2.3.1 A Note on Performance 5.2.3.2 Setting Up MongoDB 5.2.3.3 Mongoose 5.2.3.4 Database Connections with Mongoose 5.2.3.5 Creating Schemas and Models 5.2.3.6 Seeding Initial Data 5.2.3.7 Retrieving Data 5.2.3.8 Adding Data **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3], [4], [5]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 10, 13 - Read [5], chapter 7
7	5.3. Routing 5.3.1. Routes and SEO 5.3.2. Subdomains 5.3.3. Route Handlers Are Middleware 5.3.4. Route Paths and Regular Expressions 5.3.5. Route Parameters 5.3.6. Organizing Routes 5.3.7. Automatically Rendering Views 5.3.8. Other Approaches to Route Organization **Teaching methods:** - Lectures - Discussion - Exercise	3	0	6	0	12	[1], [2], [3], [4], [5]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 14 - Read [4] chapter 7
	Chapter 6: REST APIs and JSON	**3**	**0**	**3**	**0**	**9**			
8	6.1. JSON and XML 6.2. API Error Reporting 6.3. Cross-Origin Resource Sharing (CORS) 6.4. Data Store & Tests 6.5. Using Express to Provide an API 6.6. Using a REST Plugin 6.7. Using a Subdomain **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3], [4], [5]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1], chapter 15 - Read [4], chapter 8
	Chapter 7: Static Content, Security	**3**	**0**	**3**	**0**	**9**			
9	7.1. Static content 7.1.1. Static Resources in Server-Side JavaScript 7.1.2. Static Resources in Client-Side JavaScript	3	0	3	0	9	[1], [2], [3], [4], [5]		**At class:** - Discussion of previous problems - Do exercise.

	7.1.3. Serving Static Resources 7.1.4. Changing Your Static Content 7.1.5. Bundling and Minification 7.2. Security 7.2.1. HTTPS 7.2.2. Cross-Site Request Forgery 7.2.3. Authentication 7.2.4. Conclusion **Teaching methods:** - Lectures - Discussion - Exercise								**After class:** - Read next lecture - Do all homeworks. - Read [1] chapter 16, 18 - Read [2] chapter 9
	Chapter 8: Integrating with Third-Party APIs	**3**	**0**	**3**	**0**	**9**			
10	8.1. Social Media 8.1.1. Social Media Plugins and Site Performance 8.1.2. Searching for Tweets 8.1.3. Rendering Tweets 8.2. Geocoding 8.2.1. Geocoding with Google 8.2.2. Geocoding Your Data 8.2.3. Displaying a Map 8.2.4. Improving Client-Side Performance 8.3. Weather Data **Teaching methods:** - Lectures - Discussion - Exercise	3	0	3	0	9	[1], [2], [3], [4], [5]		**At class:** - Discussion of previous problems - Do exercise. **After class:** - Read next lecture - Do all homeworks. - Read [1] chapter 19, 21
	Total	**30**	**0**	**30**	**0**	**90**			

9. Date of first approval:

May 18, 2020

Course designer:

Reviewer:

Dean of Faculty:

Head of Division:

10. Date of update:

Version: 1.0 - Date issued: 02/26/2020