COURSE SYLLABUS

SOFTWARE ENGINEERING

Course code: 220055

1. General information

Course type		*Number of credits*	*Number of learning periods*
General	□	Theory: 02 Exercise: 00 Practice: 01	Theory: 30 Exercise: 00 Practice: 30
Basic	□		
Specialized	☑		
Required	☑		
Elective	□		

***Learners*:**

Level	Bachelor
Discipline	Information Technology

Course requirements:

Prerequisites	Information system analysis and design
Parallels	None
Other requirements	None

2. Learning resources

Books	[1] Ian Sommerville (2015). *Software Engineering, 10th edition.* Addison-Wesley. [2] Nguyễn Khắc Quốc (2015). *Tài liệu giảng dạy Công nghệ phần mềm (Internal used only).* Trường Đại học Trà Vinh.
References	
Other learning materials	[3] Microsoft. *Microsoft Visual Studio 2018*

	[4] Microsoft. *Microsoft SQL Server 2018*

3. Course description

The course provides students basic/specialized knowledge on software engineering. The course also aims to provide opportunities to practice professional skills including requirement acquisition, software design and implementation, software testing, and software project management. Additionally, the course develops students' appropriate awareness and attitudes on software engineering as well as required soft skills such as group working and communication.

4. Course learning outcomes (CLOs)

After finishing the course, students will be able to:

		Satisfy LOs of the program	***Satisfy LOs of the ABET***
❖ ***Topic 1: Disciplinary Knowledge and Reasoning***			***B.1.1*** ***B.1.2*** ***B.1.3*** ***B.1.4*** ***B.1.5*** ***B.1.6***
L1.	Present the overview of software engineering	1.3.2	
L2.	Present models of software development		
L3.	Utilize learned models in software development		
❖ ***Topic 2: Personal and Professional Skills and Attributes***			
L4.	Problem identification and formulation	*2.1.1*	
L5.	Emergence and interactions in systems	*2.3.2*	
❖ ***Topic 3: Interpersonal Skills: Teamwork and Communication***			
L6.	Team Operation	*3.1.2*	
L7.	Written Communication	*3.2.3*	
L8.	Oral Presentation and Interpersonal Communications	*3.2.6*	
❖ ***Topic 4: Conceiving, Designing, Implementing and Operating Systems in The Enterprise, Societal and Environmental Context – The Innovation Process***			
L9.	The impact of engineering on society	*4.1.2*	
L10.	Defining function, concept and architecture	*4.2.2*	

L11.	Modeling of system and ensuring goals can be met	*4.2.3*	
L12.	Utilization of knowledge in design	*4.3.3*	
L13.	Designing the implementation process	*4.4.1*	
L14.	Test, verification, validation, and certification	*4.5.1*	
L15	System improvement and evolution	*4.5.4*	

5. Course content

Course content	*CLOs*	*Number of learning periods*		
		Theory	*Practice*	*Others*
Chapter 1. Software Engineering Overview	***L1, L2***	**2**	**0**	
1.1. Concepts of software engineering	*L1, L2*	2	0	
1.2. Software and classes of software				
1.3. Software engineering tasks				
1.4. Software development models				
☐ ***Personal and Professional Skills and Attributes***				
☐ ***Interpersonal Skills: Teamwork and Communication***				
☐ ***CDIO in the enterprise, societal and environmental context***				
Chapter 2. Requirement gathering	***L3***	**5**	**0**	
2.1. Requirement definition	*L3*	5	0	
2.2. Requirement classification				
2.3. Steps of requirement gathering				
☐ ***Personal and Professional Skills and Attributes***	*L4: (U)*			
☐ ***Interpersonal Skills: Teamwork and Communication***	*L6, L7, L8: (U)*			

☐ ***CDIO in the enterprise, societal and environmental context***	*L9: (I), L10: (U), L11: (U)*			
Chapter 3. Software analysis and design	***L3***	**16**	**0**	
3.1. Data design	*L3*	16	0	**0**
3.2. Processing design				
3.3. User interface design				
☐ ***Personal and Professional Skills and Attributes***	*L5: (U)*			
☐ ***Interpersonal Skills: Teamwork and Communication***	*L6, L7, L8: (U)*			
☐ ***CDIO in the enterprise, societal and environmental context***	*L12: (U)*			
Chapter 4. Software implementation	***L3***	***3***	***0***	
4.1. Programming methods	*L3*	*3*	*0*	
4.2. Programming languages				
4.3. Programming techniques				
☐ ***Personal and Professional Skills and Attributes***				
☐ ***Interpersonal Skills: Teamwork and Communication***				
☐ ***CDIO in the enterprise, societal and environmental context***	*L13: (U)*			
Chapter 5. Software testing	***L3***	***2***	***0***	
5.1. Testing requirements	*L3*	***2***	***0***	
5.2. Testing phases				
5.3. Testing techniques				
☐ ***Personal and Professional Skills and Attributes***				
☐ ***Interpersonal Skills: Teamwork and Communication***				
☐ ***CDIO in the enterprise, societal and environmental context***	*L14: (U)*			

Chapter 6. Software project management	***L3***	**2**	**0**	
6.1. Phases of software project management	*L3*	2	0	
6.2. Tasks of software project management				
☐ ***Personal and Professional Skills and Attributes***				
☐ ***Interpersonal Skills: Teamwork and Communication***				
☐ ***CDIO in the enterprise, societal and environmental context***	*L15: (I)*			
Summary of skills in course level				
☐ ***Personal and Professional Skills and Attributes***	*L4: (U); L5: (U)*			
☐ ***Interpersonal Skills: Teamwork and Communication***	*L6, L7, L8: (U)*			
☐ ***CDIO in the enterprise, societal and environmental context***	*L9: (I), L10: (U), L11: (U)* *L12: (U) ; L14: (U);L15: (I)*			

6. Teaching and learning methods

ID	Teaching method/technique		Description
M1.	Lecturing	☑	
M2.	Questions – Answers	☐	
M3.	Group-based Learning	☑	
M4.	Problem-based Learning	☐	
M5.	Project-based Learning	☑	
M6.	Case studies	☐	
M7.	Role play	☐	
M8.	Demo	☑	
M9.	Simulations	☐	

M10.	Debate	☐	
M11.	Game	☐	
M12.	Brainstorming	☐	
M13.	Think-Pair-Share	☐	

7. Course assessment

ID	Assessment activity		Quantity	Weight	LOs assessed
T1.	Text-based midterm exam	☑		25%	***L1, L2, L3***
T2.	Text-based final exam	☑		*50%*	***L1, L2, L3***
T3.	Practice midterm exam	☐			
T4.	Practice final exam	☐			
T5.	Report	☑		25%	***L1, L2, L3***
T6.	In-class exercises	☑		25%	***L1, L2, L3***
T7.	Homework assignments	☑		25%	***L1, L2, L3***
T8.	Question – Answer	☐			
T9.	Term Project	☑		50%	***L1, L2, L3***
T10.	Final Exam	☐			
Formula for Overall score	***Progress assessment*:** select at least two assessments from (T1, T5, T6, T7) ***Final assessment:*** T2 or T9 **Overall score = Progress assessment score + Final assessment score**				

8. Course requirements and expectations

8.1. Requirements on attendance

- Students are responsible for attending all classes. In case of absence due to force majeure circumstances, there must be sufficient and reasonable evidence.

- Students who do not attend more than 20% of the class sections, whether for reason or not, are deemed not to have completed the course and must re-enroll in the following semester.

8.2. Requirements and expectations on student behaviors

- Students must show their respects for teachers and other learners.
- Students must be on time. Students who are late more than five minutes will not be allowed to attend the class.
- Students should not make noise and interfere with others in the learning process.
- Students should not eat, chew gum, and use devices such as cell phones, music players during class hours.
- Laptops and tablets can only be used in class for the purpose of learning.
- Students who violate the above principles will be asked to leave the class and considered absent from the class.

8.3. Requirements on learning issues

Issues related to applying for score reservation, scoring complaints, scoring, exam disciplines are done according to the Learning Regulation of Tra Vinh University.

9. Tentative course instructor

Pham Minh Duong

DEAN	**DEPARTMENT HEAD**	**LECTURER**
		Pham Minh Duong