THAI NGUYEN UNIVERSITY
UNIVERSITY OF INFORMATION AND COMMUNICATION TECHNOLOGY

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom - Happiness

COURSE SYLLABUS

(Training level: Undergraduate)

Vietnamese Course Title: Nhập môn Công nghệ phần mềm

English Course Title: Introduction to Software Engineering

Course Code: ISE131

Major: Information Technology; Software Engineering; Computer science.

Training Program: Bachelor; Engineer.

Version: 2021

1. General Information

- Number of credits: 03 (Theory: 03; Practice: 0)
- Types of Knowledge:

General Education		**Basic core courses**		**Major core courses**		**Concentration courses**		**Others**
Required □	Optional □	Information Technology; Software Engineering; Computer science.						
		Required ☒	Optional □	Required □	Optional □	Required □	Optional □	Alternative Course of Graduation Thesis □

- Pre-requisite: General Informatics
- Co-requisite: None

2. Time Allocated

Total: 54 Periods	Theory: 33 Periods
	Discussion/ Group Presentation: 18 Periods /0
	Assignment/ Essay/ Practice: 0/0/0
	Number of Tests: 03 Number of Theory Tests: 03 Periods: 03
	Self-Study: 105 Periods Other Activities: 0

3. Departments in Charge: Department of Software Engineering – Faculty Information Technology

4. Lecturer's Information

No.	Lecturer name	Phone number	Email`	Note
1	MSc. Hoang Thi Canh	0382324556	htcanh@ictu.edu.vn	Leader
2	MSc. Nguyen Hong Tan	0943252165	nhtan@ictu.edu.vn	Member

No.	Lecturer name	Phone number	Email`	Note
3	MSc. Pham Thi Thuong	0912838646	ptthuong@ictu.edu.vn	Member
4	MSc. Nguyen Thu Phuong	0982483420	ntphuong@ictu.edu.vn	Member
5	PhD. Quach Xuan Truong	0989090832	qxtruong@ictu.edu.vn	Member
6	MSc Nguyen Thi Dung	0974322455	ntdung@ictu.edu.vn	Member

5. Facility Requirements: Having a projector in the classroom.

6. Course Description:

The course provides students with basic knowledge related to key courses in the field of software engineering such as software development processes, tools and software development environments, from which students can can equip more in-depth knowledge of Software Engineering. The course enables students to build software systematically and methodically.

7. Objectives

Objectives	Description	PLOs	Competency Level
G1	Applying the basic knowledge of the field of Info rmation Technology to solve problems	1.3	3
	Apply the knowledge in the software engineering industry of methods and tools to implement stage s in the software lifecycle.	1.4	3
G2	Understand the process of forming and operating the group. Have teamwork skills and responsibility to document study and homework completion; have report writing skills; have ability to represent, listen, respect other's opinions and actively discuss.	3.1	2
G3	In the context of business and society, know how to identify and specify the goals and requirements of the project. Collect and classify software requirements based on available technical methods and tools.	4.2	2

8. Learning Outcomes

Objectives	CLOs	Description of CLOs	PLOs	Proficiency level
G1	G1.1	Apply the basic software engineering knowledge in software development and realizing the impact of software engineering in scociety.	1.3	3
	G1.2	Apply knowledge of software development process, database and system design and analysis in software development.	1.3	3
	G1.3	Apply data structure and algorithm knowledge to solve problems during software design and construction.	1.3	3
	G1.4	Utilize basic programming methods, tools, and source code in the software development.	1.3	3
	G1.5	Apply analysis of software requirement specifications to solve problems in the software development process.	1.4	3

Objectives	CLOs	Description of CLOs	PLOs	Proficiency level
	G1.6	Apply knowledge of design and modern software architectures in software development.	1.4	3
	G1.7	Apply software testing and quality assurrance knowledge in the software quality assurrance process	1.4	3
	G1.8	Apply knowledge of software operation and maintenance in deployment of stages of software lifecycle.	1.4	3
G2	G2.1	Know how to exploit and proficiently use supporting tools for document and report writing skills.	3.1	2
	G2.2	Have teamwork skills and responsibility to document study and homework completion; have ability to represent, listen, respect other's opinions and actively discuss.	3.1	2
G3	G3.1	Describe the specifications of software project objectives and requirements and identify the project feasibility.	4.2	2
	G3.2	Collect software requirements based on available technical methods and tools.	4.2	2

9. Scientific Ethics

Actively attend theoretical classes in class, do exercises assigned by the lecturer, fully participate in discussion hours in the spirit of improving self-discipline, self-control and completing regular tests. All acts of cheating in learning and assessment will be according to regulations.

10. Detailed Contents

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
1, 2, 3	**Chapter 1: Overview of Software Engineering**					
	A/ In-class teaching content: (3) 1.1 Overview of software engineering 1.2 Some basic concepts 1.3 Differences between software engineering and other fields of study	[1] [2] [3] [4] [5]	G1.1	3	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 1 & related knowledge. - Learn the current trends of the field of software engineering. - Research standard in software engineering	[1] [2] [3] [4] [5]	G1.1	3	Self-study	Motivational assessment/ Incorporating due diligence
4, 5, 6	**Chapter 1: Overview of Software Engineering** (continue)					
	A/ In-class teaching content: (3) 1.4 Ethical and Professional Responsibilities 1.5 Human factors and career classification in software engineering	[1] [2] [3] [4] [5]	G1.1	3	Presentation; Raise and solve problems;	Evaluation by comments;

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
	B/ Self-study content (6) - Answer the review questions at the end of chapter 1.	[1] [2] [3] [4] [5]	G1.1	3	Self-study	Motivational assessment/ Incorporating due diligence
7, 8, 9	**Chapter 2: Software processes**					
	A/ In-class teaching content: (3) 2.1 Software processes 2.2 Software process models	[1] [2] [3] [4] [5]	G1.2	3	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 2 knowledge & related knowledge.	[1] [2] [3] [4] [5]	G1.2	3	Self-study	Motivational assessment/ Incorporating due diligence
10, 11, 12	**Chapter 2: Software processes** (continue)					
	A/ In-class teaching content: (3) 2.3 Project planning 2.4 Case Study	[1] [2] [3] [4] [5]	G1.2 G3.1	3 2	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 2 knowledge & related knowledge. - Answer the review questions at the end of chapter 2.	[1] [2] [3] [4] [5]	G1.2 G3.1	3 2	Self-study	Motivational assessment/ Incorporating due diligence
13, 14, 15	**Discussion 1: software project management plan**					
	A/ In-class teaching content: (3) - Learn about the software life cycle. - State the problem to be solved - Study the main characteristics of different software process models. Select the appropriate model for the problem. - Project organization and software project management plan	[1] [2]	G1.1 G1.2 G2.1 G2.2 G3.1	3 3 2 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) - Study the main contents of the CMM and CMMI standards. - Project scoping techniques, WBS techniques. - Research and select tools to support project management	[1] [2]	G1.1 G1.2 G2.1 G2.2 G3.1	3 3 2 2 2	Self-study	Motivational assessment/Incorporating due diligence

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
16, 17, 18	**Chapter 3: Requirements engineering**					
	A/ In-class teaching content: (3) 3.1 Overview of Requirements engineering 3.2 Software Requirements 3.3 Requirements Development	[1] [2] [3] [4] [5]	G1.5 G3.1 G3.2	3 2 2	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 3 & related knowledge. - Learn how to write standard software specification documents	[1] [2] [3] [4] [5]	G1.5 G3.1 G3.2	3 2 2	Self-study	Motivational assessment/ Incorporating due diligence
19, 20, 21	**Chapter 3: Requirements engineering** (continue)					
	A/ In-class teaching content: (3) 3.4 Requirements management 3.5 Case study	[1] [2] [3] [4] [5]	G1.5 G3.1 G3.2	3 2 2	Presentation; Raise and solve problems;	Evaluation by comments;
	Periodic Test No.1	[1] [2] [3] [4] [5]	G1.1 G1.2 G1.5 G3.1 G3.2	3 3 3 2 2	Written test	Evaluation by score
	B/ Self-study content (6) - Learn the content of chapter 3 & related knowledge. - Answer the review questions at the end of chapter 3.	[1] [2] [3] [4] [5]	G1.5 G3.1 G3.2	3 2 2	Self-study	Motivational assessment/ Incorporating due diligence
22, 23, 24	**Discussion 2: Requirements engineering**					
	A/ In-class teaching content: (3) - Introduce the problem (Case Study), complete learning about the business function of the problem. - Writing software specification documents. - Successfully install the necessary tools to do the exercise.	[1] [2] [3] [4] [5]	G1.5 G2.1 G2.2 G3.1 G3.2	3 2 2 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) Learn and prepare the necessary tools to do the exercise..	[1] [2] [3] [4] [5]	G1.5 G2.1 G2.2 G3.1 G3.2	3 2 2 2 2	Self-study	Motivational assessment/ Incorporating due diligence
25, 26, 27	**Chapter 4: Design software**					
	A/ In-class teaching content: (3) 4.1 Overview of Design software 4.2 Software design process	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.6	3 3 3	Presentation; Raise and solve problems;	Evaluation by comments;

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
	B/ Self-study content (6) - Learn the content of chapter 4 & related knowledge - System analysis and design methods: structure-oriented, object-oriented, component-oriented.	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.6	3 3 3	Self-study	Motivational assessment/ Incorporating due diligence
28, 29, 30	**Chapter 4: Design software** (continue)					
	A/ In-class teaching content: (3) 4.2 Software design process (continue) 4.3 Case study	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.6	3 3 3	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 4 & related knowledge - Answer the review questions at the end of chapter 4.	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.6	3 3 3	Self-study	Motivational assessment/ Incorporating due diligence
31, 32, 33	**Chapter 5: Software Installation**					
	A/ In-class teaching content: (3) 5.1 Overview 5.2 Programming method 5.3 Some programming rules 5.4 Organize, manage and share Source Code 5.5 Case study	[1] [2] [3] [4] [5] [6]	G1.4	3	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 5 knowledge & related knowledge. - Answer the review questions at the end of chapter 5.	[1] [2] [3] [4] [5] [6]	G1.4	3	Self-study	Motivational assessment/ Incorporating due diligence
34, 35, 36	**Discussion 3: Design analysis & Software installation**					
	A/ In-class teaching content: (3) - System analysis and design. - Installation: Database, user interface, Setup software functions - Practice with Tools to organize, manage and share Source Code	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.4 G1.6 G2.1 G2.2	3 3 3 3 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) - Install/register an account and know how to use Git&GitHub. - What is system modeling? And why to model the system, distinguish the system models, be able to choose and apply the system models to each specific case..	[1] [2] [3] [4] [5] [6]	G1.2 G1.3 G1.4 G1.6 G2.1 G2.2	3 3 3 3 2 2	Self-study	Motivational assessment/ Incorporating due diligence

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
37, 38, 39	**Chapter 6: Software Testing**					
	A/ In-class teaching content: (3) 6.1 Verification and validation of software 6.2 Overview 6.3 Software Testing Process 6.4 Software testing levels 6.5 Software Testing Techniques 6.6 Case study	[1] [2] [3] [4] [5]	G1.7	3	Presentation; Raise and solve problems;	Evaluation by comments;
	Periodic Test No. 2	[1] [2] [3] [4] [5]	G1.3 G1.4 G1.6 G1.7	3 3 3 3	Written test	Evaluation by score
	B/ Self-study content (6) - Learn the content of chapter 6 & related knowledge	[1] [2] [3] [4] [5]	G1.7	3	Self-study	Motivational assessment/ Incorporating due diligence
40, 41, 42	**Discussion 4: Software Testing**					
	A/ In-class teaching content: (3) - Present the selected test method for software testing. - Test planning - Design test cases and use test automation tools. - Test execution - Report the actual test results on the software, evaluate the results, and fix solutions (if any).	[1] [2] [3] [4] [5]	G1.7 G2.1 G2.2	3 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) Research and use test automation tools	[1] [2] [3] [4] [5]	G1.7 G2.1 G2.2	3 2 2	Self-study	Motivational assessment/ Incorporating due diligence
43, 44, 45	**Chapter 7: Software implementation and maintenance**					
	A/ In-class teaching content: (3) 7.1 Overview 7.2 Implementation phase 7.3 Software maintenance 7.4 Tools and techniques to help 7.5 Case Study	[1] [2] [3] [4] [5]	G1.8	3	Presentation; Raise and solve problems;	Evaluation by comments;
	B/ Self-study content (6) - Learn the content of chapter 7 & related knowledge. - Learn how to deploy, operate and monitor service operations on Amazon, or Microsoft cloud, ... - Learn tools to simulate the process of operation - monitoring - improvement - successful operation.. - Answer the review questions at the end of chapter 7.	[1] [2] [3] [4] [5]	G1.8	3	Self-study	Motivational assessment/ Incorporating due diligence

Period	Contents	References	CLOs	Competency Level	Teaching Methodology	Assessment Methodology
46, 47, 48	**Discussion 5: Configuration management & Maintenance, training, software completion**					
	A/ In-class teaching content: (3) - Software configuration management. - Planning maintenance, training for users. - Complete software with full basic functions.	[1] [2] [3] [4] [5] [6]	G1.8 G2.1 G2.2	3 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) Successfully installed/registered tools to support configuration management and software maintenance. Proficient use of tools	[1] [2] [3] [4] [5] [6]	G1.8 G2.1 G2.2	3 2 2	Self-study	Motivational assessment/ Incorporating due diligence
49, 50, 51	**Chapter 8: Topics in software engineering**					
	A/ In-class teaching content: (3) 8.1 IOT 8.2 Passwordless authentication 8.3 Virtual reality 8.4 Robotic process automation 8.5 Artificial Intelligence 8.6 Embedded Software	[1] [2] [3] [4] [5]	G1.1	3	Presentation; Raise and solve problems;	Evaluation by comments;
	Periodic Test No. 3	[1] [2] [3] [4] [5] [6]	G1.4 G1.5 G1.6 G1.7 G1.8 G2.1 G2.2	3 3 3 3 3 2 2	Group presentations	Evaluation by score
	B/ Self-study content (6) - Learn the content of chapter 8 knowledge & related knowledge. - Answer the review questions at the end of chapter 8.	[1] [2] [3] [4] [5]	G1.1	3	Self-study	Motivational assessment/ Incorporating due diligence
52,53,54	**Discussion 6: Software User Manual**					
	A/ In-class teaching content: (3) - Writing software manuals. - Final report on software project completion.	[1] [2] [3] [4] [5] [6]	G1.8 G2.1 G2.2	3 2 2	Student groups present and discuss according to the plan under the supervision of the lecturer	Evaluation by comments;
	B/ Self-study content (6) Review and synthesize learned knowledge	[1] [2] [3] [4] [5] [6]	G1.8 G2.1 G2.2	3 2 2	Self-study	Motivational assessment/ Incorporating due diligence

11. Student Assessment: 10 Score Scale**.**

11.1 . Test Plan:

No.	Contents	Time (Period)	CLOs	Proficiency level	Assessment methods	Assessment Tool	Weight %
Attendance							**10**
Progress tests							**30**
1	Chapter 1,2,3	21	G1.1 G1.2 G1.5 G3.1 G3.2	3 3 3 2 2	Written	Periodic Test No. 1	10
2	Chapter 4,5,6	39	G1.3 G1.4 G1.6 G1.7	3 3 3 3	Written	Periodic Test No. 2	10
3	Chapter 2-8	51	G1.4 G1.5 G1.6 G1.7 G1.8 G2.1 G2.2	3 3 3 3 3 2 2	Group presentations	Periodic Test No. 3	10
Final Examination							**60**
	Chapter 1-8		G1.1 G1.2 G1.3 G1.4 G1.5 G1.6 G1.7 G1.8 G2.1 G2.2 G3.1 G3.2	3 3 3 3 3 3 3 3 2 2 2 2	Reporting	Final Examination	60

CLOs	Contents					Test Method			
	Periods 1-15	**Periods 16-24**	**Periods 25-36**	**Periods 37-48**	**Periods 49-54**	**Written assessment I**	**Written assessment II**	**Reporting Assessment III**	**End of Course exam**
G1.1	x				x	x			x
G1.2	x		x			x			x
G1.3			x				x		x
G1.4			x				x	x	x
G1.5		x				x		x	x
G1.6			x				x	x	x
G1.7				x			x	x	x

CLOs	Contents					Test Method			
	Periods 1-15	Periods 16-24	Periods 25-36	Periods 37-48	Periods 49-54	Written assessment I	Written assessment II	Reporting Assessment III	End of Course exam
G1.8				x	x			x	x
G2.1	x	x	x	x	x			x	x
G2.2	x	x	x	x	x			x	x
G3.1	x	x				x			x
G3.2		x				x			x

11.2 Assessment Rubrics

*** Rubric 1: Attendance**

Criteria assessment	Weight (%)	Very good (8.5-10)	Good (7.0-8.4)	Average (5.5-6.9)	Below average (4.0-5.4)	Poor (0-3.9)
Level of class attendance	70	Full class attendance	Absence from 1-9%	Absence from 10-15%	Absence from 16-20%	Absence from 20% (banned from exams)
Active lea rning and self-study	30	Participate in questions, discussions very actively, Complete all the assignments	Participate in asking questions, discussion, doing exercises quite actively	Participate in asking questions, discussions, and doing exercises less actively.	Participate in asking questions, discussions, doing exercises with teachers' help.	Only take part in class, but not participate in asking questions, discussions, doing exercises in active ways.

*** Rubric 2: Periodic Test No.1** ***(****Allotted time: 50 minutes; Form: written; Total of Questions: 02; Score Scale: 10****)***

Evaluation criteria		Weight (%)	Quality Level Description				
Question	CLOs		Very good	Good	Average	Below average	Poor
			(8,5-10 point)	(7,0-8,4 point)	(5,5-6,9 point)	(4,0-5,4 point)	(0-3.9 point)
1	G1.1 G1.2 G1.5	50	Beautiful and clear presentation. Content that solves 90-100% of the requirements	Clearly presented. Content that addresses 70 to less than 90% of the requirements	The presentation is relatively clear. Content that addresses between 50 and less than 70% of the requirements	The presentation is not clear. Content that addresses between 40 and less than 50% of the requirements	The presentation is not clear. Content that resolves less than 40% of the requirements
2	G3.1 G3.2	50	Beautiful and clear presentation. Content that solves 90-100% of the requirements	Clearly presented. Content that addresses 70 to less than 90% of the requirements	The presentation is relatively clear. Content that addresses between 50 and less than 70% of the requirements	The presentation is not clear. Content that addresses between 40 and less than 50% of the requirements	The presentation is not clear. Content that resolves less than 40% of the requirements

*** Rubric 3: Periodic Test No. 2** ***(****Allotted time: 50 minutes; Form: written; Total of Questions: 02; Score Scale: 10****)***

Evaluation criteria		Weight (%)	Quality Level Description				
Question	CLOs		Very good	Good	Average	Below average	Poor
			(8,5-10 point)	(7,0-8,4 point)	(5,5-6,9 point)	(4,0-5,4 point)	(0-3.9 point)
1	G1.3 G1.4	50	Beautiful and clear presentation. Content that solves 90-100% of the requirements	Clearly presented. Content that addresses 70 to less than 90% of the requirements	The presentation is relatively clear. Content that addresses between 50 and less than 70% of the requirements	The presentation is not clear. Content that addresses between 40 and less than 50% of the requirements	The presentation is not clear. Content that resolves less than 40% of the requirements
2	G1.6 G1.7	50	Beautiful and clear presentation. Content that solves 90-100% of the requirements	Clearly presented. Content that addresses 70 to less than 90% of the requirements	The presentation is relatively clear. Content that addresses between 50 and less than 70% of the requirements	The presentation is not clear. Content that addresses between 40 and less than 50% of the requirements	The presentation is not clear. Content that resolves less than 40% of the requirements

*** Rubric 4: Periodic Test No. 3** *(Form: Reporting; Groups are assigned topics and present results in groups; Score Scale: 10)*

Evaluation criteria		Weight (%)	Quality Level Description				
Criteria	CLOs		Very good	Good	Average	Below average	Poor
			(8,5-10 point)	(7,0-8,4 point)	(5,5-6,9 point)	(4,0-5,4 point)	(0-3.9 point)
Report form	G2.1	10	Great structure, layout , form and accuracy, no spelling errors	Good structure, layout, less than 10 typos	Weak structure, layout and form, 11 -20 typos	The wrong format, unclear content, more than 20 spelling left	Presentation errors, low accuracy, small letters, a lots of error descriptions
Content reports	G1.4 G1.5 G1.6 G1.7 G1.8	40	Meet 90-100% of the requirements, with expansion, with references cited	Meets 80-90% of requirements, with extensions, incomplete references	Meets 70-80% of all requirements	Meet 50-60% of the requirements	Meets less than 50% of requirements
Presentation skills	G2.2	5	Speak clearly, confidently, persuasively, and communicate well with listeners	Speak clearly, confidently, communicate with listeners	Speak clearly, rarely interact with listeners	No words, lack of confidence, little communicatio n with listeners	Speak softly, do not be confident, do not communicate with listeners
Answer the question	G1.4 G1.5 G1.6 G1.7 G1.8	40	Correct answer all questions	Correct answer on 2/3 of the questions	Correct answer on 1/2 of the questions	Correct answer on 1/3 of the questions	Correct answer less than 1/3 of the questions
Join the implementation	G2.2	5	100% of members participate in implementation /presentation	about 80% of the members participated in the implementation /presentation	about 60% of the members participated in the implementatio n/presentation	50% of the members participated in the implementatio n/presentation	less than 50% of members participate in the implementation /presentation

*** Rubric 5: Final Examination** *(Form: Reporting; Score Scale: 10)*

Evaluation criteria		Weight (%)	Quality Level Description				
Criteria	**CLOs**		**Very good**	**Good**	**Average**	**Below average**	**Poor**
			(8,5-10 point)	**(7,0-8,4 point)**	**(5,5-6,9 point)**	**(4,0-5,4 point)**	**(0-3.9 point)**
Report form	G2.1	5	Great structure, layout , form and accuracy, no spelling errors	Good structure, layout, less than 10 typos	Weak structure, layout and form, 11 -20 typos	The wrong format, unclear content, more than 20 spelling left	Presentation errors, low accuracy, small letters, a lots of error descriptions
Content reports	G1.1 G1.2 G1.3 G1.4 G1.5 G1.6 G1.7 G1.8 G3.1 G3.2	50	Meet 90-100% of the requirements, with expansion, with references cited	Meets 80-90% of requirements, with extensions, incomplete references	Meets 70-80% of all requirements	Meet 50-60% of the requirements	Meets less than 50% of requirements
Presentation skills	G2.2	5	Speak clearly, confidently, persuasively, and communicate well with listeners	Speak clearly, confidently, communicate with listeners	Speak clearly, rarely interact with listeners	No words, lack of confidence, little communicati on with listeners	Speak softly, do not be confident, do not communicate with listeners
Answer the question	G1.1 G1.2 G1.3 G1.4 G1.5 G1.6 G1.7 G1.8 G3.1 G3.2	35	Correct answer all questions	Correct answer on 2/3 of the questions	Correct answer on 1/2 of the questions	Correct answer on 1/3 of the questions	Correct answer less than 1/3 of the questions
Join the implementation	G2.2	5	100% of members participate in implementation /presentation	about 80% of the members participated in the implementation/ presentation	about 60% of the members participated in the implementation/ presentation	50% of the members participated in the implementation/ presentation	less than 50% of members participate in the implementation/ presentation

12. Reading List

A. Main Syllabus

[1] Ian Sommerville (2015), *Software Engineering*, 9th Edition, Addison – Wesley.

[2] Department of Software Engineering, Faculty of Information Technology, Thai Nguyen University of Information and Communication Technology (2022), *Introduction to Software Engineering Lecture.*

B. References

[3] Ivan Marsic (2012), *Software Engineering*, Rutgers University, New Brunswick, New Jersey.

[4] Rajib Mall (2014), *Fundamentals of Software Engineering, Fourth Edition*, PHI Learning Private Limi ted, Delhi.

[5] Eric J. Braude and Michael E. Bernstein (2016), *Software Engineering - Modern Approaches, Second Edition*, Waveland Press, Inc.
[6] Len Bass, Paul Clements, Rick Kaman (2015) *Software Architecture in Practice* (3rd), Addison - Wesley.

13. 1st Approval Date: September 5th, 2021

14. Competent Authority Approval: Thai Nguyen University of Information and Communication Technology

Vice Rector	Dean	Head of Department	Composer Team
Ph.D Do Dinh Cuong	Ph.D Nguyễn Hải Minh	MSc. Nguyễn Hồng Tân	Hoàng Thị Cành Nguyễn Hồng Tân Phạm Thị Thương Nguyễn Thu Phương Quách Xuân Trưởng Nguyễn Thị Dung