



INDUSTRIAL UNIVERSITY OF HO CHI MINH CITY
FACULTY OF INFORMATION TECHNOLOGY

SELF-ASSESSMENT REPORT FOR AUN-QA

SOFTWARE ENGINEERING

AUN-QA Programme Assessment

INDUSTRIAL UNIVERSITY OF HO CHI MINH CITY
FACULTY OF INFORMATION TECHNOLOGY

PROGRAMME SPECIFICATION
BACHELOR OF SOFTWARE ENGINEERING
YEAR 2022

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I. PROGRAMME DESCRIPTION

1. Faculty information

Founded in the early days of Industrial University of Ho Chi Minh City, the Faculty of Information Technology (FIT) is currently one of faculties of the University. As shown in Fig. 1, the faculty started with the College training in 1999, the Engineer training in 2005, the Master training in 2015 and Doctor training in 2020.



Figure 1. History of education systems development

The board of Deans consists of one Dean and one Vice Dean managing 05 training departments. The first Engineer degree program in FIT, Computer Science program, started to admit students in 2005. In 2012, besides the Computer Science (CS) program, the FIT was expanded by adding programs such as Information Systems (IS), Information Technology (IT) and Software Engineering (SE). Since 2016, the FIT established the internal Quality and Assurance (QA) team to evaluate and promote quality education in FIT. The main objective of QA team is systematic and continuous monitoring and improvement of the quality of training disciplines. The FIT organization can be described as in Fig.2.

Up to now, FIT has 67 full-time faculty members including 03 associate professors, 21 doctors and PhD student, 39 masters and 04 support staff. Along with the expansion of training scale is the growth of the number of students from a few dozen students in the beginning to more than 3.500 students in all current disciplines. Students have a high level of academic achievement, reflected in the results achieved in national competitions. The FIT graduated students have many contributions to the business and social community, including some students are appreciated for professionalism and work attitude by stakeholders.

Students of FIT have high academic achievement, reflected in the results achieved in the national skill competitions. Upon graduation, students make many contributions to the enterprise, in which some students are highly appreciated for their professionalism and work attitude.

- Vietnamese name: Khoa Công nghệ Thông tin
- English name: Faculty of Information Technology
- Faculty abbreviation: FIT
- Contact:
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 - Faculty of Information Technology – Industrial University of Ho Chi Minh City
 - Address: Building H, First Floor, No. 12 Nguyen Van Bao, Ward 4, Go Vap District, Ho Chi Minh City.
 - Phone number: 083.8940390 – ext. 164, 233.

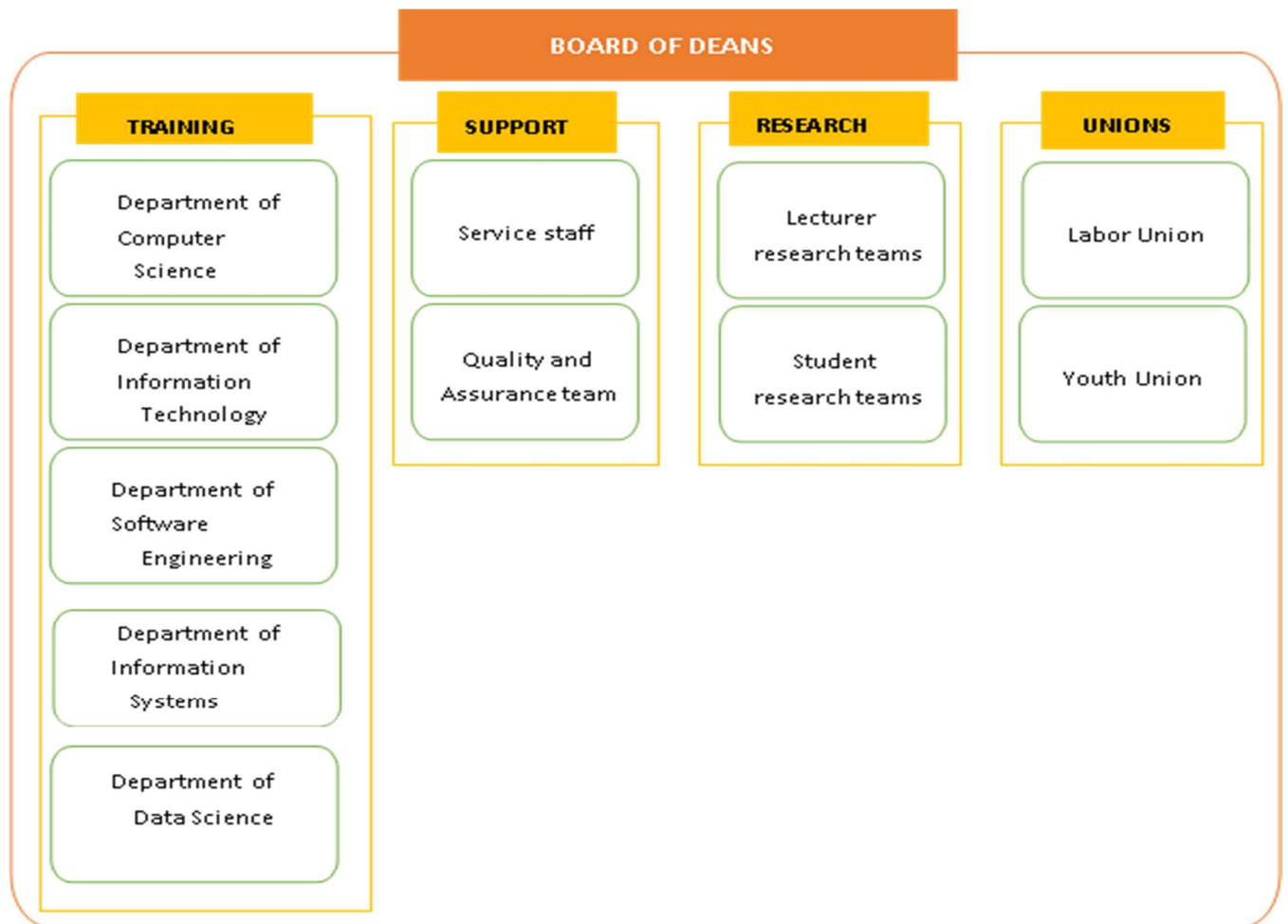


Figure 2. Organization structure of FIT

2. General information of the Programme

- Programme Title: Software Engineering
- Name of the final award: Bachelor's in software engineering
- Programme Code: 7480103

3. University Education Philosophy

- The CARE Graduate Attributes of IUH, a distinctive identity and image of IUH students and graduates; an alignment with the core values, stakeholders' needs, educational philosophy, program educational objectives and program learning outcomes as well as to serve marketing purposes are as follows:

CARE IUH Graduate Attributes	Graduate Elements (IUH Graduates will demonstrate)
Compassionate Leader	<ul style="list-style-type: none"> - Compassion and ethics in leadership - Effective teamwork and cooperation - Management and communication skills in leading teams - Confidence and respect to others
Avid Lifelong Learner	<ul style="list-style-type: none"> - Curiosity and eagerness to learn and relearn - Open mindedness and receptive to new ideas, concepts, knowledge, etc.
Rational Thinker	<ul style="list-style-type: none"> - Critical thinking in the analysis of facts and alternatives before making judgement - Analyze and solve problems rationally and systematically

- Entrepreneurship mindset and resourcefulness
- Creativity and innovation in generating ideas and solving real-life issues
- Identify opportunities and take managed risks

b. Quality policy

- IUH adopts a comprehensive approach to quality assurance through market-oriented planning and curriculum development based on economic and industrial development and trends, stakeholders' needs and industry and academic linkages;
- IUH continuously improves its quality assurance by actively engaging its stakeholders and keeping abreast of the latest technology and the best educational and research practices;
- A community of competent and dedicated staff, together with an effective teaching and learning system, produces graduates with CARE attributes, who can meet the challenges and the future world of work;
- To support its continuing quality effort and promote a quality culture throughout the IUH, it has implemented a quality management system that meets the requirements of national, regional and international standards.

4. Faculty mission and vision

▪ Vision:

The Faculty of Information Technology becomes a key faculty, a leading department for teaching and research in the areas of Computer Science and Information Technology, recognized nationally, regionally and internationally.

▪ Mission:

Providing high-quality human resource with future-ready skills and knowledge in Computer Science and Information Technology to serve the socio-economic development of the industry and the country efficiently, ready to join local and international workforces.

5. Programme Education Objective (PEOs)

After graduation from the SE programme from 3 to 5 years, students have the ability to:

- PEO 1: Have a successful professional career in software engineering or related technical fields or continue your studies at the graduate level.
- PEO 2: Continually improve their professional skills and knowledge to stay current in the field and to attain professional advancement.
- PEO 3: Identify life values, professional ethics, and a sense of lifelong learning.

6. Programme Expected Learning Outcomes (ELOs)

After graduation from the CET programme, the graduated students can achieve the following abilities as:

- ELO–a: Apply natural and social science knowledge to solve some basic IT-related problems.
- ELO–b: Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- ELO–c: Design, implement, and evaluate a engineering-based solution to meet a given set of specified requirements in the context of the program's discipline.
- ELO–d: Communicate effectively in a variety of professional contexts.
- ELO–e: Function effectively as a member or leader of a team engaging in activities which is appropriated to the program's discipline.
- ELO–f: Adapt to the change of future technologies and working environment in information technology, including start-up.

7. Job and post-graduate study opportunity

After graduating from SE programme, students can:

- Officers who analyze, design, install IT projects that meet different applications in agencies, companies.
- Work as a project developer who plans and develops policies to develop IT, or a software developer.
- Work in manufacturing and outsourcing companies, in Vietnam and abroad.
- Work at consulting firms that propose solutions, build, and maintain information systems, or work in the IT department.
- Work as scientific researchers and information technology applicants at research institutes, centers, universities, and colleges.
- Teach subjects related to SE at universities, colleges, and schools.

8. Teaching, learning and assessment activities

Type of course		Teaching and learning methods	Assessment methods
On Campus	Theory	Lecture (presentation) Q&A Inquiry Practice Discussions (brainstorming, peer learning, think-pair-share) E-learning	Short answer test MCQs Writing test Presentation Report
	Experiment	Q&A Model practice Problem-solving Simulations Role play Peer learning Problem-Based Learning (PBL)	Laboratory test Observation Project Thesis
Off Campus		Homework Field trip Internship Extracurricular activities	Essay Fieldwork

9. Admission criteria, training process and graduation conditions

- Admission criteria: High-school graduates and be considered for admission under the guidelines of the Ministry of Education & Training.
- Training process
 - Expected training time: 4.5 years (9 semesters)
 - Type of study: Formal and Campus based.
- Graduation conditions
 - Until the time of graduation, there is no criminal prosecution, or is not being disciplined at the level of suspension.
 - Accumulated enough credits stipulated in the curriculum.
 - The cumulative GPA of the entire course is 2.00 or higher.
 - Have certificates of National Security and Defense and physical education.
 - Have English certificates (or equivalent foreign language certificates as prescribed in the foreign language capacity framework of the Ministry of Education and Training).
- Evaluation methods

- According to the training regulations of the Ministry of Education and Training and training regulations of the Industrial University of Ho Chi Minh City.

II. CURRICULUM DESCRIPTION

1. Curriculum structure

- Total credits of education programme : 162 credits
- Total credits excluding the cumulative average: 18 credits
- Total credits must accumulate : 162 credits
- Block of general education knowledge: 48 credits
 - Compulsion: 39 credits
 - Elective : 9 credits
- Block of professional educational knowledge: 114 credits
- Block of fundamental knowledge: 43 credits
 - Compulsion: 33 credits
 - Elective : 10 credits
- Block of intermediate knowledge: 37 credits
 - Compulsion: 31 credits
 - Elective : 06 credits
- Block of specialized knowledge: 21 credits
 - Compulsion: 10 credits
 - Elective : 11 credits
- Internship and Capstone project: 13 credits
- Number of credits for lab: 51-52 credits ~ 31-32%
- Number of credits for theory: 110-11 credits ~ 68-69%

Table 1. Block of knowledge distribution.

Name	Credits			
	Total	Compulsion		Elective
		Theory	Practice	
General knowledge	48	29	10	9
Political Education	13	13		
Social Science	7	2	2	3
English	6	6		
Mathematics and Natural Sciences	10	2	2	6
Physical education	4		4	
National Defense Educations - Security	8	6	2	
Fundamental knowledge	45	26	7	10
Intermediate knowledge	29	25	6	6
Specialized knowledge	27	10	4	7
Internship	5		5	
Capstone Project/Additional Course	8		8	
Total	162	90	40	32

2. Curriculum framework

The 1st Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			17	
1	2101539	Foundations of Computing	2(2,0,4)	
2	2132001	Teamwork Skills	2(1,2,4)	
3	2120501	National Defence Education and Security 1	4(4,0,8)	
4	2113431	Calculus 1	2(2,0,4)	
5	2120405	Physical Education 1	2(0,4,4)	
6	2101622	Introduction to Programming	2(0,4,4)	
7	2112012	Philosophy of Marxism and Leninism	3(3,0,6)	
Elective Courses (none)				

The 2nd Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			18	
1	2101405	Programming Techniques	3(2,2,6)	2101622(a)
2	2101567	Computer Systems	4(3,2,8)	
3	2120406	Physical Education 2	2(0,4,4)	
4	2120502	National Defence Education and Security 2	4(2,4,8)	
5	2112013	Political Economics of Marxism and Leninism	2(2,0,4)	
6	2111108	English 1	3(3,0,6)	
Elective Courses (select 1 within 5 courses)			3	
1	2113434	Applied Mathematics	3(3,0,6)	
2	2113436	Complex Analysis and Laplace Transform	3(3,0,6)	
3	2113435	Numerical Analysis	3(3,0,6)	
4	2113437	General Physics	3(3,0,6)	
5	2113438	Logics	3(3,0,6)	

The 3rd Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			19	
1	2101402	Discrete Structures	3(3,0,6)	
2	2101409	Data Structures and Algorithms	4(3,2,8)	2101622(a)

3	2101436	Database Systems	4(3,2,8)	2101539(a)
4	2113432	Calculus 2	2(2,0,4)	
5	2101623	Object Oriented Programming	3(2,2,6)	2101622(a)
6	2111188	English 2	3(3,0,6)	
Elective Courses (select 1 within 6 courses)			3	
1	2107402	Economic Geography	3(3,0,6)	
2	2132002	Planning Skills	3(2,2,6)	
3	2123800	Environment and Human	3(2,2,6)	
4	2101777	Information Technology in Digital Transformation	3(3,0,6)	
5	2104486	Industrial Applications of Chemistry	3(3,0,6)	
6	2104487	Application of Kaizen Method and 5S Technique for Manufacturing	3(2,2,6)	

The 4th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			12	
1	2101435	Computer Networks	3(3,0,6)	
2	2101551	Web systems and technologies	3(2,2,6)	
3	2101625	System Analysis and Design	3(2,2,6)	2101436(a)
4	2101719	NoSQL MongoDB Database management system	3(2,2,6)	2101436(a)
Elective Courses (select 1 within 3 courses)			3	
1	2101428	Human Computer Interaction	3(3,0,6)	2101567(a)
2	2101425	Database Management System	3(2,2,6)	2101436(a)
3	2101652	E-Commerce	3(2,2,6)	
Elective Courses (select 1 within 3 courses)			4	
1	2101555	Event Driven Programming with .NET Technology	4(3,2,8)	2101623(a)
2	2101556	Event driven Programming with Java Technology	4(3,2,8)	2101623(a)
3	2101667	GUI Programming with Qt Framework	4(3,2,8)	2101622(a)

The 5th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			16	
1	2113433	Graph Theory	3(3,0,6)	2101402(a)
2	2101657	Research Methodology	2(2,0,4)	

3	2112014	Application Development	3(2,2,6)	
4	2101720	Scientific Socialism	2(2,0,4)	
5	2101779	NoSQL MongoDB Data Modeling	3(3,0,6)	2101719(a)
6	2113433	Design Thinking and User Experience	3(3,0,6)	2101551(a)
Elective Courses (select 1 within 7 courses)			3	
1	2106529	Fine Art	3(1,4,6)	
2	2113439	Sociology	3(3,0,6)	
3	2112011	Music - Music Theory and Guitar Basics	3(1,4,6)	
4	2111492	Vietnamese Language in Use	3(2,2,6)	
5	2110585	Psychology	3(2,2,6)	
6	2111491	Introduction to Vietnamese Culture	3(2,2,6)	
7	2101727	Using keyboard and office equipment skills	3(2,2,6)	

The 6th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			15	
1	2101411	Introduction to Information Security	3(3,0,6)	2101567(a)
2	2101420	Software Engineering	3(3,0,6)	2101623(a) 2101436(a)
3	2101655	Social Issues and Professional Ethics	3(3,0,6)	
4	2101624	Statistics Computing and Applications	3(2,2,6)	2101405(a)
5	2101778	Application Interface Development	3(2,2,6)	2101551(a)
Elective Courses (select 2 within 6 courses)			6	
1	2102437	Electronic engineering	3(2,2,6)	
2	2101584	Data analysis programming 1	3(2,2,6)	2101405(a)
3	2101558	Distributed Programming with Java Technology	3(2,2,6)	2101556(a) 2101719(a)
4	2101557	Distributed Programming with .NET Technology	3(2,2,6)	2101555(a) 2101719(a)
5	2101627	Data mining and application	3(2,2,6)	2101436(a)
6	2101668	Network programming with Qt Framework	3(2,2,6)	2101667(a)

The 7th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			11	

1	2101454	Programming Mobile Devices	4(3,2,8)	
2	2131472	General Laws	2(2,0,4)	
3	2101634	Software Quality Assurance and Testing	3(2,2,6)	2101420(a)
4	2112015	History of Vietnamese Communist Party	2(2,0,4)	
Elective Courses (select 1 within 4 courses)			4	
1	2101635	Programming for the WWW (Java)	4(3,2,8)	2101551(a) 2101558(a)
2	2101669	Web Application Development with Qt Engine	4(3,2,8)	2101668(a)
3	2101662	Programming for the WWW (.NET)	4(3,2,8)	2101551(a) 2101557(a)
4	2101637	IoTs Programming	4(2,4,8)	

The 8th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			9	
1	2112005	Ho Chi Minh Ideology	2(2,0,4)	
2	2101452	Software Architecture and Design	4(3,2,8)	2101625(a)
3	2101561	New Technology in the Application Development	3(2,2,6)	
Elective Courses (select 2 within 7 courses)			6	
1	2101441	Automata & Formal Languages	3(3,0,6)	2101402(a)
2	2101582	Introduction to big data	3(2,2,6)	2101436(a)
3	2101589	Data analysis programming 2	3(2,2,6)	2101436(a) 2101624(a)
4	2101544	E-marketing	3(2,2,6)	
5	2101661	SOA and Cloud Computing	3(2,2,6)	
6	2101636	Advanced Mobile Devices Programming	3(2,2,6)	2101454(a)
7	2101648	IT Project management	3(2,2,6)	

The 9th Semester

No.	Course Prefix and Number	Course Title	Credit	Prerequisite
Compulsion Courses			13	
1	2101521	Internship	5(0,10,10)	
2	2101700	Capstone project	8(0,16,16)	
3	2199451	Certificate of English Language Proficiency	0(0,0,0)	
Elective Courses (none)				

4. Mapping Course-Expected Learning Outcomes

Note: I: Introduce; R: Reinforce; E: Emphasize

No.	Name of courses	Credits	ELO-a	ELO-b	ELO-c	ELO-d	ELO-e	ELO-f
Semester 1		17						
Compulsion Courses		17						
1	Foundations of Computing	2(2,0,4)	I	I	I			I
2	Teamwork Skills	2(1,2,4)					I	
3	National Defence Education and Security 1	4(4,0,8)	I					
4	Calculus 1	2(2,0,4)	I					
5	Physical Education 1	2(0,4,4)	I					
6	Introduction to Programming	2(0,4,4)		I	I			
7	Philosophy of Marxism and Leninism	3(3,0,6)	I					
Semester 2		21						
Compulsion Courses		18						
1	Programming Techniques	3(2,2,6)	I		I			
2	Computer Systems	4(3,2,8)		I	I			
3	Physical Education 2	2(0,4,4)	I					
4	National Defence Education and Security 2	4(2,4,8)	I					
5	Political Economics of Marxism and Leninism	2(2,0,4)	I					
6	English 1	3(3,0,6)	I					
Elective Courses (select 1 within 5 courses)		3						
1	Applied Mathematics	3(3,0,6)	I					
2	Complex Analysis and Laplace Transform	3(3,0,6)	I					I
3	Numerical Analysis	3(3,0,6)	I					I
4	General Physics	3(3,0,6)	I					I
5	Logics	3(3,0,6)	I					I

Semester 3		22						
Compulsion Courses		19						
1	Discrete Structures	3(3,0,6)	R,E					
2	Data Structures and Algorithms	4(3,2,8)		R	I			I
3	Database Systems	4(3,2,8)	E	I	I			
4	Calculus 2	2(2,0,4)	I					
5	Object Oriented Programming	3(2,2,6)		I	I			
6	English 2	3(3,0,6)	I					
Elective Courses (select 1 within 6 courses)		3						
1	Economic Geography	3(3,0,6)	I					
2	Planning Skills	3(2,2,6)	I					
3	Environment and Human	3(2,2,6)	I					I
4	Information Technology in Digital Transformation	3(3,0,6)		I				
5	Industrial Applications of Chemistry	3(3,0,6)	I					
6	Application of Kaizen Method and 5S Technique for Manufacturing	3(2,2,6)	I					
Semester 4		19						
Compulsion Courses		12						
1	Computer Networks	3(3,0,6)		I	I			
2	Web systems and technologies	3(2,2,6)		I	I	I		
3	System Analysis and Design	3(2,2,6)		I	I	I	R	
4	NoSQL MongoDB Database management system	3(2,2,6)		I	R			
Elective Courses		7						
Select 1 within 3 courses		3						
1	Human Computer Interaction	3(3,0,6)		I	I			
2	Database Management System	3(2,2,6)			I			
3	E-Commerce	3(2,2,6)	R	I	R			I
Select 1 within 3 courses		4						

1	Event Driven Programming with .NET Technology	4(3,2,8)			R		E	
2	Event driven Programming with Java Technology	4(3,2,8)		R	R		E	
3	GUI Programming with Qt Framework	4(3,2,8)			I,R			
Semester 5		19						
Compulsion Courses		16						
1	Graph Theory	3(3,0,6)	I,E					
2	Research Methodology	2(2,0,4)						
3	Application Development	3(2,2,6)		R	I,R	I,R		R
4	Scientific Socialism	2(2,0,4)	I					
5	NoSQL MongoDB Data Modeling	3(3,0,6)		R	R			
6	Design Thinking and User Experience	3(3,0,6)		R	I,R			
Elective Courses (select 1 within 7 courses)		3						
1	Fine Art	3(1,4,6)	I					
2	Sociology	3(3,0,6)	I					
3	Music - Music Theory and Guitar Basics	3(1,4,6)	I					
4	Vietnamese Language in Use	3(2,2,6)	I					
5	Psychology	3(2,2,6)	R					
6	Introduction to Vietnamese Culture	3(2,2,6)	I					
7	Using keyboard and office equipment skills	3(2,2,6)	I					
Semester 6		21						
Compulsion Courses		15						
1	Introduction to Information Security	3(3,0,6)	R	I	I			
2	Software Engineering	3(3,0,6)	E	R	R			
3	Social Issues and Professional Ethics	3(3,0,6)	R	I		I		I
4	Statistics Computing and Applications	3(2,2,6)	I,E					
5	Application Interface Development	3(2,2,6)		R,E	R			
Elective Courses (select 2 within 6 courses)		6						

1	Electronic engineering	3(2,2,6)		R	R			
2	Data analysis programming 1	3(2,2,6)		R	E			
3	Distributed Programming with Java Technology	3(2,2,6)		R	R	R		
4	Distributed Programming with .NET Technology	3(2,2,6)		R	R,E	R		
5	Data mining and application	3(2,2,6)		R	R			
6	Network programming with Qt Framework	3(2,2,6)						
Semester 7		15						
Compulsion Courses		11						
1	Programming Mobile Devices	4(3,2,8)		E	E			
2	General Laws	2(2,0,4)	I,R					
3	Software Quality Assurance and Testing	3(2,2,6)		R,E	E		E	
4	History of Vietnamese Communist Party	2(2,0,4)	I					
Elective Courses (select 1 within 4 courses)		4						
1	Programming for the WWW (Java)	4(3,2,8)		E	E	R	R	
2	Web Application Development with Qt Engine	4(3,2,8)			R	R	R	
3	Programming for the WWW (.NET)	4(3,2,8)		E	E	R	R	
4	IoTs Programming	4(2,4,8)		R	E			
Semester 8		15						
Compulsion Courses		9						
1	Ho Chi Minh Ideology	2(2,0,4)	I					
2	Software Architecture and Design	4(3,2,8)		E	E			
3	New Technology in the Application Development	3(2,2,6)		E	E		E	
Elective Courses (select 2 within 7 courses)		6						
1	Automata & Formal Languages	3(3,0,6)		I	E			
2	Introduction to big data	3(2,2,6)		R	E			
3	Data analysis programming 2	3(2,2,6)	R	R	R,E			
4	E-marketing	3(2,2,6)		R	R,E			

5	SOA and Cloud Computing	3(2,2,6)		R	E		R	
6	Advanced Mobile Devices Programming	3(2,2,6)		R	E			
7	IT Project management	3(2,2,6)		R	R,E		R	
Semester 9		13						
Compulsion Courses		13						
1	Internship	5(0,10,10)	E	E		E	E	E
2	Capstone project	8(0,16,16)		E	E	E		
3	Certificate of English Language Proficiency	0(0,0,0)						

5. Course Description

5.1 Philosophy of Marxism and Leninism - 3 credits

In addition to the opening chapter, it introduces the concept of Marxism- Leninism and some common problems of the course. Based on the purpose of the course, the content of the course program is structured into 3 sections, 9 chapters:

- The first section has three chapters, covering the basic contents of the world view and philosophical methodology of Marxism - Leninism;
- The second section has 3 chapters, presenting three central contents of the economic doctrine of Marxism - Leninism on the mode of production of capitalism;
- The third section has 3 chapters, which generalize the basic contents of Marxism -Leninism's theory on socialism.

5.2 Political economics of Marxism and Leninism - 2 credits

The program content consists of 6 chapters: In which, Chapter 1 discusses the objects, research methods and functions of Marxist-Leninist Political Economy. Chapters 2 to 6 present the core content of Marxist-Leninist political economy according to the subject's objectives. Specifically, issues such as: Commodities, markets and the role of actors in the market economy; Surplus value and the relationship of interests in the market economy; Competition and monopoly in the market economy; Socialist-oriented market economy in Vietnam; Industrial Revolution and international economic integration in the development process of Vietnam.

5.3 Scientific socialism - 2 credits

The content of the course program consists of 7 chapters: In which, Chapter 1 presents the basic introductory issues of socialism (the process of formation and development of socialism). Chapters 2 to 7 present the basic content of socialism according to the subject's objectives.

5.4 History of Vietnamese Communist Party- 2 credits

The content of the course program consists of 7 chapters: In which, chapter 1 presents the basic introductory issues of socialism (the process of formation and development of socialism). Chapters 2 to 7 present the basic content of socialism according to the subject's objectives

5.5 Ho Chi Minh Ideology - 2 credits

The course has 8 chapters, including the introduction of the basis, the process of forming and developing Ho Chi Minh ideology and the core contents of Ho Chi Minh ideology on issues: Nationality, national liberation revolution, socialism, Communist Party of Vietnam, solidarity, The state, culture, ethics and building new people.

5.6 General Laws - 2 credits

The section consists of two parts:

Part 1: Provide students with the basic and common issues of State and Law, and have connections with the State and the Law of the Socialist Republic of Vietnam.

Part 2: Provide students with the contents of specialized law including: Constitutional Law, Administrative Law, Civil Law, Labor Law, Marriage and Family Law, Criminal Law and add a new content as required by the Ministry of Education and Training is the Anti-corruption Law.

5.7 Calculus 1 - 2 credits

To introduce the concept of differential, integration of one variable function, study various techniques of integration and illustrate some applications of integration. To introduce the problem finding the extreme value for function of two variables. To introduce sequences and infinite series and investigate the analysis and use of sequences and infinite series.

5.8 Calculus 2 - 2 credits

The course provides students with basic knowledge of linear algebra: matrices, determinants, systems of linear equations. In particular, the course also provides knowledge about vector space.

5.9 Teamwork Skills – 2 credits

Teamwork Skills module includes the following contents:

- Theoretical content: Some basic concepts about group; The role of teamwork, Principles of teamwork; PDCA model and teamwork process; Basic skills in team work
- Practice content: Teamwork forming skills, Teamwork planning and organization skills, management and control skills for a teamwork, global and online teamwork skills.

5.10 Research Methodology – 2 credits

The course provides students with knowledge of basic concepts, procedures, processes and methods usually used in scientific research. The course aims at developing students' basic academic and research skills such as reading, writing, thinking skills, ability to identify and solve problems, skills of collecting and analyzing data. Students can apply these skills to carry out their graduation projects or theses scientifically and effectively. They can also use knowledge and skills gained from the course to conduct scientific research while at university or after graduation.

5.11 Physical Education 1 – 2 credits

Theory:

- Knowledge of athletics.
- Principles and methods of practicing athletics in particular, self-training in sports in general.

Practice:

- Short distance running skills.
- High jump skills of "belly up approach".

5.12 Physical Education 2 – 2 credits

Choose one of the sports: football, volleyball, basketball ...

Basic knowledge of the chosen sport.

Basic skills when playing the chosen sport.

Knowledge of techniques, basic tactics, competition rules, format of competition, methods of refereeing and organizing a sports tournament.

5.13 National defence Education and Security 1 – 4 credits

The course consists of 2 components: Military lines of the Communist Party of Vietnam and Defense and Security Work.

The content of the course is prescribed by law, clearly showing the Party's educational line, the State management of national defense and security, including natural science and military science and technology knowledge, institutionalized by legal documents of the State, help students achieve the goal of "forming and fostering the personality, capacity and moral qualities of citizens, meeting the requirements in building and defending of the socialist Vietnamese motherland".

5.14 National defense Education and Security 2 – 4 credits

This course includes military science and technology, practical skills, techniques, platoon-level military tactics, platoon, handgun shooting techniques, grenade techniques, and some commonly used infantry weapons, ready to participate in the implementation of strategic tasks to build and protect the socialist Vietnamese motherland.

5.15 English 1 – 3 credits

To introduce the concept of differential, integration of one variable functions, study various techniques of integration and illustrate some applications of integration. To introduce the problem finding the extreme value for function of two variables. To introduce sequences and infinite series and investigate the analysis and use of sequences and infinite series.

5.16 English 2 – 3 credits

Advanced and completed the basic grammar sections that students have learned with new knowledge about exam papers, exam content, TOEIC test-taking skills at the pre-intermediate level. In addition, in the curriculum, learners will learn about the tips and methods of doing the test in TOEIC. Students are awarded sample TOEIC exams to prepare for the internal or international TOEIC exam.

5.17 Applied Mathematics – 3 credits

The course provides learners with knowledge of applied statistics such as descriptive statistics, statistical hypothesis testing, and linear regression analysis methods. The knowledge and skills accumulated from the course will benefit professional research and practical life.

5.18 Numerical Analysis – 3 credits

Provide learners with knowledge about:

- Method for finding approximate solutions of linear and nonlinear equations and systems.
- Approximate method of calculating differential and integral problems that exact solution methods cannot solve.
- Continuous method for discrete data.

5.19 Complex Analysis and Laplace Transform – 3 credits

The course provides students with the following knowledge: Derivative calculation, consideration of calculus, integration of complex variables; Expansion of Taylor series, Laurent series, redundancy and application for integral calculus; Perform Laplace transforms, Reverse Laplace transforms; Application of Laplace transforms to solve differential equations, systems of differential equations and some technical problems.

5.20 General Physics – 3 credits

Present the concepts and general laws of point mechanics, thermal and molecular dynamics theory, laws of thermodynamics.

Present general concepts and laws of static electric field, static magnetic field, conductivity, constant current, electromagnetic induction, electromagnetic field theory.

5.21 Logics – 3 credits

The course provides students with the knowledge: Accurately understand the concepts of judgment, reasoning, logical proofing commonly used; Strictly and consistently present from the beginning to the end of his or her thoughts, close arguments, knowing how to prove and reject a problem; identify and point out logical arguments; Knowing how to reason correctly (logically), being able to recognize and refute errors in reasoning.

5.22 Psychology – 3 credits

The course helps students to explain basic psychological phenomena of humans, the laws and the manifestations of human psychological phenomena on that basis to help students identify and apply the mechanism of action of human psychological phenomena people enter life and career.

5.23 Sociology – 3 credits

The course content will cover the following key topics:

- Objects, tasks and roles of psychology; the nature, phenomena and methods of psychological research.
- Psychological formation and development.
- Cognitive problems.
- Memory, emotions.
- Will and act of will.
- Personality and the formation of personality development

- 5.24 Introduction to Vietnamese Culture – 3 credits
- The course provides students with basic concepts of culture, cultural characteristics. Help students identify cultural regions in the territory of Vietnam, understand the historical process of Vietnamese culture from its origins to the present.
 - The course also helps students learn about cultural components: Cognitive culture and community organization culture; Communicative culture deals with the natural and social environment. Learn about the influence of Vietnamese culture on Chinese, Indian and Western cultures.
- 5.25 Vietnamese Language in Use – 3 credits
- Providing for students: Vietnamese characteristics and basic structure; Identify and correct mistakes when speaking, writing, using words, making sentences; Coherently present a text, confidently speaking and writing Vietnamese
- 5.26 Music - Music Theory and Guitar Basics – 3 credits
- Theory:* The course content includes basic knowledge of music: some musical concepts, basic music theory (pitch, length, tempo, beat, interval, scale, melody, beat);
- Practice:* Practice exercises are intended to train students in musical skills such as reading and understanding a complete piece of music, playing solo and accordion with a guitar piece.
- 5.27 Fine Art – 3 credits
- Basic understanding of some types of paintings and how to read and understand a painting.
 - Summary of knowledge and basic content about the principle of layout, colors.
 - Apply basic knowledge of painting to copy / draw some basic paintings such as portraits, still lifes and landscapes. A good sense of discipline, a sense of responsibility, and a serious sense of study
- 5.28 Using keyboard and office equipment skills – 3 credits
- Theoretical content:* The subject provides basic knowledge about using computers and office equipment as a foundation to help learners understand the importance and role of computer typing skills using 10 fingers. At the same time, the subject helps learners understand common office equipment, take responsibility for themselves, maintain, detect common errors, and repair these devices in order to best serve office work. their own in the future.
- Practical content:* Practical exercises help students sit and use the computer in the correct posture. Form a correct and fast typing style, know how to use common keys, number keys, shortcuts and special character keys used during typing. Use typing techniques using 10 fingers to type documents with speed and correct technique. In addition, students will have access to common office equipment, know how to preserve, detect and repair some common errors.
- 5.29 Environment and Human – 3 credits
- Provide students with basic concepts and knowledge about the environment; Introduce students the roles of the natural environment, the consequences and the handling of the consequences of environmental pollution; Information for students of national and global environmental protection programs and policies. Since then, the course has led students to raise awareness of environmental protection.
- 5.30 Planning Skills – 3 credits
- The course includes the basics of: Planning methods; Thinking, time management and job placement skills in planning; Methods of analysis, evaluation and implementation of the plan.
- In addition, the content of the subject also has a practice part of training skills: Information gathering, analysis and prediction; Build learning and personal development plans; Planning for production and business activities; Skills to analyze, evaluate and test the results of the plan implementation.
- 5.31 Economic Geography – 3 credits

- Helps students become familiar with the preliminary assessment of economic and social potential and its role in the development of countries, thereby being able to apply the basic knowledge they have learned. to effectively use national resources.
 - Students will find the subject Vietnamese Economic Geography important and necessary for economic leaders at the macro level, for economic researchers, for business owners or ordinary employees when they faced with the decision whether or not to implement a certain policy.
- 5.32 Industrial Applications of Chemistry – 3 credits
- Have knowledge of chemistry applied in life, producing products for agriculture, fuel and energy, construction, mechanics, electricity-electronics and the environment.
 - Have skills in teamwork, finding documents, writing reports and presenting topics on chemical applications in life, industry and related fields.
 - Have skills in identifying product characteristics: quality, usage, commerciality, safety for human health and the environment.
- 5.33 Application of Kaizen Method and 5S Technique for Manufacturing – 3 credits
- Apply knowledge of Kaizen, 5S3D, PRO-3M, and quality management tools to identify and eliminate waste and improve continuous improvement capacity in industry.
 - Have skills in implementing and maintaining 5S3D, PRO-3M and improvement activities to improve personal capacity in manufacturing, business and service enterprises.
 - Have a sense of learning and be aware of the role of Kaizen, 5S3D, PRO-3M in self and work management activities.
- 5.34 Foundations of Computing – 2 credits
- The course introduces the basic concepts of computer systems, types of software, basic math on base systems, binary systems, information technology applications, work environment and threats to information security on computers.
- 5.35 Introduction to Programming - 2 credits
- Understand basics of information theory, computer system and methods of software development, focus on function-oriented programming design, coding, testing and discipline in programming. Explain basic concepts of programming, function-oriented programming design, modularity, understand and coding programs using C.
- 5.36 Discrete Structures – 3 credits
- Express and model practical problems using discrete structures.
 - Understanding and calculating problems on logical structure: propositional and predicate logic
 - Calculate on discrete composite structures such as aggregation, mapping by combination counting and analysis. Solve some types of problems of linear recursive linear systems ≤ 2 .
 - Understanding of the relative types, order on the set and defining their properties.
 - Understanding Bool algebra and using Karnaugh chart method to find the minimum polynomial formula Bool with variable number ≤ 4
- 5.37 Computer Systems – 4 credits
- The course provides students with basic knowledge of computer system, identify the components of computer system to meet performance, identify the necessary components and functions of an operating system, familiar with the two famous operating system (Windows, Linux), compare the performance of the two computers that running two different operating system.
- 5.38 Programming Techniques – 3 credits
- Programming methods: structure-oriented, procedural, and recursive programming. Organizing and manipulating structured data from basic data defined by the C language. Using pointers, dynamic

memory allocation to optimize memory space when executing programs. Create test cases according to boundary value testing technique.

5.39 Social Issues and Professional Ethics – 3 credits

- Information security policy
- Reliability and safety of computer systems
- IT Law: Software Protection, Intellectual Property, E-Commerce.
- Computer crime and legal issues
- Professional ethics (ACM and IEEE)
- The impact of IT on society and economic development environment.
- New trend in IT career

5.40 Computer Networks - 3 credits

This course provides students with fundamental knowledge of computer networks: functions and components of the network, OSI reference model, TCP/IP, explains the operating principle of network-connected devices, basic protocols, routing algorithms, and switching mechanisms in network systems.

5.41 Statistics Computing and Applications - 3 credits

This course provides an introduction to the basic concepts of probability, common distributions, statistical methods, and data analysis.

5.42 Database Systems – 4 credits

The course provides students with basic knowledge of data models and relational databases. The theory and method of logical design of relational databases from the professional analysis of the organization. The role of relational algebra, SQL language manipulating data. The laws of data preservation and constraints, function dependencies, forms of data standardization. Physical database design, indexing role. The concepts of data warehouse, purpose of use and how to create.

5.43 Web systems and technologies - 3 credits

The course aims to provide an understanding of the basics of the Internet, how it originated, how it works, and how to develop and maintain Web sites.

5.44 Introduction to Information Security – 3 credits

This course will equip students with basic knowledge of information security, information security threats, some basic methods for preventing information security attacks as well as several mechanisms/protocols (encryption, hash function, digital signatures, authentication, access control and information security management systems) to establish and enhance the information security of an organization/individual. In addition, the course also provides legal issues related to information security.

5.45 Introduction to Big data – 3 credits

Provide students with knowledge of Big Data and deploy AI solutions using python tool version 3.x

5.46 IT Project Management – 3 credits

The subject provides students with a foundational knowledge of the phases of software project management, students practice some working skills in project management, and practice some basic skills in project management. with emphasis on teamwork.

5.47 E-marketing – 3 credits

Provide the basics of e-marketing to students. Concepts related to e-marketing. At the same time, students can develop e-marketing strategies and visualize the factors that influence e-marketing strategies in micro and macro environments. Recognize the difference when the business has and does not use e-Marketing. How to use the Internet to implement CRM (Customer Relationship Management). At the same time, analyze, evaluate and measure the effectiveness of e-marketing campaigns in TMDT.

The course provides knowledge about some of today's online marketing tools such as Web, blog, social networking,.. help learners shape the application of the internet and tools into the business development strategy of the business, helping businesses promote the brand, Image, its service reaches millions of customers quickly and efficiently.

5.48 Data Analysis Programming 1 – 3 credits

Provide students with knowledge of data analysis and data visualization using python tool version 3.x

5.49 Electronic Engineering – 3 credits

The course provides knowledge about the structure and operating principles of passive components: R, L, C; active components: diode, BJT, FET; power control components: UJT, SCR, TRIAC; integrated circuit (IC).

5.50 Event Driven Programing with .NET Technology - 3 credits

The course provides basic knowledge and skills about object-oriented programming and interface programming. Help students understand how to solve problems in programming and realize basic applications on windows using high-level programming language (C#). In addition, this course also provides the foundational knowledge and skills for the following subjects. The course also provides an approach to programming the interface that combines the database shown on windows.

5.51 Event Driven Programming with Java Technology – 3 credits

The course provides students with knowledge of object-oriented programming in Java, GUI programming, exception handling, Java Regular Expressions. Provides knowledge and skills so students can programe java with the handling of the extended markup language.

Students will be able to implement Java applications with user-friendly graphical interfaces with real-world, connected, and interactive features on the database.

5.52 GUI Programming with Qt Framework – 4 credits

Provide basic knowledge and skills about object-oriented programming, interface programming. Help students understand how to solve problems in programming and realize basic applications expressed on Qt framework. In addition, this course also provides the foundational knowledge and skills for the following subjects. The course also provides an approach to database integration interface programming

5.53 Graph Theory – 3 credits

The subject will present:

- Learning concepts and basic properties of graphs.

- Important graph types such as: Euler graph, Hamiltonian graph, face graph...

- Chromatic and colored graph.

- Basic algorithms such as: Algorithm to find the shortest path, find the highest coverage, find the maximum flow ... and apply programming to solve problems on the graph.

5.54 System Analysis and Design – 3 credits

The module provides students with basic knowledge and skills on how to collect and analyze customer requests, using UML techniques to model the factors analyzed, based on the results of the analysis students apply the knowledge of object-oriented and UML to design models for the implementation of the software.

5.55 Application Development – 3 credits

This course provides students with the knowledge, techniques and skills to work with a real-world application at the level of analyzing the actual requirements of an application and implementing it in a specific object-oriented programming language. (C# or Java). The course also provides students with the knowledge and skills in testing, commissioning, packaging, and documentation for a real (simple) application.

- 5.56 Data Structures and Algorithms – 4 credits
Algorithms for searching and sorting on arrays. Dynamic data structure. Linked list. Stacks and queues. Tree structure: binary tree, binary search tree, balanced search binary tree (AVL)
- 5.57 Software Engineering – 3 credits
The course provides students with a foundational knowledge of the software development phases, the software development process with an emphasis on requirements analysis, interface design, measurement, and the basics of software testing, as well as outstanding issues in professional software development.
- 5.58 Object Oriented Programming – 3 credits
The course provides students with object-oriented approach and application in programming. Help students experience through the analysis and design stages using UML through case studies. Students learn how to use Java to implement the program.
Tools and learning materials: computer with Java programming support tools installed.
- 5.59 Design Thinking and User Experience – 3 credits
The course provides students the knowledge and information what UX design is and how to apply it in real life.
- 5.60 Application Interface Development – 3 credits
The course provides knowledge related to the technology of developing user interfaces based on the Angular platform. Provide students with basic knowledge of angular, functional components of angular. Know how to apply angular platform to develop diverse user interfaces from simple to complex.
- 5.61 NoSQL MongoDB Database management system – 3 credits
The course provides students the knowledge and skills to use NoSQL database management system to create and manage data of a database.
- 5.62 NoSQL MongoDB Data Modeling – 3 credits
The subject provides students with knowledge, skills, and methods to serve the collection of business requirements. From the collected information, create a basic data model. Apply design patterns to optimize data models. In addition, students also understand how data models will change over time.
- 5.63 Data Mining and Application – 3 credits
The course provides students with basic knowledge of data mining to solve the problem of finding useful information from a large amount of raw data that is common in practice and academic research. The content of the course introduces students to basic terms, concepts and algorithms in the field of data exploitation, pre-processing as well as the application of algorithms in data mining and machine learning such as: technique of clustering, classifying, exploiting association rules, sequential patterns in the small problems on data analysis. Besides, the course will train students the ability to solve problems through installing or using support tools, writing reports on some small-scale data mining problems.
- 5.64 Distributed Programming with .NET Technology – 3 credits
This course provides basic knowledge and skills in object-oriented programming combined with databases expressed on windows. Help students understand how to solve problems in programming and realize basic applications on the programming language expressed through windows (CSharp). In addition, this course also provides the foundational knowledge and skills for other subjects.
The course also provides a multithreaded and distributed programming approach over the network.
- 5.65 Distributed Programming with Java Technology – 3 credits
Provide students with advanced knowledge about object-oriented programming (Thread, Network programming, RMI, JPA, JSON ...), implementing big data applications (MongoDB). At the same time, improve students' programming knowledge and skills with the Java object-oriented programming language.

- 5.66 Network programming with Qt Framework – 3 credits
- Understand basic concepts of programming architecture with multi-layer applications.
 - Understand and implement network programming with Socket combined with Multithread.
- 5.67 Human Computer Interaction – 3 credits
- The goal of this course is to introduce the basic concepts of design, creativity and evaluation of computer interfaces. The main goal is for students to think constructively and analytically about how to design and evaluate interactive technologies.
- 5.68 Database Management System – 3 credits
- The subject provides students with the knowledge and skills to use the SQL Server database management system to create and manage data of a database.
- 5.69 E-Commerce - 3 credits
- Present the characteristics of e-commerce and types of markets.
 - Present the current status of e-commerce in Vietnam and the world.
 - Explain concepts related to e-commerce technology, business models, risk management processes and apply risk management steps in e-commerce.
 - Build an e-commerce website from open source tools to ensure some common functions of an e-commerce website.
- 5.70 Software Architecture and Design – 4 credits
- The course provides students with the software architecture design process, quality criteria of a software product, identification and comparison of common architectural patterns (Message Oriented Architecture, Java EE Specifications, Services Oriented Architecture), students can design UML models for architectural models according to problem requirements and settings for architectural models and apply some design patterns during the installation process.
- 5.71 Quality Assurance and Software Testing – 3 credits
- The course provides students with basic knowledge of processes and techniques in quality assurance and software testing; understanding of the meaning and importance of quality in relation to software systems; understanding test planning and management skills.
- 5.72 New Technology in the Application Development – 3 credits
- The course introduces fundamental knowledge about using new technology in web application development; build cloud-based web applications.
- 5.73 Internship – 5 credits
- An internship is a professional learning experience that offers meaningful, practical work related to a student’s field of study or career interest. An internship gives a student the opportunity for career exploration and development, and to learn new skills. It offers the employer the opportunity to bring new ideas and energy into the workplace, develop talent and potentially build a pipeline for future full-time employees.
- 5.74 Capstone project - 8 credits
- Consolidate learned knowledge, practice more vocational skills, get acquainted with the real environment, thereby helping students self-assess their own capacity, draw from practical experience to perfect their knowledge. Professional skills, professional skills, professional ethics, spirit of professional discipline, labor discipline and career orientation after graduation.
 - Equip skills in information search and analysis, information and data processing; Analyze information based on basic knowledge of course content.
 - Applying the knowledge learned in the implementation of a small project with practical application.
 - Write a technical report on the work that you perform.
 - Present and defend a result that you have done in front of one or more people.

- 5.75 Programming Mobile Devices – 4 credits
The course provides students with basic knowledge to be able to program on mobile devices with the Android operating system platform.
- 5.76 Programming for the WWW (Java) – 4 credits
The course provides students with knowledge of server-side programming with Java Servlets, JavaServer Pages, JavaServer Faces and Spring Framework technologies.
- 5.77 Programming for the WWW (.NET) – 4 credits
The course provides students with the knowledge and skills to develop web-based software that is highly structured and capable of meeting different requirements. The languages and frameworks used in the learning process are ASP.NET MVC and C#. Students learn and work with MVC architecture combined with Ajax. The program also directs students to build a complete web application with database storage, user management and use on different devices from mobile to desktop. The course also provides students with the ability to develop service-oriented applications.
- 5.78 IoTs Programming – 4 credits
The course introduces basic knowledge about the Internet of Things, the potentials, impacts and challenges of applying IoTs in the real world. The course also provides information about IoT devices available on the commercial market, and building applications that run on these devices.
- 5.79 Web Application Development with Qt Engine – 4 credits
- This course provides students with the knowledge and skills to develop high-structured web platform software that can meet various requirements. The language and framework used in the learning process are Qt Web Engine and C++.
- The curriculum also guides students in building a complete web application with database storage, user management, and usability across various devices, from mobile to desktop.
- Additionally, the course equips students with the ability to develop applications in a service-oriented direction.
- 5.80 Data Analysis Programming 2 – 3 credits
Provide students with knowledge of inference statistics and machine learning models using python tool version 3.x.
- 5.81 Automata & Formal Languages – 3 credits
The content in the course will equip learners with the knowledge and skills to build a programming language and implement specialized projects and modules.
- 5.82 Advanced Mobile Devices Programming – 3 credits
The course provides students with advanced programming techniques in Android mobile devices. Helps students experience the stages of creating interfaces, writing code and posting the completed application to Google Play.
- 5.83 SOA and Cloud Computing – 3 credits
The course introduces fundamental knowledge related to cloud computing: IaaS, PaaS, SaaS, BPaaS. Access and use cloud computing services based on cloud computing service providers. Use and exploit big data and relational database services on the cloud.

III. EMPLOYERS COOPERATION ACTIVITIES

1. Memorandum of understanding (MOU)

Currently, FIT has signed a memorandum of understanding with domestic and foreign employers on internship contents and recruiting graduates. The faculty is currently strengthened to have domestic and

international MOUs. The list of employers that have signed the memorandum of understanding with the faculty is as follows:

No.	Company name	Company address	Website
1	TMA Solutions	TMA Tower, Quang Trung Software Park, District 12, Ho Chi Minh City.	https://www.tmasolutions.com/
2	Digitech Solutions	E9, A2, KDC Tin Phong, Tan Thoi Hiep ward, District 12, Ho Chi Minh City.	https://vndigitech.com/
3	FPT Software	D1 Street, Tan Phu Ward, District 9, Ho Chi Minh City.	https://www.fpt-software.com/
4	Talent mind Education	160/4 Binh Loi St, Ward 13, Binh Thanh District, Ho Chi Minh City.	https://talentmind.edu.vn/
5	Like Lion	38A Nguyen Thi Dieu, Ward 6, District 3, Ho Chi Minh City.	https://www.likelion.net/ https://likelion.vn/
6	CyberLogitec Việt Nam	7th floor, SCETPA Building, 19A Cong Hoa St., Ward 12, Tan Binh District., Ho Chi Minh City.	https://cyberlogitec.com.vn
7	NashTech VietNam	Etown 1, Level 3, 364 Cong Hoa Street, Tan Binh District, Ho Chi Minh City.	https://nashtechglobal.com/
8	Hitachi Vantara Vietnam Co., Ltd	4th Floor, Helios Building, Quang Trung Software, Tan Chanh Hiep Wars, District 12, Ho Chi Minh City.	https://www.hitachivantara.com
9	Vietlongsoft	451/24/43 To Hien Thanh, P.14, Q.10, Ho Chi Minh City.	http://www.vietlongsoft.com/
10	Ryomo (in VietNam)	6th and 9 th floor, Saigon Riverside Office Center Tower, 2A-4A Ton Duc Thang stress, Ben Nghe ward, District 12, Ho Chi Minh City.	http://rvsc.ryomo-gr.com/vn/ https://www.ryomo.co.jp/
11	Sorimachi (in VietNam)	9th floor, Tuoi Tre Building, 60A Hoang Van Thu, Ward 9, Phu Nhuan District, Ho Chi Minh City.	http://sorimachi.vn/ https://www.sorimachi.co.jp/
12	I.M. Link (in VietNam)	8th floor, 36 Bui Thi Xuan, Ben Thanh Ward, District 1, Ho Chi Minh City.	http://imlink.vn/ http://imlink.co.jp/
13	SS4U Express	4th floor, Tedi Building, 15 Hoang Hoa Tham, Binh Thanh District, Ho Chi Minh City.	http://www.ss4u.vn http://www.ERPexpress.vn



Figure 1. MOU between FIT and SS4U Express.



Figure 2. FIT takes photo with the leaders of SS4U Express

2. Field trips of students and lecturers:

Every year, the first-year students are led by lecturers to industrial parks and companies. Thereby, students have an initial understanding of the education programme and shape their work after graduation. List of companies visited:

No.	Company name	Company address
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1	FPT Software	D1 Street, Tan Phu Ward, District 9, Ho Chi Minh City
2	TMA Solutions	TMA Tower, Quang Trung Software Park, District 12, Ho Chi Minh City.
3	Hitachi Vantara Vietnam Co., Ltd	4th Floor, Helios Building, Quang Trung Software, Tan Chanh Hiep Wars, District 12, Ho Chi Minh City
4		
5		
6		
7		



Figure 3. FPT Software field-trip.



Figure 4. FPT Software field-trip.

3. Job Fair

Every year, the University organizes job fairs to help students have more opportunities to interact with employers and find jobs after graduation. Annual fair with 60 ~ 70 participating employers. Some pictures at the job fair are taken from previous activities.



Figure 5. Job fair activities at IUH.

4. Seminar and job recruitment

When it is necessary to recruit a large number of engineers to carry out a complex engineering project, employers can hold a seminar and job recruitment at the IUH.

For instance, on April 21, 2023, FIT and VTI Academy Representative organized a seminar with the topic: "The path to becoming a .NET ENGINEER and career opportunities". The seminar brought a lot of useful knowledge to students about the .NET field, and also helped students have more career orientation in the future. About 200 students from different majors of the Faculty of Information Technology attended the seminar.



Figure 6. Workshop on “The path to become a .NET engineer and career opportunities”

IV. EXTRACURRICULAR ACTIVITIES

1. Sport activities

Sports is one of the most important and essential activities in comprehensive educational development in schools. Therefore, sports and physical training activities are always interested by the faculty’s leadership and facilitate the Youth Union – Inter-branch of the Faculty to organize a helpful playground for students. The Traditional Sports Festival of the Faculty of Information Technology in 2022 took place in October and November with many subjects: Men's and Women's Football, Men's and Women's Volleyball, chess, chess, badminton, tug of war attracted more than 500 athletes and more than 4,000 turns of students cheering.



2. Art-cultural activities

Every year, on the occasion of celebrating Vietnamese Teachers' Day on November 20th, an entertainment programme takes place to celebrate the school's activities to honor the month of gratitude to teachers. The contest attracted more than 500 students of the Faculty to compete with more than 130 entries.



Figure 9. Arts Festival, Faculty of Information Technology 2023

3. Traditional camp social-volunteer-social activities

Volunteer-Social Activities

To equip students with a more positive and responsible attitude with the activities "Sharing the love - Joining hands for the community." The Faculty of Information Technology always offers meaningful and valuable activities such as Green Summer 2023, Mid-Autumn Festival for Children 2023, Spring Volunteering 2023, and more than 2000 students register to participate and respond.

It can be said that social-volunteer activities are an excellent opportunity for students to learn from life experiences, to help improve skills in life and work.



Figure 10. FIT students were participating in "Green Summer 2023"



Figure 11. "Mid-Autumn Festival for Children 2023" programme



Figure 13. Students participated in the Traditional Camp of Cat's CAMP

V. IMPLEMENTATION GUIDE

1. For the Faculty

- Study the framework program to organize the implementation of the program's content.
- Assign the academic staff and support staff to each course and provide a detailed curriculum for them to ensure the teaching plan.
- Homeroom teachers are required to fully understand the entire credit-based training program to guide students to register for modules.
- Prepare full textbooks, reference materials, facilities to ensure good implementation of the program.
- Pay attention to the logical conveyance and acquiring knowledge arrays, define the prerequisite modules of compulsory courses and prepare resources to meet the requirements of teaching the elective courses.

2. For the Lecturers

- After courses are assigned to lecturers, it is necessary to carefully study the content of the detailed outline of each course in order to prepare lectures and appropriate teaching facilities.
- Lecturers must prepare full textbooks and references for students one week in advance before beginning the class.
- Organize student's seminars, focus on organizing teamwork and guide students to make essays, projects. Teachers identify methods of conveyance; present in class, discussion guidelines, solving problems in class, at labs, and reports writing.
- Lecturers conduct assessment throughout the learning process of the students, both in class and at home, according to the content in the syllabus.
- Regularly organizing the examination and evaluation of modules to improve training quality. Lecturers strictly comply with the regulations of the credit system.

- Lecturers are determined to prevent and fight frauds in organizing examinations, tests and assessments.

3. For the students

- Consult homeroom teachers to choose courses appropriated in the schedule.
- Learn the content before class for better receptive lectures.
- Make sure you have enough time to be present in class for the instructor's lectures.
- Self-awareness in the stage of self-study and self-research, and actively participating in teamwork, attending all seminars.
- Actively exploit resources online and in the library to support self-study, self-research and capstone project.
- Strictly implement regulations on examinations, tests and assessments.

4. Assessment and evaluation

- Lecturers conduct assessment throughout the learning process of the students, both in class and at home, according to the content in the syllabus.
- Regularly organizing the examination and evaluation of modules to improve training quality. Lecturers strictly comply with the regulations of the credit system.
- Lecturers are determined to prevent and fight frauds in organizing examinations, tests and assessments.

VI. USEFUL CONTACT INFORMATION

1. Board of faculty management

No.	Full name	Position	Email	Phone number
1	Lê Nhật Duy, Ph.D	Dean	lenhatduy@iuh.edu.vn	083.8940390-233
2	Đặng Thị Phúc, Ph.D	Vice Dean	phucdt@iuh.edu.vn	0933341015
3	Hồ Đắc Quán, Ph.D	Head of computer science department	hodacquan@iuh.edu.vn	
4	Nguyễn Thị Hạnh, Ph.D	Head of software engineering department	ngthihanh@iuh.edu.vn	0773070596
5	Ngô Hữu Dũng, Ph.D	Head of information system department	ngohuudung@iuh.edu.vn	0834551032
6	Tạ Duy Công Chiến, Ph.D	Head of information technology department	taduycongchien@iuh.edu.vn	
7	Nguyễn Chí Kiên, Ph.D	Head of data science department	nguyenchikien@iuh.edu.vn	
8	Giảng Thanh Trọn, MSc	Leader of computer technical broad	giangthanhtron@iuh.edu.vn	

2. Support staff

No.	Full name	Position	Email	Phone number
1	Phạm Thị Thùy Trang	Support staff	phamthithuytrang@iuh.edu.vn	083.8940390-233
2	Nguyễn Ngọc Phương	Support staff	nguyenngocphuong@iuh.edu.vn	083.8940390-233
3	Phan Anh Tuấn	Support staff	phananhtuantb@iuh.edu.vn	
4	Nguyễn Văn Đạt	Support staff	nguyenvandat@iuh.edu.vn	0329286683
5	Nguyễn Hữu Quang	Youth Union of the Faculty	nguyenhuuquang@iuh.edu.vn	0908797089
6	Hồ Đắc Quán	Labor Union of the Faculty	hodacquan@iuh.edu.vn	

Table 1: Rubrics of the expected learning outcomes

ELOs	PIs	RUBRIC			
		1 (Failed)	2 (Fair)	3 (Accepted)	4 (Excellent)
a. An ability to apply knowledge of computing and mathematics appropriate to the program student outcomes and to the discipline.					
a1	Lập kế hoạch và viết chương trình thể hiện được các kỹ năng lập trình, sửa lỗi và xử lý sự cố.	Không thể hiện được các khả năng lập kế hoạch, viết chương trình và xác định các lỗi cơ bản	Thể hiện được vài khả năng lập kế hoạch, viết chương trình và xác định các lỗi cơ bản	Thể hiện được khả năng có thể chấp nhận được trong việc phát triển và sửa lỗi chương trình	Thể hiện được khả năng tốt trong việc phát triển và sửa lỗi chương trình
a2	Sử dụng các kiến thức toán học để phân tích dữ liệu và mô hình hóa bài toán.	Không thể hiện được khả năng để xác định và sử dụng một kỹ thuật toán học để đánh giá hiệu suất thuật toán	Thể hiện khả năng chưa đầy đủ để xác định và sử dụng một kỹ thuật toán học để đánh giá hiệu suất thuật toán	Thể hiện được khả năng để xác định và sử dụng một kỹ thuật toán học để đánh giá hiệu suất thuật toán	Thể hiện được khả năng để xác định các kỹ thuật toán học phù hợp và sử dụng một trong các kỹ thuật đó để đánh giá hiệu suất thuật toán
b. An ability to analyze a problem and identify and define the computing requirements appropriate to its solution					
b1	Xác định các thành phần chính và các thuật toán cần thiết cho giải pháp của một vấn đề cho trước.	Không thể hiện được khả năng để xác định các thành phần chính và các kỹ thuật hoặc các thuật toán được sử dụng để giải quyết một vấn đề	Thể hiện được khả năng để xác định một phần các thành phần chính và các kỹ thuật hoặc các thuật toán được sử dụng để giải quyết một vấn đề	Thể hiện được khả năng để xác định các thành phần chính và các kỹ thuật hoặc các thuật toán được sử dụng để giải quyết một vấn đề	Thể hiện được khả năng để xác định các thành phần chính và các kỹ thuật hoặc các thuật toán được sử dụng để giải quyết một vấn đề và nhận ra được các hạn chế hoặc các thiếu sót

b2	Phân loại các vấn đề cho trước và thiết kế các giải pháp với các đặc tả phù hợp.	Không thể hiện được khả năng phân loại các vấn đề cho trước và thiết kế các giải pháp với các đặc tả phù hợp	Thể hiện được khả năng phân loại một vài vấn đề cho trước và thiết kế một phần giải pháp với các đặc tả phù hợp	Thể hiện được khả năng phân loại các vấn đề cho trước và thiết kế các giải pháp với các đặc tả phù hợp	Thể hiện được khả năng phân loại các vấn đề cho trước và thiết kế các giải pháp với các đặc tả phù hợp và nhận ra được các hạn chế hoặc các thiếu sót
c. An ability to design, implement, and evaluate a computer-based system, process, component or program to meet desired needs.					
c1	Xác định các ràng buộc trong vấn đề thiết kế và thiết lập các điều kiện có thể chấp nhận được cho giải pháp	Không thể hiện sự hiểu biết các xu hướng của hệ thống máy tính	Thể hiện sự hiểu biết hạn chế các xu hướng của hệ thống máy tính	Thể hiện sự hiểu biết đúng các xu hướng của hệ thống máy tính	Thể hiện sự hiểu biết đúng các xu hướng của hệ thống máy tính và cải tiến hệ thống hiện tại tốt hơn
c2	Hiện thực và đánh giá các giải pháp với điều kiện ràng buộc cho trước	Không thể hiện khả năng thiết lập điều kiện cho giải pháp, hiện thực và đánh giá các giải pháp	Thể hiện khả năng thiết lập một vài điều kiện cho giải pháp, hiện thực và đánh giá các giải pháp	Thể hiện khả năng thiết lập các điều kiện phù hợp cho giải pháp, hiện thực và đánh giá các giải pháp	Thể hiện khả năng thiết lập các điều kiện phù hợp cho giải pháp, hiện thực và đánh giá các giải pháp đồng thời nhận ra các lĩnh vực có thể cải tiến
d. An ability to function effectively on teams to accomplish a common goal					
d1	Tham gia tích cực vào các buổi hoạt động nhóm	Không tham gia đầy đủ	Tham gia đầy đủ và không có ý kiến	Tham gia đầy đủ và có ý kiến	Ý kiến được chấp nhận trong cuộc họp HOẶC Ý kiến được $\geq 50\%$ thành viên đồng ý

d2	Lắng nghe, chia sẻ, phối hợp với các thành viên khác trong nhóm	Không lắng nghe, chia sẻ với những thành viên khác hoặc tạo ra mâu thuẫn trong nhóm	Ít lắng nghe, chia sẻ và phối hợp với những thành viên khác	Thường xuyên lắng nghe, chia sẻ và phối hợp với các thành viên khác. Không tạo ra xung đột.	Lắng nghe, chia sẻ và kết nối với các thành viên khác.
d3	Hoàn thành công việc của mình trong nhóm khi được phân công	Không hoàn thành được công việc trong nhóm khi được phân công.	Hoàn thành 1 phần công việc được phân công.	Hoàn thành công việc được phân công trong nhóm.	Hoàn thành công việc được phân công trong nhóm và có hỗ trợ các thành viên khác trong nhóm

e. An understanding of professional, ethical, legal and social issues and responsibilities

e1	Trình bày được các chuẩn đạo đức và trách nhiệm xã hội liên quan đến ngành	Không trình bày được	Trình bày được các quy tắc đạo đức hoặc trách nhiệm xã hội	Trình bày được các nội dung cơ bản của quy tắc đạo đức và trách nhiệm xã hội	Có minh họa thực tiễn
e2	Giải thích được các vấn đề pháp luật liên quan đến lĩnh vực CNTT	Không trình bày được	Trình bày được các vấn đề chính liên quan luật CNTT nhưng không giải thích được	Trình bày và giải thích được các vấn đề chính liên quan luật CNTT	Có minh họa thực tiễn
e3	Vận dụng được các quy tắc ứng xử nghề nghiệp	Không vận dụng được	Vận dụng được nhưng không đầy đủ	Vận dụng được	Vận dụng linh hoạt theo tình huống

f. An ability to communicate effectively with a range of audiences

f1	Khả năng thực hiện được bài thuyết trình hiệu quả	Không xây dựng được bài thuyết trình	Xây dựng được bài thuyết trình nhưng chưa diễn đạt được nội dung trước mọi người	Xây dựng được bài thuyết trình đúng chủ đề và trình bày được nội dung trước mọi người	Xây dựng và trình bày 1 cách thuyết phục
f2	Khả năng viết báo cáo	Không viết báo cáo được	Trình bày báo cáo không rõ ràng, khó hiểu, không đạt yêu cầu kỹ thuật (lỗi chính tả/trang, cách	Trình bày báo cáo rõ ràng, dễ hiểu đạt yêu cầu kỹ thuật	Trình bày ý tưởng rõ ràng và chính xác

dùng từ, layout, ..)

g. An ability to analyze the local and global impact of computing on individuals, organizations and society

g1	Phân tích được tác động cục bộ của CNTT đến cá nhân, tổ chức	Không phân tích được ảnh hưởng cục bộ của việc ứng dụng CNTT tại đơn vị đến cá nhân, tổ chức.	Phân tích được ảnh hưởng tích cực hoặc ảnh hưởng tiêu cực mang tính cục bộ của việc ứng dụng CNTT tại đơn vị đến cá nhân, tổ chức.	Phân tích được ảnh hưởng tích cực và ảnh hưởng tiêu cực mang tính cục bộ của việc ứng dụng CNTT tại đơn vị đến cá nhân, tổ chức.	Đề xuất được hướng để giảm nhẹ các ảnh hưởng tiêu cực hoặc thúc đẩy ảnh hưởng tích cực mang tính cục bộ
g2	Phân tích được tác động toàn cục của CNTT đến cá nhân, tổ chức và xã hội	Không phân tích được ảnh hưởng toàn cục của việc ứng dụng CNTT đến cá nhân, tổ chức và xã hội.	Phân tích được ảnh hưởng tích cực hoặc ảnh hưởng tiêu cực mang tính toàn cục của việc ứng dụng CNTT tại đơn vị đến cá nhân, tổ chức và xã hội.	Phân tích được ảnh hưởng tích cực và ảnh hưởng tiêu cực mang tính toàn cục của việc ứng dụng CNTT tại đơn vị đến cá nhân, tổ chức và xã hội.	Đề xuất được cách thích ứng với tác động toàn cục của CNTT đến cá nhân, tổ chức và xã hội

h. Recognition of the need for and an ability to engage in continuing professional development

h1	Có khả năng độc lập tìm kiếm, đánh giá và sử dụng các tài nguyên	Không có khả năng tìm kiếm thông tin để giải quyết vấn đề	Có sử dụng một vài thông tin nhưng chưa hợp lý	Tìm kiếm, và sử dụng hợp lý nguồn thông tin để hoàn thành một vấn đề cần giải quyết.	Tìm kiếm, đánh giá và sử dụng hiệu quả nguồn thông tin để hoàn thành một vấn đề cần giải quyết.
h2	Xác định sự cần thiết của việc phát triển nghề nghiệp.				

i. An ability to use current techniques, skills, and tools necessary for computing practice

i1	Nhận biết được các xu hướng và kỹ thuật hiện tại trong quản lý dữ liệu	Không thể hiện khả năng nhận biết xu hướng và kỹ thuật hiện tại trong quản lý dữ	Thể hiện khả năng nhận biết một vài xu hướng và kỹ thuật hiện tại trong quản lý	Thể hiện khả năng có thể chấp nhận được trong việc nhận biết các xu hướng và kỹ	Thể hiện khả năng nhận biết tốt các xu hướng và kỹ thuật hiện tại trong quản lý
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		liệu	dữ liệu	thuật hiện tại trong quản lý dữ liệu	dữ liệu
i2	Có khả năng lựa chọn và sử dụng các ngôn ngữ lập trình khác nhau và đánh giá tính phù hợp của 1 ngôn ngữ cụ thể đối với một lãnh vực bài toán cho trước	Không thể hiện sự hiểu biết về mô hình ngôn ngữ lập trình và đánh giá sự phù hợp của một ngôn ngữ cụ thể đối với một lãnh vực bài toán cho trước	Thể hiện một vài hiểu biết về mô hình ngôn ngữ lập trình và đánh giá sự phù hợp của một ngôn ngữ cụ thể đối với một lãnh vực bài toán cho trước	Thể hiện sự hiểu biết các mô hình ngôn ngữ lập trình và đánh giá sự phù hợp của một ngôn ngữ cụ thể đối với một lãnh vực bài toán cho trước	Thể hiện tốt sự hiểu biết các mô hình ngôn ngữ lập trình và đánh giá sự phù hợp của một ngôn ngữ cụ thể đối với một lãnh vực bài toán cho trước
j. Ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems					
j1	Vận dụng được phương pháp của máy học để phân tích dữ liệu theo yêu cầu cho trước	Không có khả năng xác định các phương pháp của máy học để phân tích dữ liệu	Có khả năng xác định được phương pháp của máy học nhưng không áp dụng được để phân tích dữ liệu	Có khả năng áp dụng được phương pháp của máy học để phân tích dữ liệu	Có khả năng áp dụng được phương pháp của máy học một cách tối ưu để phân tích dữ liệu
j2	Có khả năng vận dụng được phương pháp nhận dạng và xử lý dữ liệu ảnh giải quyết vấn đề cho trước	Không có khả năng xác định các phương pháp nhận dạng và xử lý ảnh để giải quyết bài toán	Có khả năng xác định được phương pháp nhận dạng và xử lý ảnh nhưng không áp dụng được để giải quyết bài toán	Có khả năng áp dụng được phương pháp nhận dạng và xử lý ảnh để giải quyết bài toán	Có khả năng áp dụng được phương pháp nhận dạng và xử lý ảnh một cách tối ưu để giải quyết bài toán



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