THAI NGUYEN UNIVERSITY

UNIVERSITY OF INFORMATION AND COMMUNICATION TECHNOLOGY

PROGRAMME SPECIFICATION

FOR INFORMATION TECHNOLOGY EDUCATION PROGRAMME

THAI NGUYEN - 2017

CONTENT

THAI NGUYEN UNIVERSITY
UNIVERSITY OF INFORMATION AND COMMUNICATION TECHNOLOGY
FACULTY OF INFORMATION TECHNOLOGY

PROGRAM DESCRIPTION FOR UNIVERSITY DEGREE

I. BASIC INFORMATION ABOUT THE TRAINING PROGRAM

1. Name of training:

+ Vietnamese name: Công nghệ thông tin.

+ English name: Information Technology

2. Training code: 7480201

3. Type of training: Formal

4. Diploma name:

Information technology engineer

5. Place of training and certification:

University of Information and Communication Technology - Thai Nguyen University.

II. DESCRIPTION OF TRAINING PROGRAM

1. Training Objectives

1.1. General objectives

Training engineers to provide students with comprehensive specialized knowledge, a firm grasp of natural and social principles and laws, fundamental practical skills, the ability to work independently, be creative, and solve problems within the field of Information Technology.

1.2. Detail objectives

- Understand and apply the fundamental principles of Marxism-Leninism, the thoughts of Ho Chi Minh, and the revolutionary path of the Communist Party of Vietnam, as well as having knowledge of Vietnamese Law; Understand National

Security and Defense; Have knowledge and the ability to self-train on physical fitness.

- Be able to apply basic mathematics and science knowledge to study and research in the field of Information Technology.
- Master the techniques, programming languages, tools, and know how to analyze and design algorithms.
- Master knowledge of computer networks, information security and network security, operation, and maintenance of information systems
- Master knowledge of database fundamentals and database management systems.
- Master techniques for analyzing and designing information systems, designing and building databases, integrating systems, and developing software.
- Master knowledge of machine learning and big data to create intelligent software products.
- Achieve level 3 proficiency in a foreign language according to the 6-level language proficiency framework as regulated by the Ministry of Education and Training, and have basic knowledge of foreign languages in the field of Information Technology.
- Have presentation skills, communication skills, and the ability to work in teams.

2. Program learning outcomes standards

The learning outcomes standard for the Information Technology program issued under Decision No. 690/QĐ-ĐHCNTT&TT expressed through the following content (encoded as L1 to L13):

PLO	Program learning outcomes standards (PLOs)	Capacity scale
L1	Apply natural science knowledge to solve scientific and technical problems in the field of information technology and have the ability to learn at higher levels.	3
L2	Understand the general education knowledge of Marxism-Leninism and Ho Chi Minh's ideology, the revolutionary line of the Communist Party of Vietnam, the Party's policies and state laws, and national defense and security.	2
L3	Achieve level 3/6 of English proficiency according to the Vietnamese Framework of Reference for Languages; possess specialized English language skills.	3

PLO	Program learning outcomes standards (PLOs)	Capacity scale
L4	Applying data structure models and programming techniques to build computer software.	3
L5	Understand the fundamental principles of computer operating systems, computer networks, and programming platforms to develop software.	2
L6	Apply fundamental knowledge of databases and database management systems in software development.	3
L7	Apply specialized knowledge to analyze, design, and build management information systems, intelligent systems, data management and processing systems, multimedia data.	3
L8	Systematize programming skills for application development on various platforms: Windows, Web, Mobile; open source applications.	4
L9	Be able to apply knowledge of the operating principles of network devices, switches, routers, and communication media to design, configure, and manage network systems; Understand knowledge of network security and authentication protocols to ensure network and system security.	3
L10	Apply the knowledge learned to explore, research and discover new knowledge in the field of information technology.	3
L11	Apply the knowledge of machine learning and big data to create intelligent software products that meet the needs of the market.	3
L12	Awareness of the context of businesses and organizations to deploy appropriate information technology applications that fit with practical needs.	3
L13	Apply communication skills in presenting ideas, giving presentations, arguments, and working collaboratively to implement and deploy information technology systems.	3

3. The mapping matrix between courses and learning outcomes of the training program.

ID	course	PLO												
		L1	*L2*	*L3*	*L4*	*L5*	*L6*	*L7*	*L8*	*L9*	*L10*	*L11*	*L12*	*L13*
1.	English 1			x										
2.	Linear algebra	x												
3.	General law		x											

ID	course	PLO												
		L1	*L2*	*L3*	*L4*	*L5*	*L6*	*L7*	*L8*	*L9*	*L10*	*L11*	*L12*	*L13*
4.	General information					x					x			
5.	General Physics	x												
6.	English 2			x										
7.	Analytics	x												
8.	Ho Chi Minh Thought		x											
9.	English 3			x										
10.	The basic abilities of Marxism-Leninism 1		x											
11.	Probability statistics		x									x		
12.	English 4			x										
13.	The basic abilities of Marxism-Leninism 2		x											
14.	Revolutionary line of the Communist Party of Vietnam		x											
15.	Soft skills											x		x
Basic knowledge of information technology														
16.	Introduction to programming					x			x					
17.	Operating system					x								x
18.	Computer architecture					x					x			
19.	Advanced programming					x			x					
20.	Database						x	x						
21.	Object Oriented Programming					x		x						
22.	Discrete math				x				x					
23.	Data structures and				x				x					

ID	course	PLO												
		L1	*L2*	*L3*	*L4*	*L5*	*L6*	*L7*	*L8*	*L9*	*L10*	*L11*	*L12*	*L13*
	algorithms													
24.	Internet					x			x	x				
25.	System design analysis						x	x						
26.	Numerical methods				x			x						
27.	Dot NET Technology					x			x					x
28.	Software technology							x				x	x	
29.	Database management system						x	x				x		
30.	Java programming				x				x					
31.	Optional													
	ASP.NET Technology				x				x					
	Web Programming				x				x					
32.	Advanced computer network									x	x			
33.	Artificial intelligence							x				x		
Specialized knowledge block														
34.	Advanced Database Management System						x	x						
35.	Multimedia database							x				x		
36.	Distributed database							x				x		
37.	Expert system							x				x		
38.	Building information systems							x	x			x		
39.	Internet of Things									x	x			
40.	Data mining							x				x		
41.	Big data							x				x		

ID	course	PLO												
		L1	*L2*	*L3*	*L4*	*L5*	*L6*	*L7*	*L8*	*L9*	*L10*	*L11*	*L12*	*L13*
	analytics													
42.	Cloud computing									x	x			
43.	Neural networks and applications							x				x		
44.	Natural language processing							x				x		
Internship/Graduation Project														
Required module														
45.	Internship					**x**	**x**	**x**						
46.	Vocational internship							**x**	**x**	**x**	**x**			
47.	Graduation thesis										**x**	**x**	**x**	**X**

4. Training time

4.5 years, including 9 semesters.

5. The volume of knowledge of the course

- The volume of knowledge of the course: 140 credits (excluding Physical Education, National Defense modules).

- Structure of the training program:

No	Knowledge group	credits
1	**General knowledge**	**40**
1.1	Political Science: 10 credits	
1.2	Natural/social sciences, informatics: + Mandatory: 18 + Elective: 0	
1.3	Foreign Language: 12	
2	**Basic major knowledge** + Mandatory: 47 + Elective: 0	**47**
3	**Specialized knowledge** + Mandatory: 22 + Elective: 11	**33**

No	Knowledge group	credits
4	**Internship, Graduation Project**	**20**
	+ Mandatory: 20 + Elective: 0	
Total		**140**

6. Admission Criteria

According to the general regulations of the Ministry of Education and Training, Thai Nguyen University and the University of Information and Communication Technology.

7. Training process, graduation conditions

7.1. Training method

According to the credit system (specified by the Board of Education and Training).

7.2. Class organization

According to the current credit training regulations of the Department of Education and Training, Thai Nguyen University, University of Information and Communication Technology.

7.3. Graduation conditions

Applying university training regulations according to the credit system of the Ministry of Education and Training, Thai Nguyen University, University of Information and Communication Technology.

8. Point ladder

Evaluation according to the training scale according to the credit system, prescribed by the Board of Education and Training.

9. Career prospects

Job positions:

- Programmer, analysis, design, construction, system integrator at software companies.
- Consultants in building information systems, managing information systems or administering networks at agencies and enterprises.

Participating in teaching at Information Technology training schools, researchers at research institutes.

Job positions are available at:

- Software development companies and corporations

- Companies that provide integrated solutions.
- Companies providing solutions for network and network security.
- Management department, information technology department at companies, including companies operating in technology and other fields such as banking, healthcare, education, entertainment, etc.

10. Teaching, learning and assessment methods

- Approach and orientation of the training program:

- Taking learners as the center; Teachers are guides, providing students with references, theoretical bases and problem-solving thinking methods. Exploiting and using modern means to improve the quality of teaching and learning, vivid and intuitive teaching and learning.

- Learning and teaching in a positive, proactive way, associated with reality, high applicability.

Guide students to think logically and scientifically in building learning plans and solving problems.

Specify the blocks of knowledge that students need to master, including: General knowledge of math and natural sciences: Linear algebra, analysis, statistical probability.

- General knowledge of sectoral and major foundations: data structures and algorithms; Internet; computer architecture; operating system;

- Basic knowledge of network systems, about network security: Computer networks, Advanced computer networks, Cloud computing, Internet of things

- Basic and in-depth knowledge of Programming techniques and technologies: Java Programming, Dot NET Technology, ASP.NET Technology, Web Programming

- Basic and in-depth knowledge of databases, database management systems and building information systems: multimedia databases, distributed databases, database management systems, Advanced database management system, Building information system.

Basic and in-depth knowledge of big data and data processing: Expert systems, Data mining, Big data analysis, Natural language processing, Neural networks and applications

Linking partners, business cooperation to bring students closer to the reality of social needs; looking for many job opportunities to ensure output for students; at the same time as a basis to adjust and standardize the training program towards high quality, close to the actual needs of enterprises and society.

11. Description of the modules in the curriculum

No.	Course code	Course name	Credits	Description
1. General knowledge block				
1	ENG131	English 1	3	The course consists of 7 lessons with 7 basic grammar and vocabulary topics at the beginner level. Grammar topics in this module include: verb to be, article a, an, quantifier some, pronouns, countable and uncountable nouns, singular, plural, present simple, simple past, present continuous. These contents are associated with familiar vocabulary topics in daily life to help students have basic language knowledge and necessary vocabulary. In addition, students are trained to evenly develop the four skills of listening, speaking, reading and writing, especially basic communication skills. At the end of the module, students can communicate at a simple level with the vocabulary and grammar materials provided in this module.
C2	ENG132	English 2	3	The course consists of 7 lessons with 7 basic grammar and vocabulary topics at the beginner level. Grammar topics in this module include: present continuous, present perfect, near future, comparative level, article. These contents are associated with familiar vocabulary topics in daily life to help students have basic language knowledge and necessary vocabulary. In addition, students are trained to evenly develop the four skills of listening, speaking, reading and writing,

No.	Course code	Course name	Credits	Description
				especially basic communication skills. At the end of the module, students can communicate at a simple level with the vocabulary and grammar materials provided in this module.
3	ENG136	English 3	3	The course consists of 5 lessons with 5 basic grammar and vocabulary topics at intermediate level. Grammar topics in this module include: Present simple, simple past, present continuous, present perfect, past continuous, have to, can. These contents are associated with familiar vocabulary topics in daily life to help students have basic language knowledge and necessary vocabulary. In addition, students are trained to evenly develop the four skills of listening, speaking, reading and writing, especially basic communication skills. At the end of the module, students can communicate at a simple level with the vocabulary and grammar materials provided in this module.
4	ENG135	English 4	3	The course consists of 5 lessons with 5 basic grammar and vocabulary topics at the Pre-intermediate level. Grammar topics in this module include: comparative level, will, might, may, real conditional, some, any, passive voice, present perfect tense, near future tense. These contents are associated with familiar vocabulary topics in daily life to help students have basic language knowledge and necessary vocabulary. In addition, students are trained to evenly develop the four skills of listening, speaking, reading and writing, especially basic communication skills. At the end of the module, students can

No.	Course code	Course name	Credits	Description
				communicate at a simple level with the vocabulary and grammar materials provided in this module.
5	DST131	Linear algebra	3	Provides basic knowledge of linear algebra such as: Sets, maps and complex numbers, Matrix and determinant, System of linear equations, Vector space, Linear mapping and quadratic form
6	VCP131	The revolutionary line of the Vietnamese Communist Party	3	To provide students with the basic contents of the Revolutionary Line of the Communist Party of Vietnam, which mainly focuses on the Party's line in the renovation period on a number of basic areas of the restored social life. service for life and work
7	GTT141	Analytic	4	Provide basic knowledge of analysis such as: Functions and limits of functions of one variable, Differential Calculus of Functions of One Variable, Integral Calculus of Functions of One Variable, Series of Numbers and Series of Functions; Functions of many variables, partial derivatives, full differentials and extremes of functions of many variables
8	PML121	The basic abilities of Marxism-Leninism 1	2	Briefly introduce Marxism-Leninism and some general problems of the subject; Dialectical materialism; Dialectical materialism; Historical materialism
9	PML132	The basic abilities of Marxism-Leninism 2	3	the central content of the economic theory of Marxism-Leninism on the capitalist mode of production: Chapter I: Theory of value; Chapter II: Theory of Surplus Value; Chapter III: Economic theory of monopoly capitalism and state monopoly capitalism. The basic content of the theory of Marxism-Leninism on socialism; overview of real and prospective socialism; The historical mission of the

No.	Course code	Course name	Credits	Description
				working class and the socialist revolution; The socio-political issues of regularity in the process of socialist revolution; Realistic and prospective socialism
10	FOL121	Introduction to Law	2	Equip with basic and important contents about the state and law as well as mention some basic branches of law in Vietnam today
11	GIS131	General information	3	Equip students with the most basic knowledge in informatics. Create conditions for students to apply manipulation and proficient use of computers. Specific contents include: Windows operating system; Word editing system; Electronic spreadsheet Excel; Build Powerpoint presentations.
12	HCM121	Ho Chi Minh's Ideology	2	Provide systematic insights into Ho Chi Minh's ideology, morality and cultural values; Basic knowledge of Marxism-Leninism
13	VLD121	Physics	2	Equip with basic knowledge of General Physics of electricity and magnetism; understand physical phenomena in nature, practice calculation skills and solve basic physics problems
14	PRS221	Probability statistics	2	Equip students with knowledge about: Basic concepts of probability, Probability formulas and its applications, Random quantity and its probability distribution laws, Sample theory and the problem of parameter estimation, Statistical hypothesis testing.
15	SSK221	Soft skills	2	The course aims to equip students with the basic knowledge of soft skills. In addition to training students' communication ability, the course also forms and develops self-awareness skills, critical thinking skills, teamwork skills, presentation skills

No.	Course code	Course name	Credits	Description
				and job interviewing skills. . They can stand on their own to present clearly, effectively, accurately in technical work, in business work, in conferences, scientific seminars, etc., and activities. other society.
2. Basic knowledge of the major				
16	PIN231	Introduction to programming	3	Equip students with basic knowledge of programming. Facilitate students to get acquainted and use the C programming language. Specific content includes: Introduction to programming; C programming language; Data types in C; Commands in C.
17	OTS131	Operating system	2	Provide students with basic knowledge of the organization and operating principles of computer operating systems. Learn how to choose Windows and Linux operating systems for experimentation. The main contents include: - Operating system organization and operating principle: General organization of operating systems; Scheduler; Manage processes; Synchronize and share system resources - Windows operating system: Use system tool applications; Account management and Remote service; Manage applications, services, directories, system libraries, and devices; Network configuration and data sharing techniques; Maintain and upgrade operating system; Data backup and recovery techniques - Linux operating system: Organize data on the system; Manage user accounts; Manage and share system data; Techniques using the bash shell.
18	COA22	Computer	2	To provide students with the most basic

No.	Course code	Course name	Credits	Description
	1	architecture		knowledge about the architecture and functions of the basic components of a computer system, the organization of hardware and software, techniques for installing and optimizing computer operating systems. The main contents include: - Basic components of a computer system - Architecture and function of CPU internal components - Organize MainBoar - Organize memory in the computer - Technical hard disk partitioning according to FAT and NTFS standards - Maintain, fix and handle some common errors on computer systems.
19	ADP321	Advanced programming	2	Equip students with advanced knowledge about programming. Facilitate students to use C programming language fluently. Specific content includes: Dynamic data and pointers in C; Structured data types in C; File Type File in C; Graphics in C.
20	BAD131	Database	3	Relational databases, relational operations, relational data normalization, and data manipulation languages. Practice on SQL
21	OOP231	Object Oriented Programming	3	Equip students with basic knowledge of object-oriented programming. Facilitate students to use C++ programming language fluently in object-oriented programming. Specific contents include: Overview of object-oriented programming; Functions in C++; Class, constructor, destructor, derived, inheritance; File manipulation; Direct access to memory; Streams.
22	DEM231	Discrete math	3	The course equips with the methods of thinking, logical reasoning & proof of mathematics; basic knowledge of

No.	Course code	Course name	Credits	Description
				algorithms, algorithms, and discrete structures & processing techniques on those structures; algorithms, algorithm design techniques; advanced counting principles and techniques.
23	DAS231	Data structures and algorithms	3	Equip knowledge from general to in-depth knowledge of common data models (lists, stacks, queues, trees, graphs, sets, dictionaries, ...) as well as operations on each element of the model. On that basis, it is possible to apply the learned knowledge to programmatically solve problems using specific programming languages.
24	CON231	Computer network	3	Overview of computer network systems: network architecture, protocols, devices, technology
25	ASD232	System design analysis	3	The module provides learners with survey, analysis, design and installation of information management systems and at the same time trains students in object-oriented analysis and design skills based on UML language and tools. Rational Rose.
26	NUM321	Numerical methods	2	Equip students with knowledge about errors, approximation methods and algorithms of advanced mathematics applied in information technology.
27		**Optional**	3	
	ASP432	ASP.NET Technology		Equip students with basic knowledge of ASP.NET technology. Facilitate students to use C# programming language fluently in ASP.NET programming, Specific contents include: overview of .NET Framework, C# programming language, MVC architecture in ASP.NET, query data with ASP.NET
	LTW131	Web		The course provides students with basic

No.	Course code	Course name	Credits	Description
		Programming		and advanced knowledge of programming and Web application development, including knowledge of the basic PHP programming languages, PHP and MySQL databases, oriented programming. object with PHP as well as the MVC pattern in web application development…. Besides, students also practice confidence and creativity in learning and surveying, analyzing, researching and deploying web applications. At the end of the course, students can build small and medium-sized websites for individuals, organizations or businesses.
	CNA431	Advanced computer network	3	The Advanced Computer Networking module familiarizes students with more in-depth knowledge of computer networking, focusing on the application and transport layer protocols of the TCP/IP protocol suite or Application-> LLC Datalink (OSI) sublayer. Approaching the network system in an academic direction.
	SOE232	Software technology	3	Equip students with an overview of software engineering: fundamentals of software specification, development, evaluation, operation and maintenance processes, project management and organization principles sentence
	ARI231	Artificial intelligence	3	Provide students with machine learning techniques that are being widely used to develop intelligent systems today: Conceptual learning; Decision Trees, Neural Networks, Hypothesis Evaluation, Bayesian Learning, Case Based Learning, Support Vector Machines, Undirected Graph Models...
	DMS23	Database	3	This module provides basic knowledge

No.	Course code	Course name	Credits	Description
	1	management system		about MS SQL server database management system such as: presenting concepts, roles and functions; create a relational database and related objects in the relational database; query on the database; define and use Store Procedure, Function and Triger; create and manage users
	DOT331	Dot NET Technology	3	This module provides basic knowledge about C# programming language, develops object-oriented programming capabilities on the basis of .NET programming libraries, progress to building complete applications. Most of the course time is devoted to content about object-oriented programming, manipulating databases using the ADO.NET library, and building web applications using MVC architecture. The course also introduces some advanced technologies such as WPF, LINQ, Entity Framework...
	PJA241	Java programming	3	The module provides students with knowledge about object-oriented methods (OPP) and how to apply them to Java programming; Java language syntax and usage; creating objects and adding behaviors, working with collections, handling errors; tips for writing better code
3. Block of specialized knowledge				
28	LNC332	Advanced Database Management System	3	The course aims to provide students with knowledge about complex SQL commands, manipulation of large numbers of records (Transactions), complex procedures, and SQL objects such as Report, Full-Text. Guide students to know how to configure SQL SERVER, backup

No.	Course code	Course name	Credits	Description
				and restore data, manage SQL Server databases. - Create background knowledge for the subject: the process of building an information system.
29	MMD321	Multimedia database	2	The module provides students with an overview of multimedia databases, multidimensional data structures, indexing and retrieval techniques for image, text, audio, and video databases. and associated databases. Help students understand how to organize, store, and search today's multimedia systems.
30	DBD321	Distributed database	2	The module provides students with basic knowledge about distributed data, distributed database system design, querying on distributed database. The module also provides practical content to help students familiarize themselves with and use the distributed data management system Hadoop.
31	EXS331	Expert system	3	The module provides students with the core concepts and knowledge to build a software that simulates the effective problem solving of an expert. Provide knowledge about types of knowledge, ways of reasoning, ways of learning knowledge and algorithms to find solutions to problems to be solved. Students learn skills to analyze problems using knowledge to solve, choose an appropriate representation of knowledge, choose the corresponding reasoning method, and build an expert system for a specific field.
32	XDH341	Building information systems	3	The course provides students with the core concepts and knowledge of information systems software. Objectives, principles

No.	Course code	Course name	Credits	Description
				and methods of information survey at an enterprise or a non-business unit. Technical models analyze survey information to provide functions to meet system user needs (functional model, object-oriented model). Models for designing solutions and operating technology of the system; Data model; working interface. Method of selecting tools to install and test the system. Some aspects related to system safety. - Apply knowledge of programming languages, data structures to build system management applications.
33	IOF332	Internet of Things	2	The foundation for this connectivity is called the Internet of Things (IoT). This is a combination of many technologies including wireless sensor networks, Pervasive (Ubiquitous) systems, AmI (ambient intelligence, distributed and contextual systems). This course provides students with IoT concepts with a focus on platforms (applicable hardware and software platforms in IoT), M2M protocols (communication protocols that can be used in IoT). IoT applications: Zigbee, Bluetooth, IEEE 802.15.4, IEEE 802.15.6, IEEE 802.15.11) and data and information processing mechanisms.
34	DTM331	Data mining	3	The course aims to provide students with the basics of knowledge discovery, data mining and data mining methods, the main stages of data mining and discovery. Knowledge. The course also provides learners with data mining methods such as classification, clustering, association rules to build data mining applications.

No.	Course code	Course name	Credits	Description
35	DLL333	Big data analytics	3	The course introduces big data (Big Data) and current big data storage platforms, providing the concepts and structure of the HDFS (Hadoop Distributed File System) distributed data storage system. Through the module, students can understand the architecture and algorithms in big data processing in the Hadoop ecosystem - Ecosystem, through the module students can learn about the technologies used to store data. store and process distributed data in this ecosystem. In the last part of the module, students get acquainted with the R language for big data processing.
36	CCP431	Cloud computing	3	The course provides learners with some general knowledge about cloud computing, virtualization, and private cloud implementation skills based on an overview of computer networks and network device technology. Upon completion of the course, students are able to deploy cloud computing services, install private clouds, and develop basic cloud computing applications.
37	NNA331	Neural networks and applications	3	The Neural Network module aims to provide computer science students with basic knowledge about Neural Networks and some applications in Machine Learning, Identity Theory, Interpolation Theory, Parallel Computing. The course content focuses on the analysis of 1-layer and multi-layer Neural network design model analysis, Unsupervised and supervised learning principles, 1-layer and multi-layer network training algorithms, Regression networks, Neural network application to solve interpolation and identification problems, optimization

No.	Course code	Course name	Credits	Description
				problems,... Simulate algorithms in Matlab language.
38	NLP333	Natural language processing	2	The Natural Language Processing module belongs to the specialized knowledge block, in order to provide students with basic knowledge about natural language processing methods through computers such as word separation, word type analysis, and analysis. syntax analysis, semantic analysis, new research directions in natural language processing. It is the basic knowledge, which is the means by which students can understand and build practical applications in the topics of natural language processing.
6. Internship/Graduation Project				
39	BAP441	Internship	4	The basic internship is a prerequisite for students to transition from the fundamental courses to the specialized courses of their major. It is organized after the last semester of the fundamental courses. Completing this internship is a requirement for students to be eligible to study the subjects in the specialized courses.
40	TNN561	Vocational internship	6	Internship at a company is undertaken after completion of all specialized coursework according to each student's individual professional orientation.
41	GRA905	Graduation thesis	10	Synthesizing knowledge to carry out a complete research project based on a specific professional orientation can be done either at a company or at an educational institution
Total			**140**	

12. Output standards, training program framework and detailed course outline:

- Output standards of the Training Program:

(link: https://fit.ictu.edu.vn/wp-content/uploads/2023/04/a1.PLOs-of-SEP-version-2017.pdf).

- Detailed Training Program Framework:

(link: https://fit.ictu.edu.vn/wp-content/uploads/2023/04/c1.-Programme-specification-version-2017.pdf).

- Detailed course outline:

(link: https://fit.ictu.edu.vn/aun-information-technology/).

RECTOR	**HEAD OF IT FACULTY**
	
Ph.D Nguyen Van Tao	**Ph.D Nguyen Hai Minh**