DONG A UNIVERSITY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PROGRAM SPECIFICATION

ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY
LEVEL: UNDERGRADUATE

CODE: 7510301

DA NANG 2025

1. TRAINING PROGRAM DESCRIPTION

The curriculum for the Electrical and Electronic Engineering Technology major was officially implemented in 2009 and is reviewed annually or at least every two years. The 2025 curriculum is revised and supplemented based on the 2024 curriculum, applied to the 2025 enrollment cohort under the credit-based system. In addition to Physical Education and National Defense Education courses, the 2025 curriculum comprises 153 credits and is designed for a training period of 4.0 years. Depending on their abilities and learning conditions, students can extend their study time to a maximum of 8 years.

The Electrical and Electronic Engineering Technology program is developed in compliance with the regulations of the Ministry of Education and Training, in line with national learning outcomes, consistent with the vision, mission, and goals of the university, and meets societal needs. It is managed by the Faculty of Electrical and Electronic Engineering, Dong A University.

With a faculty holding master's degrees or higher and with modernized and upgraded facilities to better serve teaching and research, the aim is to train human resources in the fields of Electrical Engineering, Electronics, and Automation with high quality and competence; capable of applying and implementing technical solutions to meet societal demands; helping students build a solid career foundation and contribute to the development of society.

The Faculty of Electrical and Electronic Engineering at Dong A University will become one of the most reputable training, technology transfer, and applied research units in the field of Electrical, Electronic, and Automation Engineering at the national and Southeast Asian regional levels.

1.1 . General information about the training program

Table 1.1 General information about the training program

Name	Training program in Electrical and Electronic Engineering
Industry code	7510301
Level	University
Type of degree	Electrical and Electronic Engineering
Type of training	Regular
Time	4 years (The program is designed to be 4 years long; depending on ability and learning conditions, students can extend their study time to a maximum of 8 years)
Number of credits	It comprises 153 credits (excluding Physical Education and National Defense Education courses).
Department of Management	Faculty of Electrical and Electronic Engineering, Dong A University
Language	Vietnamese
team	https://dien.donga.edu.vn
Facebook	https://www.facebook.com/khoadien.donga
Promulgate	June 2025

1.2 . Objectives of the training program

1.2.1 General Objectives

Electrical and Electronic Engineering program trains students with good character, professional ethics, and health; possessing foundational and in-depth knowledge in the fields of domestic electricity, electronics, and industrial electricity ; independent thinking, research

capabilities, computer skills, foreign language skills, and international integration; and graduates capable of performing professional tasks related to the design, installation, and operation of electrical systems, switchboards, and electronic circuits in domestic and international businesses .

1.2.2. Specific Objectives

After graduating from the Electrical and Electronic Engineering Technology program at Dong A University, students will:

Table 1.2. Program Objectives

No.	Training program objectives
PEO1	Demonstrates a commitment to organizational culture and professional ethics, and a sense of responsibility to serve the community.
PEO2	Demonstrates the ability to be independent and take responsibility in professional activities.
PEO3	Applying fundamental and advanced knowledge in the field of Electrical and Electronics Engineering.
PEO4	Graduates possess professional competence in the fields of product development using electronic circuits and microcontrollers; building IoT products; and designing and installing distribution and control panel systems.
PEO5	Becoming a technical director in businesses related to electronics, industrial electrical engineering, or industrial manufacturing plants, with the potential to start your own business.

1.3. Training program learning outcomes (CDR)

Graduates in Electrical and Electronic Engineering Technology possess the following competencies:

Table 1.3. Program Learning Outcomes

CĐR (PLO)	Performance Indicator (PI)
PLO1. Demonstrates good conduct and a sense of responsibility; possesses the ability to learn independently, be self-reliant, and take responsibility for oneself.	PI 1.1. Implementing the Code of Conduct at Dong A University
	PI 1.2. Implementing the Culture of Responsibility at Dong A University
	PI 1.3. Capable of self-learning, self-reliance, and self-responsibility.
PLO 2. Demonstrate effective communication and teamwork; possess the ability to apply digital technology and use foreign languages.	PI 2.1. Capable of effective communication and presentation.
	PI 2.2. Ability to write articles relevant to the field of study.
	PI 2.3. Capable of teamwork and leadership.
	PI 2.4. Capable of applying digital technology.
	PI 2.5. Ability to use a foreign language in communication and professional work.
PLO 3. Capable of conducting scientific research in their specialized field.	PI 3.1. Identifying the research problem.
	PI 3.2. Solve the research problem posed.
PLO 4. Successfully developed a startup project.	PI 4.1. Market research and product/service idea design
	PI 4.2. Develop a startup project.
PLO5. Applying basic knowledge of social sciences, natural sciences, political theory, and law in practice.	PI 5.1. Applying basic knowledge of social sciences and political theory in practice.
	PI 5.2. Applying basic knowledge of natural sciences to solve practical problems.
	PI 5.3. Applying basic legal knowledge to solve legal problems in practice.
PLO6. Install, connect, and test electrical systems, switchboards, and electronic circuits according to technical and safety standards.	PI6.1: Install the power supply system for civil works and buildings according to the correct technical procedures.
	PI 6.2: Assembling and connecting distribution and control cabinets in industrial settings according to standards.
	PI 6.3. Assembly and testing of electronic circuits for consumer, industrial, and IoT applications.
PLO7. Operate, monitor, and maintain power supply systems, industrial equipment, and energy systems according to standard procedures.	PI 7.1. Operate and monitor the power supply system for civil works and complexes, ensuring safety and stability.
	PI 7.2. Operation of machinery, production lines, and automation systems in industry.
	PI 7.3. Operation of renewable energy systems (solar power, wind power, biomass, etc.).
PLO8. Programming, integration, and	PI 8.1. Programming control applications on common microcontroller families.

CĐR (PLO)	Performance Indicator (PI)
optimization of control systems using microcontrollers, embedded computers, and industrial automation equipment.	PI 8.2. Develop applications on computer, embedded computer, and mobile device platforms that meet high demands for speed, processing, and data collection.
	PI 8.3. Programming, configuring, and integrating PLCs, HMIs, inverters, and servos in industrial control systems.
PLO9. Design of electronic circuits, power supply systems, electrical cabinets, and automation applications to meet technical, safety, and efficiency requirements.	PI 9.1. Apply knowledge and design software to build schematic diagrams and printed circuit boards for consumer electronics, industrial electronics, and IoT products.
	PI 9.2. Design of power supply systems for civil engineering projects, distribution cabinets, control cabinets, and industrial automation systems, ensuring technical and safety standards.
	PI 9.3. Design of a remote control, monitoring, and data acquisition interface.
PLO10. Possesses the ability to think logically, analyze and synthesize information, and apply interdisciplinary knowledge to solve problems and develop technical systems.	PI 10.1. Apply interdisciplinary knowledge (electrical engineering, electronics, automation, IT) to analyze and propose solutions to technical problems.
	PI 10.2. Designing, improving, and developing new technical systems to meet practical requirements.

1.4. Job opportunities work and opportunities to pursue higher education.

1.4.1. Job Opportunities

Graduates in Electrical and Electronic Engineering Technology can take on the following positions:

- Operating and repairing industrial production machinery for companies and corporations.

- Corporations, companies, and contractors specializing in the design and construction of electrical systems, installation of production machinery systems, and provision of industrial electrical, control, and monitoring solutions for factories and enterprises.

- Operating electrical systems in high-rise buildings, large hotels, resorts, and complexes.

- Technical and sales staff (technical) in companies distributing electrical, electronic, industrial electrical, control, and automation equipment.

- Units involved in the production, transmission, and distribution of electricity.

- Consulting, design, and construction unit for power lines and substations.

- Unit specializing in designing, assembling, and repairing printed circuit boards; repairing industrial electronic equipment; and microcontroller programming.

- Consulting, design, equipment distribution, smart solution provider, IoT systems, camera systems, management systems, security systems, etc.

- Researchers, teachers, and lecturers at institutes, vocational schools, colleges, and universities.

- Starting a business

1.4.2. Opportunities for higher education: After graduating and working at a company, students can continue their studies at a higher level, such as master's or doctoral degrees, domestically or abroad, to meet their research and personal development needs.

1.6 Entry standards, training process, and favorable conditions. profession

1.6.1 Input Standards

Electrical and Electronic Engineering program admits students through four methods: admission based on National High School Examination scores; 12th-grade academic transcripts; direct admission according to the Ministry's regulations; and the results of the

National University of Ho Chi Minh City's competency assessment (from 2023) for high school graduates nationwide. The admission methods are as follows:

a. Based on the National High School Examination results: Total score of 3 subjects (A00 - Math, Physics, Chemistry; A01 - Math, Physics, English; D01 - Math, Literature, English; D90 - Math, English, Natural Sciences) + bonus points ≥ Minimum score as stipulated by the school.

b. Based on high school transcripts: Average GPA for the entire 12th grade year ≥ 6.0 c. Direct admission according to the Ministry's admission regulations d. Based on the National University of Ho Chi Minh City's competency assessment score >= 600 points According to the current regulations on admission to regular undergraduate and college programs of the Ministry of Education and Training and according to the separate admission plan of Dong A University approved by the Ministry of Education and Training.

1.6.2 Excavation process create

The Electrical and Electronic Engineering Technology program is designed according to a credit system, comprising 153 credits (excluding 11 credits for physical education and national defense education). The training process complies with regulation c1.6.3 of the Ministry of Education and Training (Based on Circular No. 08/2021/TT-BGDĐT dated March 18, 2021 of the Ministry of Education and Training on the promulgation of the Regulations on undergraduate training).

The training program is designed with a training duration of 4 years. Each academic year has two main semesters (starting from mid-August to the end of June). According to the designed roadmap, students study alternating courses in the general knowledge block (including 37 credits) and courses in the basic knowledge block of the major (9 credits), basic major (22 credits). Professional education knowledge is 116 credits with main major content: Electrical - Electronics (85) including Electronic Circuits (25 credits), Building IoT systems (22 credits) and Domestic and industrial electricity (18). The first semester of working in a business is arranged in Semester 4 (end of year 2) and the second semester of working in a business is in Semester 6 (end of year 3), Graduation internship and Graduation project are in Semester 8.

1.6.3 Conditions for evaluation and recognition of excellence profession

Table 1.9. Graduation Recognition Requirements

No.	Graduation requirements	Practical Training Credit hours required for students to complete
(1)	*(2)*	*(3)*
1	Up to the time of graduation, they must not be subject to criminal prosecution or currently under disciplinary action at the level of suspension from studies;	
2	Accumulate the required number of credits and complete the correct courses in the curriculum; The cumulative GPA for the entire course must be 2.00 or higher; Achieve the required learning outcomes (LOs) as stipulated by the training program.	The volume of training programs is shown in Table 1.1.
3	Achieve a level 3/6 foreign language proficiency certificate according to the Vietnamese Foreign Language Proficiency Framework or equivalent international certificates, or obtain a certificate in the foreign language proficiency assessment exam of the University of Da Nang.	38 Foreign Language Certificates
4	Achieved certification for advanced IT skills *(according to the Regulations on Information Technology Skills Standards in Circular No. 03/2014/TT-BTTTT dated March 11, 2014)*	
5	Possess a certificate in national defense and security education and have completed the physical education course.	3 credits for Physical Education, 8 credits for National Defense and Security Education

1.7 War summary, teaching methods

The teaching and learning activities designed for the Electrical and Electronic Engineering Technology program aim to ensure that learners develop not only knowledge but also skills, autonomy, and responsibility. A diverse range of teaching and learning strategies is employed to help learners achieve the program's learning outcomes in terms of knowledge, skills , autonomy, and responsibility. The teaching and learning strategies comprise eight main groups: direct instruction, activity-based instruction, art-based instruction, critical thinking skills instruction, interactive learning, research-oriented learning, technology-based learning, and self-learning.

The teaching strategy places the learner at the center and as the subject of the training process, encouraging learners to actively and diligently participate in learning activities, and effectively guiding them to achieve the learning outcomes of each module and component of the training program. This aims to help students not only acquire foundational professional and social knowledge but also to be able to use this knowledge to collaborate with others and develop their personal strengths and abilities. This, in turn , fosters personal skills such as communication, teamwork, and negotiation skills. The specific teaching strategies and methods used in the training program are as follows:

Table 1.10. Compatibility between curriculum learning outcomes and teaching methods.

No.	**Teaching strategies**	**Teaching activities**	**CĐR CTĐT (PLOs) (x)**									
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
1	Direct teaching strategy	1.1. Presentation		x	x	x	x	x		x	x	x
		1.2. Questions and Answers		x	x	x				x		
		1.3. Discussion		x	x	x		x		x		x
2	Activity-based teaching strategy	2.1. Games				x		x		x		
		2.2. Practice		x	x		x				x	
		2.3. Internships and practical experience		x	x		x					
		2.4. Debate and discussion		x	x		x	x		x	x	x
3	Art-based teaching strategy	Role-playing				x	x	x		x		x
4	Strategies for teaching thinking skills	4.1. Problem Solving	x			x	x	x	x	x	x	x
		4.2. Brain Stoming	x			x	x		x	x		
		4.3. Situational teaching	x	x	x			x	x	x		x
5	Interactive teaching strategies	5.1. Teamwork	x	x	x	x	x		x	x	x	
6	Research-oriented teaching strategy	Project	x	x	x		x	x	x	x	x	
7	Technology-based teaching strategies	Online learning				x		x	x	x		x
8	Self-learning strategies	Self-study	x	x	x	x	x	x	x	x	x	x

Student learning outcomes are assessed based on the learning outcomes of each course and each component of the training program. Student learning outcome assessment is the process of recording, preserving, and providing information about the learner's progress throughout the teaching and learning process. Assessment ensures clarity, accuracy, objectivity, differentiation, and is conducted regularly, continuously, and periodically . Specific assessment requirements and criteria are designed and published by the Faculty of Law to students before the start of the course.

Assessment information is provided and shared promptly with stakeholders including teachers, students, parents, and administrators. This allows for timely adjustments to teaching and learning activities, ensuring that teaching objectives are met and objectives are achieved.

The Electrical and Electronic Engineering Technology program employs a variety of assessment methods. Depending on the learning outcomes and teaching methods of each course, appropriate assessment methods are selected to ensure that sufficient information is provided to evaluate student progress and the effectiveness of the teaching and learning process.

The assessment methods applied in the Electrical and Electronic Engineering Technology program include:

Table 1.11. Assessment methods for achieving program learning outcomes.

No.	**Forms of testing and evaluation**	**Program learning outcomes (PLO) (x)**									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
(1)	*(2)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
1	The exam (consisting of multiple-choice and essay questions)	***x***	***x***	***x***	***x***	***x***	***x***	***x***	***x***		***x***
2	Online test							***x***	***x***		***x***
3	Station race										
4	Q&A	***x***	***x***	***x***	***x***	***x***	***x***	***x***	***x***		***x***
5	Report	***x***	***x***	***x***	***x***	***x***			***x***	***x***	***x***
6	Case study analysis and scenario-based question analysis					***x***		***x***		***x***	***x***
7	Essay	***x***	***x***	***x***	***x***	***x***		***x***	***x***		***x***
8	Article									***x***	
9	Reviewing documents					***x***		***x***	***x***		***x***
10	Present	***x***	***x***	***x***	***x***	***x***	***x***	***x***	***x***	***x***	***x***
11	Poster/Graphic	***x***	***x***	***x***	***x***	***x***			***x***	***x***	***x***
12	Portfolio (academic record)					***x***				***x***	***x***
13	Reflect						***x***	***x***			
14	Comments folder										

1.8 Computing System point

Students enrolled in the Electrical and Electronic Engineering Technology program are assessed according to a unified scoring system applied throughout Dong A University, as stipulated by the Ministry of Education and Training, specifically:

-A 10-point scale is used to evaluate the course, including component scores, final exam scores, and the course score. The course score is the sum of the component scores multiplied by their respective weights. application.

- Letter grades are used to classify learning outcomes based on academic scores. part.

semester GPA and cumulative GPA to assess students' academic performance. pill.

Table 1.12. Grading System of Dong A University

Classification		**10-point scale**	**Letter grade**	**4-point scale**
Obtain	Good	From 8.5 to 10	A	4.0
	Rather	From 7.0 to 8.4	B	3.0
	Medium	From 5.5 to 6.9	C	2.0
	Below average	From 4.0 to 5.5	D	1.0
Failed	Least	Less than 4.0	F	0

(Students with a final grade of D or higher in the course will achieve the learning outcomes for that course.)

2. CURRICULUM CONTENT

2.1. Curriculum structure

The curriculum is divided into three knowledge blocks (General Education, Vocational Education, Physical Education & National Defense), with the number of credits in each block as shown in Table 2.1:

Table 2.1. Course blocks and credit hours

No.	knowledge block	Number of credits			Note
		Total	**Obligatory**	**Self-selection**	
A	**General education** *(A1+A2+A3+A4+A5+A6+A7)*	**37**	**29**	**8**	
A1	Political theory	11	11		
A2	Skill	5	5		
A3	Social Sciences	7	2	5	2HP
A4	Global integration	3	0	3	1HP
A5	Information technology	3	3		
A6	Project Management & Entrepreneurship	5	5		
A7	Scientific Research	3	3		
B	**Professional education** *(B1+B2+B3+B4+B5+B6)*	**116**	**103**	**13**	
B1	**Sectoral foundation**	**9**	**6**	**3**	1HP
B2	**Industry base**	**22**	**20**	**2**	1HP
B3	**Major** *(B3.1+B3.2+B3.3+B3.4+B3.5)*	**85**	**77**	**8**	
B3.1	**Module 1:** Electronic Circuits	25	22	3	1HP
B3.2	**Module 2:** Building an IoT System	22	19	3	1HP
B3.3	**Module 3** : Domestic and Industrial Electricity	18	16	2	1HP
B3.4	**Optional module**	10	10		
B3.4.1	*Module 4.1: Automation*	*10*	*10*		
B3.4.2	*Module 4.2: Refrigeration*	*10*	*10*		
B3.5	**TTTN&ĐATN**	10	10		
C	**GRADUATION REQUIREMENTS** *(C1+C2)*	**49**	**49**		
C1	**Physical Education & National Defense**	**11**	**11**		
C1.1	***Physical education***	3	3		
C1.2	***National Defense and Security Education***	8	8		
C2	**Foreign Languages**	**38**	**38**		
C2.1	***English***	***38***	***38***		
	English proficiency level (level 3/6)	32	32		
	English essay writing	3	3		
	English for Specific Purposes (Department of Electrical and Electronics Engineering)	3	3		
C2.2	***Japanese***	***38***	***38***		
C2.3	***Chinese***	***38***	***38***		
C2.4	***Korean***	***38***	***38***		
D	**Minor (extended) courses *(outside the main curriculum)***	**15**	**15**		
Dog	***Minor 1:*** *Semiconductor Circuit Design*	*15*	*15*		
D2	***Minor 2:*** *Energy Management*	*15*	*15*		
	Total curriculum *(A+B)*	**153**	**132**	**21**	**8HP**

2.2 . List of courses part

Table 2.2. List of courses in the training program.

No.	Course Code	Course name	Number of credits			Number of hours, weeks, months								Pre requisites	HP pre-study
						Theory		Practice				Self-study	Total		
			Total	Theory	Practice	Theory	Topic	Internship	Practice		Project/ Proposal	Internship			
-1	*-2*	*-3*	*-4*	*-5*	*-6*	*7*	*-8*	*-9*	*-10*		*-11*	*-12*	*-13*	*-14*	*-15*	*-16*
		TOTAL COURSE SUMMARY														
A		**GENERAL EDUCATION (Excluding PHYSICAL EDUCATION & NATIONAL DEFENSE EDUCATION)** *(A1+A2+A3+A4+A5+A6+A7)*	**37**	**17**	**20**	**201**	**37**	**0**	**317**		**0**	**0**	**1295**	**1850**		
A1		**Political theory**	**11**	**6**	**5**	**57**	**19**	**0**	**89**		**0**	**0**	**385**	**550**		
1	PHIL3001	Marxist-Leninist philosophy;	3	2	1	12	3		15				70	100		
		Practice of Philosophy: Applying philosophy in building "organizational culture"				7	0		8				35	50		
2	PHIL2002	Marxist-Leninist political economy; *TH includes the following content: Protecting China's maritime territories, security, and environment… Self-study, Culture and Social Skills, University Learning Methods during the Joint Training Week.*	2	1	1	6	9		15				70	100		
3	PHIL2003	scientific socialism; *HP LSVM practices worldwide*	2	1	1	15	0		15				70	100		
4	PHIL2004	History of the Communist Party of Vietnam*	2	1	1	7	0		8				35	50		
		Trade Union Responsibilities: Implement 2 Trade Union Activities/Year				3			12				35	50		
5	PHIL2005	Ho Chi Minh Thought*	2	1	1	7	0		8				35	50		
		Practice learning and working according to the moral example of President Ho Chi Minh (Self-study of topics on Leadership, Time Management, Problem Solving)				0	7		8				35	50		
A2		**Skill**	**5**	**2.5**	**2.5**	**31**	**6**	**0**	**38**		**0**	**0**	**175**	**250**		
6	SKIL2003	Communication and presentation skills	2	1	1	12	3		15				70	100		
7	SKIL2005	KN writes for media.	2	1	1	12	3		15				70	100		
8	SKIL1013	KN is looking for a job.	1	0.5	0.5	7			8				35	50		
A3		**Natural Sciences & Social Sciences**	**7**	**3.5**	**3.5**	**49**	**3**	**0**	**53**		**0**	**0**	**245**	**350**		

9	GLAW2002	General Law	2	1	1	15			15				70	100		
10		**Option 0.1:** Sustainable Development (Choose 1 of 3 HP)	2.0	*1*	*1*	*12*	*3*		*15*				*70*	*100*		
10.1	*SKIL2019*	*Environmental issues and sustainable development*	2	1	1	12	3		15				70	100		
10.2	*SKIL2020*	*Sustainable economic development*	2	1	1	12	3		15				70	100		
10.3	*SKIL2021*	*Socially sustainable development*	2	1	1	12	3		15				70	100		
11		**Optional Course 0.2:** Mathematics (Choose 1 from 3 courses) *	3.0	1.5	1.5	22	0	0	23		0	0	105	15		
11.1	*MATH3001*	*Probability and Statistics*	3	1.5	1.5	22	0		23				105	150		
11.2	*MATH3005*	*Advanced Mathematics*	3	1.5	1.5	22	0		23				105	150		
A4		**Option 0.3: Global Integration (Choose 1 of 4 HP)**	**3**	**1**	**2**	**15**	**0**	**0**	**30**		**0.0**	**0**	**105**	**150**		
12.1		*Introduction to English Culture and Language*	3	1	2	15	0		30				105	150		
12.2		*Introduction to Chinese Culture and Language*	3	1	2	15	0		30				105	150		
12.3		*Introduction to Japanese Culture and Language*	3	1	2	15	0		30				105	150		
12.4		*Introduction to Korean Culture and Language*	3	1	2	15	0		30				105	150		
A5		**Information technology**	**3.0**	**1.0**	**2.0**	**14.0**	**0.0**	**0.0**	**31.0**		**0.0**	**0.0**	**105.0**	**150**		
13	INFO2001	Advanced Office IT Skills	2	0.5	1.5	7			23				70	100		
14	SKIL1004	Text editing skills	1	0.5	0.5	7			8				35	50		
A6		**Project Management & Skills Development***	**5.0**	**2.0**	**3.0**	**23.0**	**6.0**	**0.0**	**46.0**		**0.0**	**0.0**	**175.0**	**250.0**		
15	SKIL1012	Design Thinking & Problem Solving	1	0.5	0.5	7			8				35	50.0		
16	BUSM2036	Project Management	2	1	1	12	3		15				70	100.0		SKIL1012
17	SKIL1017	Selling on e-commerce platforms	1	0.5	0.5	4	3		8				35	50.0		
18	BUSM1037	Startup	1	0	1				15				35	50.0		BUSM2036
A7		**Scientific Research**	**3.0**	**1.0**	**2.0**	**12.0**	**3.0**	**0.0**	**30.0**		**0.0**	**0.0**	**105.0**	**150.0**		
19	SKIL3011	Research methodology	3	1	2	12	3		30				105	150.0		SKIL1012

Table 2.3 . List of Professional Education Courses

No.	Course Code	Course name	credits number			Number of hours, weeks, months								Pre requisites	Pre-registration required
						Theory		Practice (1786 hours)							
			Total	Theory	Practice	Theory	Topic	Internship	Practice		Project/ Proposal	Internship	Self-study	Total	
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*		*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*
B		**PROFESSIONAL EDUCATIONAL KNOWLEDGE** *(B1+B2+B3)*	**116**	**46**	**70**	**681**	**15**	**3**	**767**		**445**	**585**	**3109**	**5800**		
B1		**Sectoral foundation**	**9**	**5.5**	**3.5**	**83**	**0**	**0**	**52**		**0**	**0**	**315**	**450**		
1	PHYS3001	Physics	3	2	1	30			15				105	150		
2	EEET3051	Applied Mathematics	3	2	1	30			15				105	150		MATH3005
3		**Elective 1 (choose 1 out of 4 courses)**	***3***	***1.5***	***1.5***	***23***			***22***				***105***	***150***		
3.1	*MATH3000*	*Probability and Statistics*	*3*	*1.5*	*1.5*	*23*			*22*				*105*	*150*		
3.2	*INFO3019*	*Discrete Mathematics*	*3*	*1.5*	*1.5*	*23*			*22*				*105*	*150*		
3.3	*MATH3008*	*Calculation method*	*3*	*1.5*	*1.5*	*23*			*22*				*105*	*150*		
3.4	*MATH3009*	*Linear programming*	*3*	*1.5*	*1.5*	*23*			*22*				*105*	*150*		
B2		**Industry base**	**22**	**12**	**10**	**177**	**3**	**3**	**177**		**0**	**0**	**740**	**1100**		
4	EEET2001	Introduction to Electrical and Electronic Engineering Technology	1	0.5	0.5	3	3	3	6				35	50		
5	EEET3002	Electrical circuit theory	3	2	1	30			15				105	150		
6	EEET3003	Pulse-digital technique	3	2	1	30			15				105	150		
7	EEET3004	Measurement - Sensors	3	1.5	1.5	23			22				105	150		
8	EEET1012	Electrical Engineering Practice	1	0	1	0			30				20	50		
9	EEET3005	Electrical machines - Electrical equipment	3	1.5	1.5	*23*			*22*				*105*	*150*		
10	EEET1020	Practical training on electrical machines and equipment.	1	0	1	0			30				20	50		EEET3005
11	EEET3015	Electric drive	2	1.5	0.5	23			*7*				70	100		EEET3005
12	ACET3003	Automatic control theory	3	2	1	30			15				105	150		EEET3000
13		**Elective 2 (choose 1 out of 4 courses)**	**2**	**1**	**1**	**15**			**15**				**70**	**100**		
13.1	*EEET3010*	*AutoCAD in electrical engineering*	*2*	*1*	*1*	15			15				70	100		
13.2	*EEET2043*	*Revit MEP*	*2*	*1*	*1*	15			15				70	100		
13.3	*EEET2045*	*ETAP*	*2*	*1*	*1*	15			15				70	100		
13.4	*EEET2046*	*SolidWorks Electrical*	*2*	*1*	*1*	15			15				70	100		
B3		**Major** *(B3.1+B3.2+B3.3+B3.4+B3.5)*	**85**	**28.5**	**56.5**	**421**	**12**	**0**	**538**		**445**	**585**	**2054**	**4250**		

No.	Course Code	Course name	credits number			Number of hours, weeks, months									Pre requisites	Pre-registration required
						Theory		Practice (1786 hours)					Self-study	Total		
			Total	Theory	Practice	Theory	Topic	Internship	Practice		Project/ Proposal	Internship				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*		*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*
B3.1		**Module 1: Electronic Circuits**	**25**	**9.5**	**15.5**	**139**	**6**	**0**	**230**		**75**	**0**	**810**	**1250**		
14	EEET3014	Applied Electronics	3	1.5	1.5	23			22				105	150		
15	EEET1048	Practical exercises in electronics circuits.	1	0	1	0			30				20	50		EEET3014
16	EEET3044	Electronic circuit design	3	1	2	15			30				105	150		EEET3014
17	EEET3017	Power electronics	3	1.5	1.5	20	3		22				105	150		
18	EEET1021	**Project 1:** Electronic Circuit Project	1	0	1	0					45		5	50		
19	ACET3002	Programming techniques	3	1.5	1.5	23			22				105	150		
20	EEET3018	Microcontrollers	3	1.5	1.5	20	3		22				105	150		ACET3002
21	EEET1023	Microcontroller Practice	1	0	1	0			30				30	50		EEET3018
22	EEET3048	Peripheral device pairing control	3	1	2	15			30				105	150		EEET3018
23	EEET1019	**Project 2:** Project Microcontrollers	1	0	1						30		20	50		EEET3018
24		**Elective 3 (choose 1 out of 4 modules)**	***3***	***1.5***	***1.5***	**23**			**22**				**105**	**150**		
24.1	*EEET3046*	*IoT devices*	*3*	*1.5*	*1.5*	23			22				105	150		
24.2	*COEN3004*	*Network have a cold variable (SN)*	*3*	*1.5*	*1.5*	23			22				105	150		
24.3	*COEN3003*	*Structure ants electricity death, feeling variable and muscle structure accept onion*	*3*	*1.5*	*1.5*	23			22				105	150		
24.4	*ACET3010*	*Embedded programming*	*3*	*1.5*	*1.5*	23			22				105	150		
B3.2		**Module 2: Building an IoT System**	**22**	**8.5**	**13.5**	**129**	**0**	**0**	**126**		**30**	**180**	**512**	**1100**		
25	ACET2020	Database	2	1	1	15			15				70	100		
26	ACET3021	Python programming	3	1.5	1.5	23			22				105	150		
27	EEET3045	Web Programming	3	1.5	1.5	23			22				105	150		
28	ACET2019	Mobile application development	2	1	1	15			15				70	100		
29	EEET2040	Data transmission techniques	2	1	1	15			15				70	100		
30	ACET2027	IoT applications	2	1	1	15			15				70	100		EEET3018
31	ACET1033	**Project 3:** IoT Application Project	1	0	1						30		20	50		
32	EEET4001	Internship Semester at Enterprise 1 (**Project 6)**	4	0	4	0						180	2	200		
33		**Elective 4 (choose 1 out of 4 modules)**	**3**	**1.5**	**1.5**	**23**			**22**					**150**		
33.1	*EEET2041*	*Computer network*	*3*	1.5	1.5	23			22					150		
33.2	*EEET3050*	*Image processing*	*3*	1.5	1.5	23			22					150		
33.3	*ACET3026*	*Intelligent control*	*3*	1.5	1.5	23			22					150		
33.4	*ACET3004*	*Control system simulation modeling*	*3*	1.5	1.5	23			22					150		
B3.3		**Module 3: Domestic and Industrial Electricity**	**18**	**6**	**12**	**88**	**3**	**0**	**115**		**90**	**180**	**417**	**900**		

No.	Course Code	Course name	credits number			Number of hours, weeks, months									Pre requisites	Pre-registration required
						Theory		Practice (1786 hours)					Self-study	Total		
			Total	Theory	Practice	Theory	Topic	Internship	Practice		Project/ Proposal	Internship				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*		*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*
34	EEET3008	Power supply system	3	2	1	30			15				105	150		
35	EEET1009	**Project 5:** Power Supply System Project	1	0	1						45		5	50		EEET3008
36	EEET3009	Electrical and pneumatic equipment	3	1.5	1.5	23			22				105	150		
37	ACET3011	PLC	3	1.5	1.5	20	3		33				105	150		EEET3009
38	ACET1012	**Project 7:** Project PLC	1	0	1						45		5	50		ACET3011
39	ACET1016	PLC Practice	1	0	1	0			30				20	50		ACET3011
40	EEET5001	Work placement semester at a company 2 **(Project 9)**	4	0	4	0						180	2	200		
41		**Elective 5 (choose 1 out of 4 modules)**	**2**	**1**	**1**	***15***			***15***				***70***	***100***		
41.1	*EEET2007*	*Renewable energy*	*2*	*1*	*1*	*15*			*15*				*70*	*100*		
41.2	*EEET2046*	*Smart grid*	*2*	*1*	*1*	*15*			*15*				*70*	*100*		
41.3	*EEET2008*	*M&E system*	*2*	*1*	*1*	*15*			*15*				*70*	*100*		
41.4	*EEET2044*	*Lighting techniques*	*2*	*1*	*1*	*15*			*15*				*70*	*100*		
B3.4		**Optional Module (Choose 1 of 2 Modules)**	**10**	**4.5**	**5.5**	**65**	**3**	**0**	**67**		**0**	**0**	**265**	**500**		
B3.4.1		**Module 4.1: Automation**	**10**	**4.5**	**5.5**	**65**	**3**	**0**	**67**		**0**	**0**	**265**	**500**		
42.1	EEET2026	BMS system	2	1	1	15			15				70	100		
43.1	EEET2027	Designed using Eplan software.	2	1	1	15			15				70	100		
44.1	ACET3025	Industrial communication network	3	1.5	1.5	20	3		22				105	150		
45.1	ACET1025	**Project 8.1:** Industrial Communication Network Project	1	0	1									50		ACET3025
46.1	ACET2028	Industrial automation equipment	2	1	1	15			15				20	100		
B3.4.2		**Module 4.2: Refrigeration**	**10**	**4.5**	**5.5**	**68**	**0**	**0**	**67**		**45**	**0**	**320**	**500**		
42.2	EEET2042	Thermal Engineering	2	1	1	15			15				70	100		
43.2	EEET2006	Refrigeration and air conditioning technology	2	1	1	15			15				70	100		EEET2042
44.2	EEET3035	Industrial refrigeration systems	3	1	2	15			30				105	150		
45.2	EEET2047	Central air conditioning system	2	1.5	0.5	23			7				70	100		
46.2	EEET1036	**Project 8.2:** Central Air Conditioning System Project	1	0	1						45		5	50		EEET2047
B3.5		**TTTN&ĐATN** *(B3.5.1+B3.5.2)*	**10**	**0**	**10**						**250**	**225**	**50**	**500**		
B3.5.1		**Internship/Training Program (Semester 3)**														
47	EEET5003	Graduation internship	5	0	5							225	25	250		
B3.5.2		**Graduation Thesis**														
48	EEET5002	Graduation Project **(Project 10)**	5	0	5						250		25	250		EEET5003
		PROFESSIONAL EDUCATIONAL	**116**	**46**	**70**	**666**	**15**	**3**	**752**		**490**	**585**	**3094**	**5655**		

No.	Course Code	Course name	credits number			Number of hours, weeks, months									Pre requisites	Pre-registration required
						Theory		Practice (1786 hours)					Self-study	Total		
			Total	Theory	Practice	Theory	Topic	Internship	Practice		Project/ Proposal	Internship				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*		*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*
		KNOWLEDGE *(B1+B2+B3)*														
		GENERAL EDUCATION (Excluding Physical Education & National Defense Education) *(A1+A2+A3+A4+A5+A6+A7)*	**37**	**17**	**20**	**201**	**37**	**0**	**317**		**0**	**0**	**1295**	**1850**		
		TOTAL COURSE SUMMARY	**153**	**63**	**90**	**867**	**52**	**3**	**1069**		**490**	**585**	**4389**	**7505**		
D		**Elective** *(optional, outside of the curriculum)*														
Dog		**Minor 1 : Semiconductor Circuit Design**	**15**	**9**	**6**	**132**	**3**	**0**	**75**		**45**	**0**	**495**	**750**		
D1.1	AICT3014	Analog integrated circuit design	3	2	1	30			15				105	150		
D1.2	AICT3015	Digital integrated circuit design	3	2	1	30			15				105	150		
D1.3	AICT3016	IC design	3	2	1	30			15				105	150		
D1.4	AICT1005	IC Design Project	1	0	1	0					45		5	50		
D1.5	AICT3017	FPGA programming	3	2	1	27	3		15				105	150		
D1.6	AICT2027	IC testing	2	1	1	15			15				70	100		
		Minor 2: Energy Management	**15**	**9**	**6**	**132**	**3**	**0**	**75**		**45**	**0**	**495**	**750**		
D2.1	EEET2037	Energy saving	2	1	1	12	3		15				70	100		
D2.2	ACET3039	Modeling - macroscopic representation of energy	3	2	1	30			15				105	150		
D2.3	EEET3040	Solar power plant manufacturing technology	3	2	1	30			15				105	150		
D2.4	EEET3041	Wind power plant manufacturing technology	3	2	1	30			15				105	150		
D2.5	EEET3042	Technology for producing tidal power plants	3	2	1	30			15				105	150		
D2.6	EEET2038	Renewable Energy Power Plant Design Project	1	0	1						45		5	50		

Table 2.4. List of courses for graduation consideration (Not part of the curriculum)

No.	Curriculum framework structure	credits
C	**GRADUATION REQUIREMENTS** *(C1+C2)*	**49**
C1	**Physical Education & National Defense**	**11**
C1.1	***Physical education***	3
C1.2	***National Defense and Security Education***	8
C2	**Foreign Languages**	**38**
C2.1	***English***	***38***
	English proficiency level (level 3/6)	32
	English essay writing	3
	English for Specific Purposes (Department of Electrical and Electronics Engineering)	3
C2.2	***Japanese***	***38***
C2.3	***Chinese***	***38***
C2.4	***Korean***	***38***

2.2.2. List of courses by academic year and semester

Table 2.4. List of courses by academic year and semester.

Year	Semester	knowledge block	Course No.	Course name	credits	Note
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Year 1 (18 Courses) (36 credits)	**Semester 1 (9 Courses)**	**GDDC**			**8**	
			1.1.1	Political Economy TH: Week of Cooperation and Development	1	
			2.1.2	*Ho Chi Minh Thought:* Learning and working skills based on the moral example of President Ho Chi Minh.	1	
			3.1.3	Optional 0.2 (Advanced Mathematics)	3	
			4.1.4	Advanced Office IT Skills	2	
			5.1.5	Text editing skills	1	
		CMNN			**10**	
			6.1.6	Physics	3	
			7.1.7	Sensor measurement	3	
			8.1.8	Electrical circuit theory	3	
			9.1.9	Introduction to Electrical and Electronic Engineering	1	
		TOTAL			**18**	
		Graduation Requirements		Physical Education 1	(1)	
				English 1	(10)	
					(11)	
	Semester 2 (9 Courses)	**GDDC**			**8**	
			10.2.1	History of the Communist Party of Vietnam (Culture of Responsibility, Community)	1	
			11.2.2	Practical application of the Marxist-Leninist Philosophy (Organizational Culture)	1	
			12.2.3	Communication and presentation skills	2	
			13.2.4	KN writes for media.	2	
			14.2.5	General Law	2	
		CMNN			**10**	
			15.2.6	Digital pulse technique	3	
			16.2.7	Option 1 (Probability and Statistics)	3	
			17.2.8	Electrical machines – Electrical equipment	3	
			18.2.9	Electrical Engineering Practice	1	
		TOTAL			**18**	
		Graduation Requirements		Physical Education 2	(1)	
				English 2	(10)	
					(11)	
	Summer Semester 2			**National Defense Education**	**(8)**	
Year 2 (17 Courses) (40 credits)	**Semester 3 (7 Courses)**	**GDDC**			**0**	
		CMNN			**18**	
			19.3.1	Applied Mathematics	3	
			20.3.2	Automatic control theory	3	
			21.3.3	Practical Training in Electrical Machines and Equipment	1	
			22.3.4	Option 2 (AutoCAD in Electrical Engineering)	2	
			23.3.5	Power electronics	3	
			24.3.6	Power supply system	3	
			25.3.7	Applied Electronics	3	
		TOTAL			**18**	
		Graduation Requirements		Physical Education 2	(1)	
				English 2	(12)	
					(13)	
	Semester 4 (10 Courses)	**GDDC**			**6**	
			26.4.1	Sustainable Development (Option 0.1)	2	
			27.4.2	Job search skills	1	
			28.4.3	Global Integration (Option 0.3)	3	

Year	Semester	knowledge block	Course No.	Course name	credits	Note
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
					16	
		CMNN	29.4.4	Electronic circuit design	3	
			30.4.5	Power supply system project	1	
			31.4.6	Programming techniques	3	
			32.4.7	Electric drive	2	
			33.4.8	Electronics practice	1	
			34.4.9	Option 5 (Renewable Energy)	2	
			35.4.10	Work placement semester 1	4	
		TOTAL			**22**	
Year 3 (23 Courses) (44 credits)	**Semester 5(10 Courses)**	**GDDC**			**0**	
		CMNN			**3*+19**	
			36.5.1	Research methodology	3	
			37.5.2	Option 3 (IoT Devices)	3	
			38.5.3	Electronic Circuit Design Project	1	
			39.5.4	Electrical and pneumatic equipment	3	
			40.5.5	Microcontrollers	3	
			41.5.6	Microcontroller practice	1	
			42.5.7	Microcontroller Project	1	
			43.5.8	Peripheral device pairing control	3	
			44.5.9	Industrial automation equipment	2	
			45.5.10	Mobile application development	2	
		TOTAL			**22**	
	Semester 6 (13 Courses)	**GDDC**			**4+5***	
			46.6.1	Scientific and Technological Socialism	2	
			2.6.2	Ho Chi Minh Thought	1	
			10.6.3	Party History	1	
				Project Management & Skills (4 modules)	5 stars	
			47.6.4	*Design Thinking & Problem Solving*	*1*	
			48.6.5	*Project Management*	*2*	
			49.6.6	*Selling on e-commerce platforms*	*1*	
			50.6.7	*Startup (Project 4)*	*1*	
		CMNN			**13**	
			51.6.8	Database	2	
			52.6.9	Data transmission techniques	2	
			53.6.10	PLC	3	
			54.6.11	PLC Practice	1	
			55.5.12	PLC Project	1	
			56.6.13	Work placement semester 2	4	
		TOTAL			**22**	
Year 4 (13 Courses) (33 credits)	**Semester 7 (11 Courses)**				**3**	
		GDDC	11.7.1	Marxist-Leninist philosophy;	2	
			1.7.2	Marxist-Leninist political economy;	1	
		CMNN			**20**	
			57.7.3	Web Programming	3	
			58.7.4	Option 4 (Computer Networks)	3	
			59.7.5	IoT applications	2	
			60.7.6	IoT application project	1	
			61.7.7	Industrial automation equipment	2	
			62.7.8	Industrial communication network	3	
			63.7.9	Python programming	3	
			64.7.10	Designed using Eplan software.	2	
			65.7.11	Industrial Communication Network Project	1	
		TOTAL			**23**	
	Semester 8 (2 Courses)	**GDDC**			**0**	
		CMNN			**10**	
			66.8.1	Graduation internship	5	
			67.8.2	Graduation project	5	
		TOTAL			**10**	

Year	Semester	knowledge block	Course No.	Course name	credits	Note
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
					153	

- *Students who meet the foreign language proficiency requirements set by the Ministry of Education and Training and the University are exempt from studying. Students who have not met the proficiency requirements and register to study at the University's Foreign Language Center will follow the Center's study plan.*
- *Students start working at companies in their fourth year, so the courses are taught online.*

2.3. The response matrix between course modules and learning outcomes (LOs) of the training program. create

Table 2.5. Response matrix between modules and learning outcomes (LOs) of the training program. create.

TT	Code course	Course name	Number of credits				Program learning outcomes (PLOx/PIx.y)																											Level			
			Total	Th.	Pr.		1			2						3		4			5			6			7			8			9			10			I	R	M	A
							1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
A		**GENERAL EDUCATION**																																							
A1		**Political theory**	**11**																																						
1	PHIL 3001	Marxist-Leninist philosophy; *TH HP Philosophy: Building an "Organizational Culture"*	3			I	I	I												M, A																		3	0	1	1
2	PHIL 2002	Marxist-Leninist political economy; *TH includes the following content: Protecting China's maritime territories, security, and environment... Self-study, Culture & Utilities, University learning methods during the Joint Training Week.*	2			M, A	I	I					I	I							I																		4	0	1	1
3	PHIL 2003	Scientific socialism; *TH HP LSVM TG*	2				I	I													R																		2	1	0	0
4	PHIL 2004	History of the Communist Party of Vietnam* *TH LSĐ on Trade Union Responsibility*	2				M,A	M, A					I								R																		1	0	2	2
5	PHIL 2005	Ho Chi Minh Thought* *Practice learning and working according to the*	2				I	I					M, A			I	I				R																		4	1	1	1

TT	Code course	Course name	Number of credits				Program learning outcomes (PLOx/PIx.y)																												Level			
			Total	Th.	Pr.		1			2						3		4			5			6			7			8			9			10			I	R	M	A
							1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		moral example of President Ho Chi Minh (Self-study of topics on Leadership, Time Management, Problem Solving)																																						
A2		**Skill**	**5**																																					
6	SKIL 2003	Communication and presentation skills	2			I		I	M, A	I		R	I																									4	1	1	1
7	SKIL 2005	KN writes for media.	2					R			M ,A		I																									1	1	1	1
8	SKIL 1013	KN is looking for a job.	1					M, A	I																													1	0	1	1
A3		**Natural Sciences and Social Sciences**	**7**																																					
9	GLAW 2002	General Law	2					R													M, A	M A																0	1	1	1
10		Sustainable Development (choose 1 of 3 options)																																						
10.1	*SKIL2019*	*Environmental issues and sustainable development*	*2*				*R*	M, A	*I*	*R*																												*1*	*2*	*1*	*1*
10.2	*SKIL2020*	*Sustainable economic development*	*2*				*R*	M, A	*I*	*R*																												*1*	*2*	*1*	*1*
10.3	*SKIL2021*	*Socially sustainable development*	*2*				*R*	M, A	*I*	*R*																												*1*	*2*	*1*	*1*
11		***Mathematics** (Choose 1 of 2)*																																						
11.1	*MATH 3001*	*Probability and Statistics*	*3*																																			*0*	*0*	*0*	*0*
11.2	*MATH 3005*	*Advanced Mathematics*	*3*																																			*0*	*0*	*0*	*0*
A4		**Global integration** *(Choose 1 of 3)*																																						
12.1		Introduction to English	3						R																													0	2	0	0

TT	Code course	Course name	Number of credits			Program learning outcomes (PLOx/PIx.y)																												Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		Language and Literature																																						
12.2		Introduction to Chinese Culture and Language	3						R																												0	2	0	0
12.3		Introduction to Japanese Culture and Language	3						R																												0	2	0	0
12.4		Introduction to Korean Culture and Language	3						R																												0	2	0	0
A5		**Information technology**	**3**																																					
13	INFO 2001	Advanced Office IT Skills	2										M,A																								0	0	1	1
14	SKIL 1004	Text editing skills	1							M,A																											0	1	1	1
A6		**LDA&KN Module**	**5**																																					
15	SKIL 1012	Design Thinking & Problem Solving	1					R			I				M,A	R	I																				2	2	1	1
16	BUSM 2036	Project Management	2					R	R							R	M,A	**M,A**																			1	3	0	2
17	SKIL 1017	Selling on e-commerce platforms	1					R			M,A						R																				1	2	1	1
18	SKIL 1037	Startup	1					R				R			M	R	R	I																			1	4	2	1
A7		**Scientific Research**	**3**																																					
19	SKIL 3011	Research methodology	3					R	I			R			M	M,A																					1	2	2	1
B		**PROFESSIONAL EDUCATION** (B1+B2+B3)	**116**	**46**	**70**																																			
B1		**Sectoral foundation**	**9**	**5.5**	**3.5**																																			
20	PHYS 3001	Physics	3	2	1																											R	R	R				**0**	**3**	**0**	
21	EEET 3051	Applied Mathematics	3	2	1																		I	I	I							M	M	M				**3**	**0**	**3**	
22		**Choose 1**	**3**	**1.5**	**1.5**																		**I**	**I**	**I**							**R**	**R**	**R**				**3**	**3**	**0**	
22.1	MATH3000	Probability and Statistics	3	1.5	1.5																		*I*	*I*	*I*							*R*	*R*	*R*				*3*	*3*	*0*	

TT	Code course	Course name	Number of credits				Program learning outcomes (PLOx/PIx.y)																														Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
22.2	*INFO3019*	*Discrete Mathematics*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*							*R*	*R*	*R*				*3*	*3*	*0*	
22.3	*MATH 3008*	*Calculation method*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*							*R*	*R*	*R*				*3*	*3*	*0*	
22.4	*MATH 3009*	*Linear programming*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*							*R*	*R*	*R*				*3*	*3*	*0*	
B2		**Industry base**	**22**	**12**	**10**																																			
23	EEET 2001	Introduction to Electrical and Electronic Engineering Technology	1	0.5	0.5																		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	**15**	**0**	**0**	
24	EEET 3002	Electrical circuit theory	3	2	1																					I	I	I				I	I	I				**6**	**0**	**0**	
25	EEET 3003	Pulse-digital technique	3	2	1																		R	R	R							M	M	M				**0**	**3**	**3**	
26	EEET 3004	Measurement - Sensors	3	1.5	1.5																					R	R	R										**0**	**3**	**0**	
27	EEET 1012	Electrical Engineering Practice	1	0	1																					M, A	M	M										**0**	**0**	**3**	**1**
28	EEET 3005	Electrical machines - electrical equipment	3	1.5	1.5																					R	R	R										**0**	**3**	**0**	
29	EEET 1020	Practical training on electrical machines and equipment.	1	0	1																					R	R	R										**0**	**3**	**0**	
30	EEET 3015	Electric drive	2	1.5	0.5																					R	R	R				I	I	I				**3**	**3**	**0**	
31	ACET 3003	Automatic control theory	3	2	1																											M	M	M				**0**	**0**	**3**	
32		**Option 2**	***2***	***1***	***1***																		**R**	**R**	**R**	**R**	**R**	**R**										**0**	**6**	**0**	
32.1	*EEET 3010*	*AutoCAD in electrical engineering*	*2*	*1*	*1*																		R	R	R	R	R	R										*0*	*6*	*0*	
32.2	*EEET 2043*	*Revit MEP*	*2*	*1*	*1*																		R	R	R	R	R	R										*0*	*6*	*0*	
32.3	*EEET 2045*	*ETAP*	*2*	*1*	*1*																		R	R	R	R	R	R										*0*	*6*	*0*	
32.4	*EEET 2046*	*SolidWorks Electrical*	*2*	*1*	*1*																		R	R	R	R	R	R										*0*	*6*	*0*	
B3		**Major (** *B3.1+B3.2*	**85**	**28.5**	**56.5**																																			

TT	Code course	Course name	Number of credits				Program learning outcomes (PLOx/PIx.y)																												Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		+B3.3+B3.4+B3.5)																																						
B3.1		**Module 1: Electronic Circuits**	**25**	**9.5**	**15.5**																																			
3 3	EEET 3014	Applied Electronics	3	1.5	1.5																		I	I	I	M	M	M ,A							R	R	R	**3**	**3**	**3**	**1**
34	EEET 1048	Practical exercises in electronics circuits.	1	0	1																		I	I	I	M	M	M ,A							R	R	R	**3**	**3**	**3**	**1**
35	EEET 3044	Electronic circuit design	3	1	2																		M , A	M	M				I	I	I				R	R	R	**3**	**3**	**3**	**1**
36	EEET 3017	Power electronics	3	1.5	1.5																		R	R	R				R	R	R				R	R	R	**0**	**9**	**0**	
37	EEET 1021	**Project 1:** Electronic Circuit Project	1	0	1																		M , A	M	M				I	I	I				R	R	R	**3**	**3**	**3**	**1**
38	ACET 3002	Programming techniques	3	1.5	1.5																		R	R	R										I	I	I	**3**	**3**	**0**	
39	EEET 3018	Microcontrollers	3	1.5	1.5																		I	I	I							M , A	M	M	R	R	R	**3**	**3**	**2**	**1**
40	EEET 1023	Microcontroller practice	1	0	1																								R	R	R	M	M	M				**0**	**3**	**2**	
41	EEET 3048	Peripheral device pairing control	3	1	2																		R	R	R				R	R	R				M	M	M	**0**	**6**	**2**	
42	EEET 1019	**Project 2:** Project Microcontrollers	1	0	1																		M	M	M				R	R	R				I	I	I	**3**	**3**	**3**	
43		**Option 3**	***3***	***1.5***	***1.5***																		***I***	***I***	***I***				***I***	***I***	***I***				*R*	*R*	*R*	**6**	**3**	**0**	
43.1	*EEET 3046*	*IoT devices*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*				*I*	*I*	*I*				*R*	*R*	*R*	*6*	*3*	*0*	
43.2	*COEN 3004*	*Network have a cold variable (SN)*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*				*I*	*I*	*I*				*R*	*R*	*R*	*6*	*3*	*0*	
43.3	*COEN 3003*	*Structure ants electricity death, feeling variable and CCCH*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*				*I*	*I*	*I*				*R*	*R*	*R*	*6*	*3*	*0*	
43.4	*ACET 3010*	*Embedded programming*	*3*	*1.5*	*1.5*																		*I*	*I*	*I*				*I*	*I*	*I*				*R*	*R*	*R*	*6*	*3*	*0*	
B3.2		**Module 2: Building an IoT System**	**22**	**8.5**	**13.5**																																			

TT	Code course	Course name	Number of credits				Program learning outcomes (PLOx/PIx.y)																													Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
44	ACET 2020	Database	2	1	1																													M	M	M	**0**	**0**	**3**	
45	ACET 3021	Python programming	3	1.5	1.5																		R	R	R							M	M ,A	M	R	R	R	**0**	**6**	**3**	**1**
46	EEET 3045	Web Programming	3	1.5	1.5																													M	M , A	M	**0**	**0**	**3**	**1**
47	ACET 2019	Mobile application development	2	1	1																													M	M , A	M	**0**	**0**	**3**	**1**
48	EEET 2039	Data transmission techniques	2	1	1																													R	R	**R**	**0**	**3**	**0**	
49	ACET 2027	IoT applications	2	1	1																		R	R	R				I	I	I				M , A	M	M	**3**	**3**	**3**	**1**
50	ACET 1033	**Project 3:** IoT Application Project	1	0	1																		R	R	R				I	I	I				M , A	M	M	**3**	**3**	**3**	**1**
51	EEET 4001	Internship Semester at Enterprise 1 (**Project 6)**	4	0	4																		I	I	I	R	R	R	M ,A	M	M							**3**	**3**	**3**	**1**
52		**Option 4**	**3**	1.5	1.5																													**R**	**R**	**R**	**0**	**3**	**0**	
52.1	*EEET 2041*	*Computer network*	*3*	*0.5*	*2.5*																													R	R	R	*0*	*3*	*0*	
52.2	*EEET 3050*	*Image processing*	*3*	*1.5*	*1.5*																													R	R	R	*0*	*3*	*0*	
52.3	*ACET 3026*	*Intelligent control*	*3*	*1.5*	*1.5*																													R	R	R	*0*	*3*	*0*	
52.4	*ACET 3004*	*Modeling and simulating control systems.*	*3*	*1.5*	*1.5*																													R	R	R	*0*	*3*	*0*	
B3.3		**Module 3: Domestic and Industrial Electricity**	**18**	**6**	**12**																																			
53	EEET 3008	Power supply system	3	2	1																		M	M ,A	M	R	R	R	I	I	I							**3**	**3**	**3**	**1**
54	EEET 1009	**Project 5:** Power Supply System Project	1	0	1																		M	M ,A	M	R	R	R	I	I	I							**3**	**3**	**3**	**1**
55	EEET 3009	Electrical and pneumatic equipment	3	1.5	1.5																		I	I	I	M	M ,A	M	R	R	R							**3**	**3**	**3**	**2**
56	ACET 3011	PLC	3	1.5	1.5																					R	R	R				M	M	M	I	I	I	**3**	**3**	**3**	**1**

TT	Code course	Course name	Number of credits			Program learning outcomes (PLOx/PIx.y)																														Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	*1.2*	*1.3*	*2.1*	*2.2*	*2.3*	*2.4*	*2.5*		*3.1*	*3.2*	*4.1*	*4.2*		*5.1*	*5.2*	*5.3*	*6.1*	*6.2*	*6.3*	*7.1*	*7.2*	*7.3*	*8.1*	*8.2*	*8.3*	*9.1*	*9.2*	*9.3*	*10.1*	*10.2*	*10.3*				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*	*(18)*	*(19)*		*(20)*	*(21)*	*(22)*	*(23)*	*(24)*	*(25)*	*(26)*	*(27)*	*(28)*	*(29)*	*(30)*	*(31)*	*(32)*	*(33)*	*(34)*	*(35)*	*(36)*	*(37)*	*(38)*	*(39)*	*(40)*	*41)*
																																,A								
57	ACET 1016	PLC Practice	1	0	1																		R	R	R	M	M	M	I	I	I							**3**	**3**	**3**	
58	ACET 1012	**Project 7:** Project PLC	1	0	1																		R	R	R	M	M	M	I	I	I							**3**	**3**	**3**	
59	EEET 5001	Work placement semester at a company 2 **(Project 9)**	4	0	4																					R	R	R	M	M ,A	M				I	I	I	**3**	**3**	**3**	**1**
60		**Elective 5 (choose 1 out of 4 modules)**	**2**	**1**	**1**																					I	I	I										**3**	**0**	**0**	
60.1	*EEET 2007*	*Renewable energy*	*2*	*1*	*1*																					I	I	I										*3*	*0*	*0*	
60.2	*EEET 2046*	*Smart grid*	*2*	*1*	*1*																					I	I	I										*3*	*0*	*0*	
60.3	*EEET 2008*	*M&E system*	*2*	*1*	*1*																					I	I	I										*3*	*0*	*0*	
60.4	*EEET 2044*	*Lighting techniques*	*2*	*1*	*1*																					I	I	I										*3*	*0*	*0*	
B3.4		**Optional module**	**10**	**4.5**	**5.5**																																			
B3.4.1		**Module 4.1: Automation**	**10**	**4.5**	**5.5**																																			
61.1	EEET 2026	BMS system	2	1	1																											R	R	R	I	I	I	**3**	**3**	**0**	
62.1	EEET 2027	Designed using Eplan software.	2	1	1																		M	M	M ,A	R	R	R	I	I	I							**3**	**3**	**3**	**1**
63.1	ACET 3025	Industrial communication network	3	1.5	1.5																											R	R	R	M	M	M ,A	**0**	**3**	**3**	**1**
64.1	ACET 1025	**Project 8.1:** Network Project	1	0	1																											R	R	R	M	M	M ,A	**0**	**3**	**3**	**1**
65.1	ACET 2028	Industrial automation equipment	2	1	1																					M	M ,A	M							R	R	R	**0**	**3**	**3**	**1**
B3.4.2		**Module 4.2: Refrigeration**	**10**	**4.5**	**5.5**																																			
61.2	EEET 2042	Thermal Engineering	2	1	1																		I	I	I													**3**	**0**	**0**	
62.2	EEET 2006	Refrigeration and air conditioning technology	2	1	1																					R	R	R	R	R	R							**0**	**6**	**0**	

TT	Code course	Course name	Number of credits			Program learning outcomes (PLOx/PIx.y)																														Level			
			Total	Th.	Pr.	1			2						3		4			5			6			7			8			9			10			I	R	M	A
						1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5		3.1	3.2	4.1	4.2		5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
63.2	EEET 3035	Industrial refrigeration systems	3	1	2																					R	R	R	R	R	R							**0**	**6**	**0**	
64.2	EEET 2047	Central air conditioning system	2	1.5	0.5																		*R*	*R*	*R*				*R*	*R*	*R*					*R*		**0**	**7**	**0**	
65.2	EEET 1036	**Project 8.2:** Information Management System Project	1	0	1																		*R*	*R*	*R*				*R*	*R*	*R*					*R*		**0**	**7**	**0**	
B3.5		**TTTN&ĐATN** *(B3.5.1+B3.5.2)*	**10**	**0**	**10**																																			
B3.5.1		**Internship/Training Program (Semester 3)**																																						
66	EEET 5003	Graduation internship	5	0	5																		I	I	I	R	R	R	M	M	M, A	I	I	I	I	I	I	**9**	**3**	**3**	**1**
B3.5.2		**Graduation Thesis**																																						
67	EEET 5002	Graduation Project **(Project 10)**	5	0	5																		R	R	R	R	R	R	I	I	I	R	R	R	M	M	M				
Total		I				2	4	5	2	1	1	2	2		1	1	1	1		1	0	0	*15*	*15*	*15*	*3*	*3*	*3*	*16*	*16*	*16*	*4*	*4*	*4*	*7*	*7*	*7*				
		R				0	1	7	2	1	0	3	0		0	3	2	0		3	0	0	*13*	*13*	*13*	*15*	*15*	*15*	*9*	*9*	*9*	*6*	*6*	*6*	*15*	*17*	*15*				
		M				1	1	2	1	1	2	1	1		3	1	0	0		1	1	1	*6*	*6*	*6*	*7*	*7*	*7*	*3*	*3*	*3*	*5*	*7*	*7*	*9*	*8*	*9*				
		A				1	1	2	1	1	2	1	1		1	1	1	1		1	1	1	*2*	*2*	*1*	*1*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*				

I: Introduction: HP supports achieving PLO at the introductory level.

R: Reinforced/Opportunity to practice: These are modules that support achieving advanced PLO (Primary Learning Objectives). Learners have many opportunities to practice, experiment, etc.

M: Mastery of exit level: These are modules that support learners in achieving proficiency at the PLO level.

A: Assessment: These are the processes that collect data to evaluate learning outcomes.

2.4. Course descriptions

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
A	**GENERAL EDUCATION**		**37**	
A1		**Political theory**	**11**	
1	PHIL3001	Marxist-Leninist philosophy;	2	1. Present the fundamental issues of Philosophy and the formation and development of philosophical schools; the origin and development of Marxist-Leninist philosophy; the role of Marxist-Leninist philosophy in social life and in the current reform process in Vietnam. 2. Explain the Marxist-Leninist philosophical views on the nature, origin, and most general laws of motion and development of nature, society, and thought. 3. Apply the fundamental principles, categories, and laws of Marxist-Leninist philosophy to explain the basic problems of cognitive and practical activity.
		Practical application of Philosophy: Applying philosophy in building "Organizational culture"	1	1. Explain the concepts of culture and ethics in organizations and businesses. 2. Recognize how culture and ethics are manifested daily in all aspects of social life, communities, and organizations. 3. Apply the steps for building corporate culture and ethics that have been learned from successful businesses. 4. Implement the Dong A University culture in the school, family, and society.
2	PHIL2002	Marxist-Leninist political economy;	2	1. Present the knowledge content related to the formation and development process, subject matter, research methods and functions of the market economy; commodity production, markets; surplus value, competition, and monopolies in a market economy. 2. Explain the socialist-oriented market economy model and apply this knowledge to harmonize the relationships of interests in development in Vietnam. 3. Analyze the impact of the industrial revolutions and international economic integration on Vietnam's development. 4. Develop collaborative skills, creative thinking, presentation skills, etc. Contribute to building students' Marxist-Leninist ideological stance and consciousness. Foster a sense of responsibility, activeness, and proactiveness in learning and in addressing issues related to Vietnam's development process.
		Topics covered include: *Protecting Vietnam's maritime territories and islands, security, and the environment. Self-study, culture and usage, and university learning methods will be taught during the orientation week.*		1. Present information on maritime and island security and safety, as well as transportation. 2. Apply university-level learning methods to develop a study plan. 3. Proficiently use online learning tools and the Canvas system in your studies. 4. Present the East Asian University Culture Framework (Culture of Conduct, Culture of Responsibility, Culture of Filial Piety, Self-Learning) and plan its implementation over the four years of university. 5. Apply training regulations and student rules during the learning and training process. 6. Applying 5S Kaizen in learning and life.
3	PHIL2003	scientific socialism	2	1. Present the most basic and core knowledge of scientific socialism. 2. Explain the concepts, categories, principles, and laws of the subject of socialism and the path to socialism in Vietnam. 3. Apply the knowledge gained from this course to evaluate fundamental issues concerning socialism and the path to socialism in Vietnam. 4. Develop collaborative skills, creative thinking, presentation skills, etc.; establish a school and instill Marxist-Leninist ideology in students.
		HP LSVM practices worldwide		1. Describe the shifts in the status of each civilization and the interaction, adaptation, and learning between civilizations around the world. 2. Compare the civilizations of humankind that emerged in ancient, medieval, modern, and contemporary times, from their conditions of origin to their main

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
				achievements. 3. Applying knowledge of the interaction, adaptation, and learning between civilizations around the world.
4	PHIL2004	History of the Communist Party of Vietnam	2	1. Present and analyze the fundamental issues concerning the history of the Communist Party of Vietnam as the subject that formulated the revolutionary path of Vietnam. 2. Analyze the Party's policies and leadership guidelines throughout the periods of the national, democratic, and socialist revolutions. 3. Apply knowledge of Party history to distinguish between misconceptions about the Party's history in real life.
		TH LSĐ on Trade Union Responsibility		Activities that earn points for HP LSĐ: Implement 6 community activities in 3 groups. Group 1: Family responsibilities, filial piety, Group 2: Social responsibility (Environmental protection, blood donation, etc.) Group 3: Community activities related to the 17 Sustainable Development Goals
5	PHIL2005	Ho Chi Minh Thought*	2	1. Present the concept, subject matter, research methods, and significance of studying Ho Chi Minh's ideology. 2. Summarize the basis, formation process, and development of Ho Chi Minh's thought. 3. Explain Ho Chi Minh's thoughts on the Communist Party of Vietnam and the state of the people, by the people, and for the people; on national unity and international solidarity; and on culture, ethics, and human beings. 4. Apply the fundamental principles of Ho Chi Minh's thought on culture, ethics, and humanity to analyze current cultural, ethical, economic, political, and social issues.
		Practice learning and working according to the moral example of President Ho Chi Minh (Self-study of topics *on Leadership, Time Management, Problem Solving)*		"Develop 4 thematic modules: Invite speakers to give 2-in-1 thematic presentations and create a canvas for students to self-study." *1. Apply LVN in work and study,* *2. Applying Leadership Skills in LVN,* *3. Apply time management skills to plan your studies.* *4. Identify and solve problems (≥2 problems)*
A2		**Skill**	**5**	
6	SKIL2003	Communication and presentation skills	2	1. Apply the 7 principles, techniques, and strategies of verbal and nonverbal communication effectively in 4 groups of situations. 2. Choosing the appropriate way to handle a conflict that arises in communication. 3. Design a presentation script that aligns with your personal goals and the audience's needs. 4. Be able to effectively deliver presentations *to* an audience.
7	SKIL2005	Skill writes for media.	2	1. Write 10 informational articles about your Department/Faculty/School and post them on social media. 2. Design and film two introductory clips about the Department/Faculty/School to post on Facebook and TikTok. Organization: Implement all 10 TT Products according to the Semester: Semester 1: 1 lecture in the first week of classes; 1 group assignment on the meaning of success; Semester 2: 1 essay about clubs, 1 essay about careers and fields of study; Semester 3: 1 essay about HMND (Humanitarian and Social Activities); 1 essay about volunteering; Semester 4: 1 essay about filial piety; Semester 5: 1 essay about November 20th; Semester 6: 1 essay about the National Day; Semester 7: 1 essay about working at a company;
8	SKIL1018	Skill is looking for a job.	1	1. Create a resume for job applications. 2. Build your personal portfolio. 3. Successfully interviewed with companies at the job fair. (Organizations: 1 theoretical session in Year 1, 1 session listening to business presentations in Year 2; Years 3 and 4: participate in 2 business interviews, 2 Vietnam-Japan Job Fairs or other international job fairs organized by the University, successful interviews with businesses at the Job Fair). * Teacher evaluation is based on the job placement results of students during

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
				interviews. If all students in the class successfully secure job interviews with companies before graduation, they will receive a triple bonus.
A4		**Natural Sciences and Social Sciences**	**7**	
9	GLAW2002	General Law	2	1. Apply legal knowledge to practice in order to exercise the basic rights and obligations of citizens. 2. Resolve basic conflicts, disputes, and situations in life based on legal provisions. 3. Able to apply basic legal knowledge to explain legal regulations and provide advice on fundamental legal issues. 4. Cultivate a sense of living and working in accordance with the Constitution and laws, a spirit of responsibility, honesty, and respect for the rules and regulations of one's place of residence, study, and work.
10		**Choose your own option 0.1**	**2**	***Sustainable Development (choose 1 of 3 options)***
10.1	*SKIL2019*	*Environmental issues and sustainable development*	*2*	*1. Describe the basic environmental goals, environmental pollution, and sustainable development goals.* *2. Explain the relationship between economic development and environmental issues.* *3. Explain the importance of the SDGs in building a sustainable future.* *4. Implement a local sustainable development project that relates to at least one of the 17 Sustainable Development Goals.*
10.2	*SKIL2020*	*Economic sustainability (2TC)*	*2*	*1. Describe macroeconomic issues: Green growth, fiscal policy, monetary policy, investment, employment... and their impact on sustainable development;* *2. Present economic issues in the following fields: sustainable agriculture, sustainable tourism, clean/renewable energy, sustainable production and consumption;* *3. Implement a local sustainable development project in the areas of sustainable economy; sustainable businesses; and sustainable household livelihoods.*
10.3	*SKIL2021*	*Socially sustainable development (2TC)*	*2*	*1. Describe the issues related to population, labor, employment, unemployment, poverty, social security, inequality, and vulnerable groups in relation to sustainable development.* *2. Present the issues of culture, ethnicity, beliefs, religion, and ethnic minorities in relation to sustainable development;* *3. Analyze the social responsibility of social organizations and businesses towards sustainable development;* *4. Implement a local sustainable development project related to social issues.*
11		**Choose your own option 0.2**	**3**	
11.1	*MATH3001*	*Probability and Statistics*	*3*	*1. Differentiate between the basic concepts of probability and statistics.* *2. Applying probability and probability distribution laws to solve problems.* *3. Apply statistical knowledge to calculate and solve problems in estimation and hypothesis testing.*
11.2	*MATH3004*	*Economic mathematics*	*3*	*1. Develop mathematical models for real-world problems such as production problems, investment problems, and transportation problems.* *2. The simplex method can be applied to solve a class of linear programming problems.* *3. Perform calculations for the dual problem, find the optimal solution to the original problem through the dual problem, and vice versa.* *4. Solve balanced transport problems with minimum and maximum objective functions.*
11.3	*MATH3005*	*Advanced Mathematics*	*3*	*1. Solve problems in the field of algebra: matrix operations, determinants, inverse matrices, matrix equations, systems of linear equations.* *2. Solve problems in the field of calculus: derivatives, antiderivatives, integrals, first-order differential equations, second-order differential equations.* *3. Identify problem-solving methods and apply them to solve real-world application problems.*
A4		**Choose your own option 0.3**	**3**	***Global integration (Choose 1 of 3)***
12.1		*Introduction to English Language and Literature*	*3*	1. Coordinate with the English/Chinese/Japanese/Korean Language Departments to develop and teach elective course syllabi for students: Introduction to English/Chinese/Japanese/Korean Literature (1 credit) 2. Introduction to English/Chinese/Japanese/Korean Language (2TC)
12.2		*Introduction to Chinese Culture and*	*3*	

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
		Language		
12.3		*Introduction to Japanese Culture and Language*	*3*	
12.4		*Introduction to Korean Culture and Language*	*3*	
A5		**Information technology**	**3**	
13	INFO2001	Advanced Office IT Skills	2	1. Use advanced features such as formatting text types, page breaks, creating a table of contents, creating captions, mail merge, and creating notes in MS Word to edit documents. 2. Use advanced functions in Ms Excel to handle complex spreadsheets. 3. Create presentation slides using advanced features such as slide master, animation, page transition effects, charts, 3D models, and triggers in Microsoft PowerPoint. 4. Organize data using MS Excel, perform functions to analyze and extract data into statistical charts. 5. Connect to and access data into applications as required by the job. 6. Able to use Google Forms, Google Classroom, and Cava for learning and work management. 7. Able to use artificial intelligence tools to support learning and work.
14	SKIL1004	Text editing skills	1	1. Classify the system of state administrative documents. 2. Apply the legal regulations on the format and technical presentation of administrative documents according to current regulations. 3. Able to draft common administrative documents such as: Plans, Minutes, Reports, Notices, Submissions, Invitations, Individual Decisions, Official Letters, etc.
A6		**Project Management & Skills**	**5**	
15	SKIL1012	Design Thinking & Problem Solving	1	1. Explain the five steps of Design Thinking and how to apply them in practice. 2. Identify the problem using the 5W1H method (what, why, when, where, who, how) and apply this method to solve the problem. 3. Use design tools and techniques to generate creative and groundbreaking ideas. 4. Conduct market research to gather information about customer needs, wants, and feedback. 5. Present your ideas effectively, persuasively, and professionally.
16	BUSM2036	Project Management	2	1. Explain the basic activities of the project; the project lifecycle and the management methods for each phase; analyze the factors affecting the success and risks of the project. 2. Be able to explain the law on bidding and activities related to bidding. 3. Analyze and develop a self-managed project management model. 4. Applying project management processes to develop a management concept for a startup project.
17	SKIL1017	Selling on e-commerce platforms	1	1. Identify current marketing tools and popular tools used in e-commerce sales. 2. Ability to utilize social media marketing methods. 3. Utilize content marketing to promote products across various sales channels. 4. Promote the product through Google search and other sales channels. 5. Create sales channels in the digital environment (Shopee/Lazada/Tiki).
18	SKIL1037	Startup	1	Develop and present a startup project to participate in the 3-Level Startup Idea Competition. *(The instructor guides the student in developing a project/plan based on their vocational education knowledge to create an idea/product for the startup competition.)*
A7		**Scientific Research**	**3**	
19	SKIL3011	Research methodology	3	1. Formulate the scientific problem. 2. Applying research methods to conduct research. 3. Analyze and present the results after statistical data processing. 4. Write at least one scientific paper based on projects/assignments completed by the student in the training program.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
B	**PROFESSIONAL EDUCATION** (B1+B2+B3)		**116**	
B1		**Industry base**	**9**	
20	PHYS3001	Physics	3	- Remember the basic concepts of probability, including: sample space, probability of an event, random variables, and some common rules. Understand the basic methods of statistics such as: estimation problems, hypothesis testing problems, correlation analysis, and linear regression. Apply the knowledge of probability and statistics to the subject matter of the major. - Able to perform tasks such as: calculating the probability of an event, determining the probability distribution of random variables. Understand methods for parameter estimation and testing, correlation analysis, and simple linear regression problems. - Develop logical thinking, accuracy, problem-solving approaches, and proactive learning skills.
21	EEET3051	Applied Mathematics	3	- Write a paragraph in specialized English. - Communicating and giving professional presentations in English. - Able to translate specialized electrical and electronics engineering documents from English. - Reading and understanding specialized English documents in Electrical and Electronics Engineering.
22		**Choose 1**	**3**	
22.1	*MATH3000*	*Probability and Statistics*	*3*	*Calculate probabilities using the classical definition and fundamental theorems of probability, and then apply them to real-world problems.* *- Know how to construct probability distribution tables and probability distribution functions, and proficiently calculate characteristic parameters such as expectation, variance, etc.; Know how to find the density function through the distribution function and vice versa; Know how to calculate the probability of a random variable through the density function, distribution function, etc., and apply it to specific real-world problems.* *- Master the calculation of characteristic parameters of a sample: sample expectation, sample variance, etc. Apply this to solve problems in subsequent chapters.*
22.2	*INFO3019*	*Discrete Mathematics*	*3*	*Discrete Mathematics is a foundational course in the undergraduate Information Technology program. This course provides the knowledge necessary for studying specialized subjects, including:* *Basic concepts of logic and propositions* *Basic concepts of algorithms and computational complexity.* *Counting problems, existence problems, enumeration problems, combinatorial problems* *Graph theory, types of graphs* *Functions related to logic algebra.*
22.3	*MATH3008*	*Calculation method*	*3*	*To provide students with the basic and essential knowledge of computational methods.* *Develop the necessary skills in applying computational methods in computer science.*
22.4	*MATH3009*	*Linear programming*	*3*	*This course provides students with knowledge of linear programming, enabling them to solve linear programming problems using the simplex or extended simplex method, and to grasp the concept of the dual problem.* *This helps students develop skills in building mathematical models for real-world problems such as investment problems, production planning problems, and transportation problems.*
B2		**Fundamental knowledge of the field**	**22**	
23	EEET2001	Introduction to Electrical and Electronic Engineering Technology	1	- Introduction to the curriculum and training program for the Electrical and Electronic Engineering major at Da Nang University. - Overview of the fields of electrical engineering in construction, electronics in residential and industrial applications, and industrial electrical engineering in factories. - Assemble and connect some basic electrical circuits according to each module: Household electricity, electronics, industrial electricity.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
24	EEET3002	Electrical circuit theory	3	- Calculate current and voltage parameters in single-phase and three-phase circuits using methods such as branch current, loop current, peak voltage, etc. - Analyze the parameters in the circuit through a single-port and double-port network, and the phenomena of mutual inductance that occur. - Explain and analyze transient phenomena that occur in circuits when switching electrical circuits on and off.
25	EEET3003	Pulse-digital technique	3	- Using analog signal electronic components to generate pulses, clip pulses, and clamp pulses. - Design combinational and sequential circuits using digital ICs to create basic applications. - Using electronic software to draw, simulate, analyze circuits, and create basic printed circuit boards.
26	EEET3004	Measurement - Sensors	3	- Use electrical measuring devices to measure electrical parameters such as: current, voltage, power, and power factor (cos phi). - Applying non-electrical measuring devices to solve problems and projects aimed at measuring and reading signals of interest for the controller. - Develop a system of non-electrical measuring devices connected to a central processing unit for system control and monitoring.
27	EEET1012	Electrical Engineering Practice	1	- Develop the mechanical characteristics of DC motors and asynchronous motors to explain the operating states of the motors: starting, reversing, and braking. - Utilize converters and select appropriate control methods for motor speed control to ensure requirements regarding: adjustment range, adjustment frequency, mechanical stiffness, etc. - Determine the characteristics of different load types in order to select the appropriate motor power.
28	EEET3005	Electrical machines - electrical equipment	3	- Analyze the phenomena of electrical and magnetic induction in single-phase and three-phase transformers and electric motors. - Connecting transformer windings, speed control options for single-phase and three-phase asynchronous motors. - Calculate and select the correct electrical switching, cutting, and protection devices for the circuit.
29	EEET1020	Practical training on electrical machines and equipment.	1	- Identify the transformer winding connections and the windings of the 3-phase asynchronous motor. - Calculation and winding of transformers and 3-phase asynchronous motors. - Assemble the motor starting, reversing, protection, and sequential control circuits.
30	EEET3015	Electric drive	2	- Develop the mechanical characteristics of DC motors and asynchronous motors to explain the operating states of the motors: starting, reversing, and braking. - Utilize converters and select appropriate control methods for motor speed control to ensure requirements regarding: adjustment range, adjustment frequency, mechanical stiffness, etc. - Determine the characteristics of different load types in order to select the appropriate motor power.
31	ACET3003	Automatic control theory	3	- Calculate current and voltage parameters in single-phase and three-phase circuits using methods such as branch current, loop current, peak voltage, etc. - Analyze the parameters in the circuit through a single-port and double-port network, and the phenomena of mutual inductance that occur. - Explain and analyze transient phenomena that occur in circuits when switching electrical circuits on and off.
32		**Option 2**	**2**	
32.1	*EEET3010*	*AutoCAD in electrical engineering*	*2*	- Use AutoCAD Electrical software to draw electrical circuits, distribution panels, and arrange electrical equipment in the electrical panel according to standards, such as wiring, numbering components, and creating a materials list. - Design electrical wiring, create layout drawings for each layer according to the actual drawings at the construction site. - Master the commands to draw quickly and accurately according to the requirements.
32.2	*EEET2043*	*Revit MEP*	2	- Ability to build a BIM Execution Plan (BEP) using available templates and tools (according to Singapore BIM standards) to design MEP systems for construction projects. - Ability to design using BIM tools to create 3D models and HAVC systems for a simple Level 1 project. Ability to extract and develop necessary information from the created model for application in construction and project management.
32.3	*EEET2045*	*ETAP*	*2*	- Harmonic analysis calculation - Economical operation calculations in the power system. - Stability analysis in power systems - Engine starting analysis

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
				- DC power system calculations - Renewable energy
32.4	*EEET2046*	*SolidWorks Electrical*	*2*	- Provides knowledge ranging from basic to advanced levels on 3D design technology in mechanical engineering. - Providing guidance through exercises and practical projects to help students get acquainted with real-world design work. - This guide provides instructions on how to use the latest tools to create exercises ranging from small to large, from basic to super advanced. - Applying the learned tools to specific fields such as: designing machine principles, designing sheet metal components, designing welded frame components, etc. Then, publishing technical drawings for manufacturing workshops.
B3		**Major** *(B3.1+B3.2+B3.3+B3.4+B3.5)*	**85**	
B3.1		**Module 1: Electronic Circuits**	**25**	
33	EEET3014	Applied Electronics	**3**	- Using electronic components to assemble analog and digital electronic circuits such as: motor speed control circuits, light/dark sensor circuits, AC-DC power supply circuits, speaker circuits, etc. - Simulating electronic circuits such as washing machine, air conditioner, and refrigerator circuits using electronic simulation software like Protuse and Altium. - Repair and replace electronic components for consumer electronic circuits.
34	EEET1048	Practical exercises in electronics circuits.	1	- Survey of switching power supply circuits, inverter circuits, and IoT circuits. - Electronic circuits in consumer electrical and electronic devices - Industrial electronic circuit design
35	EEET3044	Electronic circuit design	3	- Use circuit design software to create printed circuit boards and build electronic circuits. - Clean the printed circuit board and solder the components onto the electronic circuit board according to the design diagram. - Proficiently use a multimeter to test circuits and electronic components.
36	EEET3017	Power electronics	3	- Applying power electronic components to create AC-DC, DC-DC, AC-AC, and DC-AC power converter circuits. - Design control circuits to control the semiconductor valves to meet the load's output voltage requirements. - Calculate and select semiconductor valves suitable for the load power requirements.
37	EEET1021	**Project 1:** Electronic Circuit Project	1	Designing electronic circuits, constructing and assembling circuits, programming microcontrollers for applications such as: Robotics, manufacturing models, LED displays, IoT, etc.
38	ACET3002	Programming techniques	3	- Able to write application programs using the C language through functions, loops, etc. - Develop basic control algorithm flowcharts using the C language. - Able to control basic applications using the C language.
39	EEET3018	Microcontrollers	3	- Apply knowledge of electronics, electronic components, and the hardware structure of the PIC microcontroller to design a circuit for connecting the microcontroller to peripheral devices. - Using programming languages to design control programs for real-world automation applications. - Utilize microcontroller communication standards such as I2C, SPI, UART, RS232, RS485, CAN, etc., to connect and exchange data with other devices.
40	EEET1023	Microcontroller practice	1	- Programming to control I/O applications - Programming ADC for LCD display - Programming PWM, EEPROM, I2C, UART
41	EEET3048	Peripheral device pairing control	3	- Communication connections are established using the following standards: RS232, RS485, Ethernet, and USB, between control devices and between the controller and the computer. - Use Visual C# to design a communication interface for monitoring, controlling, and collecting data from the controller (microcontroller/Arduino). - Use Visual Studio tools to analyze and process data collected from the controller.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
42	EEET1019	**Project 2:** Project Microcontrollers	1	Designing electronic circuits, constructing and assembling circuits, programming microcontrollers for applications such as: Robotics, manufacturing models, LED displays, IoT, etc.
43		**Option 3**	**3**	
43.1	*EEET3046*	*IoT devices*	3	*- Using microcontroller circuits to connect and program wireless devices via the Internet.* *- Write application programs such as: smart building control, smart wearable devices, smart cities, smart retail, livestock farming, farm production, etc.* *- Develop IoT applications for both domestic and industrial use.*
43.2	*COEN3004*	*Network have a cold variable (SN)*	*3*	*- Introduce common and practically applicable sensor types; describe the similarities and differences between normal distribution systems and mobile and sensor systems.* *- Explain the fundamental issues in balancing energy constraints and communication needs in mobile and sensor systems. Identify the differences between architectures and protocols in mobile and sensor systems.*
43.3	*COEN3003*	*Structure ants electricity death, feeling variable and muscle structure accept onion*	*3*	*- To help new students entering the fields of Electrical Engineering, Control Engineering, and Automation gain a deeper understanding of the characteristics of the profession and the knowledge and skills required for the work of an engineer, while also helping students develop passion and confidence in their studies and career path;* *- To provide students with the initial opportunity to learn problem-solving methods for their field of study, to develop minimum practical skills, teamwork skills, report writing skills, and presentation skills.*
43.4	*ACET3010*	*Embedded programming*	*3*	*- This course equips students with fundamental skills in work organization, professional conduct, and practical skills in programming, interface programming, web programming, media player management programming, and monitoring programming, including camera and sensor programming. - It also provides students with knowledge of sensors, cameras, and Google connectivity...*
B3.2		**Module 2: Building an IoT System**	**22**	
44	ACET2020	Database	2	- Master the fundamentals of databases, understand the meaning and role of databases, knowledge of relational databases, relational algebra operations, and database normalization. Have a solid understanding of the SQL language. - Use the SQL Server database management system as a tool for installing, manipulating, querying data, and programming databases. - Understand how to specify real-world data models, install and operate databases, and program with databases using database management systems such as SQL Server.
45	ACET3021	Python programming	3	- Demonstrate basic knowledge of the Python programming language. - Analyze and compare the libraries used when manipulating data and designing interfaces. - Evaluate the speed and practical applicability of Python in machine learning and game design.
46	EEET3045	Web Programming	3	- Knowledge of controls, their functions, and how to use them in building web applications. - Ability *to* analyze *and* build a *web* - based management information *application* . - The *ability to apply* web *application* programming skills *to solve* real -*world problems.*
47	ACET2019	Mobile application development	2	- Understand the principles of mobile application programming using the Android operating system, write applications, install and package applications on mobile phones using Android Studio. - Proficiency in smartphone application programming on the Android platform using the Android Studio editor is a foundation for career development in building applications for various smartphone models.
48	EEET2039	Data transmission techniques	2	- Understand the principles of data transmission between computers. Students will learn how to build and test the security of information when transmitting data over a computer network. data transmission links on computers.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
4 9	ACET2027	IoT applications	2	- Using microcontrollers to connect and program wireless devices via the Internet. - Write application programs such as: smart building control, smart wearable devices, smart cities, smart retail, livestock farming, farm production, etc. - It has created applications in both civil and industrial sectors.
50	ACET1033	**Project 3:** IoT Application Project	1	- Develop complete IoT applications from the school level up to the server. + Smart Home + Smart transportation + Smart agriculture
51	EEET4001	Work placement semester at company 1	4	- Able to read and understand electronic circuit diagrams. - Programming and controlling small and medium-sized systems using microcontrollers for practical applications. - Able to assemble electronic circuits - Printed circuit board design - Successfully deploying IoT applications.
52		**Option 4**	**3**	
52.1	*EEET2041*	*Computer network*	*3*	*- To equip students with a basic understanding of computer networks.* *- Network structures, network models, defining network layers and subnets, and methods of data transmission across the network.*
52.2	*EEET3050*	*Image processing*	*3*	*- Equip learners with new knowledge about minimizing logic functions, methods of representing and designing sequential circuits.* *- And finally, there's the design method using integrated circuits (ROM, PLA, GAL, MUX...).*
52.3	*ACET3026*	*Intelligent control*	*3*	*- This course provides students with fundamental knowledge of artificial neural networks and fuzzy systems, including: network structure and training algorithms, and fuzzy system structure and representation algorithms.* *- In addition, students will learn how to design artificial neural networks and fuzzy systems for recognition, prediction, and control problems.*
52.4	*ACET3004*	*Control system simulation modeling*	*3*	*- To provide students with fundamental knowledge of modeling and simulation methods for control systems such as: modeling and simulation of continuous systems, stochastic systems, queuing systems, and the application of Matlab-Simulink to analyze and study automatic control systems in the time and frequency domains, in state space, and dynamic systems.*
B3.3		**Module 3: Domestic and Industrial Electricity**	**18**	
53	EEET3008	Power supply system	3	- Calculate and select the appropriate power supply plan for the project, ensuring it meets the required capacity and is cost-effective. - Designing efficient low-voltage, high-voltage, lighting, and lightning protection electrical systems for buildings, including distribution panels, and utilizing appropriate electrical switching, protection, and switching equipment. - Operating the electrical system for the building, ensuring phase balance, power supply, and preventing fires, short circuits, etc.
54	EEET1009	**Project 4:** Power Supply System Project	1	- Selecting switching and protective devices for lighting systems, pumping systems, and motor control cabinets. - Calculating losses in the power supply system - Analyze the diagram of the substation and power transmission line.
55	EEET3009	Electrical and pneumatic equipment	3	- Designing power and control circuit diagrams for machine tools and electrical panels in manufacturing plants. - Able to assemble and connect power and control circuits using relays and contactors. - Selecting control, switching, and protection devices for machinery, production lines, and control panels in the factory's production workshops.
56	ACET3011	PLC	3	- Using specialized software programmed in the Ladder language, the control system is operated according to the specified technological requirements. - Proficient in basic commands and flexible application during PLC programming. - Create an accurate input and output assignment table for the PLC.
57	ACET1016	PLC Practice	1	- Proficient in connecting PLC controllers to peripheral devices: + Inputs: Buttons, sensors, switches, etc. + Output: Relay, motor, cylinder, etc. - Configure the corresponding PLC hardware from the software. - Use a programming language to write programs that control applications.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
58	ACET1012	**Project 5:** Project PLC	1	- Build the hardware and connect the equipment for the control models. - Programming to control applications - PLC communication with sensor devices to provide analog signals, communication, HMI screens, etc.
59	EEET5001	Work placement semester at DN 2	4	- Able to read and understand control circuit and power circuit diagrams of machine tools and industrial control cabinets. - Programming and controlling small and medium-sized systems using PLCs for machines and production lines. - We can assemble custom control cabinets for workshops in factories. - Design the control panel system using Eplan software, and then prepare an estimate for the control cabinet system. - System monitoring and control using Profibus and Profinet networks.
60		**Choose 5**	**2**	
60.1	*EEET2007*	*Renewable energy*	*2*	*- Utilizing natural energy sources to generate electricity, such as: solar, wind, tidal, geothermal, etc.* *- Calculate and select the correct power capacity for supplying electricity to the apartment using solar energy.* *- Analyze and assemble a solar power converter to generate electricity for the system.*
60.2	*EEET2046*	*Smart grid*	*2*	*This course introduces methods and tools for optimizing energy use in power grids, including load management, voltage and frequency regulation, and the integration of renewable energy sources. Students will gain an understanding of how smart grids help minimize energy losses and improve the reliability of the power system.* *This course provides knowledge of modern technologies such as sensors, communication, and automated control in power grids. Students will learn how to integrate these technologies to create a smart grid system, enabling efficient and sustainable energy management and distribution.*
60.3	*EEET2044*	*ME system*	*2*	*- Surveying, designing, and installing electromechanical systems for high-rise buildings, complexes, and electrical installations.* *- The M&E (Mechanical and Electrical) system course helps students understand the overview of M&E systems in construction projects and apply the theoretical basis to design M&E systems.* *- Use AutoCAD and LispNam software to design the system.* *- Apply the M&E system drawing specifications.* *- Applying calculations to the technical parameters of the M&E system.*
60.4	*EEET2044*	*Lighting techniques*	*2*	*- Possess basic knowledge of lighting techniques.* *- Efficient lighting design calculations for civil, industrial, and public lighting projects.* *- Quickly grasp advancements in lighting technology and apply them flexibly and practically to build and develop lighting systems.*
B3.4		**Optional module**	**10**	**(Choose one of the two modules)**
B3.4.1		**Module 4.1: Automation**	**10**	
61.1	EEET2026	BMS system	2	- Utilize building control equipment to install and connect consumer electronic devices via LAN, Ethernet, Wi-Fi, or network, such as cameras, audio systems, etc. - Connecting hardware to the BMS system software to design a building management system. - Programming automatic control systems for applications such as: energy management for air conditioning systems, lighting systems, alarm systems, cameras, etc.
62.1	*EEET2027*	*Designed using Eplan software.*	2	- Use Eplan software to draw control circuit diagrams and power circuit diagrams, and then prepare cost estimates for the construction of the electrical control panel. - Draw a layout to connect peripheral devices to the PLC controller, and wire the connections according to standard industrial symbols.
63.1	ACET3025	Industrial communication network	3	- Successfully installed a network system: Mosbus, RTU, Profibus, Profinet, ASI, MPI on a Siemens system. - Communication can be programmed between devices: S7-200 with S7-300, S7-1200 with S7-1200, S7-1200 with S7-1500 - Verify that the connection between the PC and the PLC is established via network cable.

No.	Course Code	Course name	Credits	Course description based on learning outcomes. *(After completing the courses in column (3), students are able to)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
64.1	ACET1025	**Project 6:** Industrial Communication Network Project	1	- Develop computer-based applications for monitoring and controlling production machinery. - Design of web-based and smartphone-based control interfaces. - Communication connections between PLC and display screen, PLC and inverter, PLC and other controllers use industrial communication standards.
65.1	ACET2028	Industrial automation equipment	2	- Be able to read and understand wiring diagrams for industrial electrical equipment such as: + Stepper motors, servo motors, brushless motors. + Digital relays, valves, and PID control devices. - Application of control devices in the design of industrial control circuits such as: wastewater treatment, elevator control, crane control, furnace control, etc. - Connect those devices to the central PLC controller, etc.
B3.4.2		**Module 4.2: Refrigeration**	**10**	
61.2	EEET2042	Thermal Engineering	2	The Thermal Engineering course is a compulsory course, part of the general knowledge section of the Electrical and Electronic Engineering Technology program. The Thermal Engineering course consists of two parts: The Engineering Thermodynamics section provides students with fundamental knowledge about the interconversion between heat and work, and practical thermodynamic processes and cycles; the Heat Transfer section provides students with basic knowledge about heat exchange methods and methods for calculating the amount of heat exchanged between two environments.
62.2	EEET2006	Refrigeration and air conditioning technology	2	The air conditioner was installed in the apartment, ensuring it had sufficient cooling capacity and no leaks. Calculate the required air conditioning system capacity for a building. Develop a safe and cost-effective maintenance and warranty plan for the refrigeration system.
63.2	EEET3035	Industrial refrigeration systems	3	- Learn about the structure of industrial refrigeration systems, cold storage systems, and refrigeration systems in food preservation. - Able to operate and maintain refrigeration systems.
64.2	EEET2047	Central air conditioning system	2	- Understand the structure of the air conditioning system. - Able to operate the central air conditioning system.
65.2	EEET1036	**Project 8.2:** Central Air Conditioning System Project	1	Calculating the capacity for air conditioning systems applied to high-rise buildings and complexes.
B3.5		**TTTN&ĐATN** *(B3.5.1+B3.5.2)*	**10**	
B3.5.1		**Internship/Training Program (Semester 3)**		
66	EEET5003	Graduation internship	5	- Participate in internships at manufacturing units, factories, automation solution providers, and IoT solution providers. - Writing an internship report at a company.
B3.5.2		**Graduation Thesis**		
67	EEET5002	Graduation project **(Project 10)**	5	- Define the scope of the topic: Electronic circuit design, IoT systems, automation, etc. - Plan for completion - Write a report explaining your graduation project. - Model control programming
TOTAL (A+B)			**153**	

3. GUIDELINES FOR IMPLEMENTING THE TRAINING PROGRAM

3.1. Responsibilities of the Faculty, Lecturers, Department of Training Management & Student Affairs, and related units

3.1.1. Department

a. The organization assigns academic advisors to each class; academic advisors assist students with their studies, course registration, and choosing lecturers.

b. Assign instructors to develop lecture materials and presentation files based on the chosen curriculum, organize checks and obtain approvals before instructors begin teaching.

c. The department will proactively replace lecturers (if necessary) while ensuring the best teaching practices are maintained.

d. Lecturers assigned to teach must provide lecture notes and assignments for students to photocopy as study materials and store at the department.

e. Propose procurement to ensure the availability of supplies, equipment, and materials for experiments and practical work right from the beginning of each school year.

f. Maintain records and teaching materials for faculty members in the department.

g. Develop and publish for students at the beginning of the course a list of course projects, a list of graduation thesis topics, and sample forms.

3.1.2. Lecturers

a. Provide lecture slides/presentation files for the department to review and approve for teaching.

b. Develop teaching schedules and schedules for learning, research, and discussions… for yourself and your students.

c. Develop a system of homework assignments, group assignments, and classroom assignments.

d. Provide instruction, guidance, and supervision for students' homework assignments.

e. The organization assesses learning outcomes based on established criteria.

f. Update and innovate the lecture materials.

3.1.3. Department of Training Management and Student Affairs

a. Develop a comprehensive training plan for the entire course, including: training plan, timetable, class management log, instructor management, progress schedule, instructor assignment plan, examination plan, plan for milestones throughout the course, etc.

b. Monitor and remind departments, lecturers, and students to correctly implement the program content.

c. Organize exams to evaluate teaching and learning outcomes.

d. Guidelines on training regulations for students and faculty. academic advisor…

3.1.4. Components other functions

Coordinate student management, provide facilities, a conducive learning environment, and good conduct to better support teaching .

3.2. Training location and time

This training program has been in effect since 2025. All teaching, learning, and assessment activities are conducted in accordance with this training program specification. The training program is implemented at the campuses of Dong A University, located at 33 Xo Viet Nghe Tinh Street, Hai Chau District, Da Nang City.

3.4. Ensuring the quality of training programs

The Head of Department is responsible for organizing and guiding the principles for developing detailed course outlines to ensure that objectives, content, and requirements are met, while also satisfying the needs of learners and society. Based on the detailed course outlines, the budget for practical training, internships, and equipment upgrades for each course and the entire course is determined. The heads of relevant departments will review, evaluate, and submit them to the Rector for approval.

The training program is reviewed and updated annually, or revised at least every two years, to meet the requirements of stakeholders, regulations of the Ministry of Education and Training, and the regulations of the University.

HEAD **DEAN**