MINISTRY OF EDUCATION AND TRAINING
TAY DO UNIVERSITY

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

TRAINING PROGRAM OF ELECTRICITY - ELECTRONICS

(Issued together with Decision No: 469/QD-DHTD

August 20, 2021, by Rector of Tay Do University)

A. GENERAL INFORMATION

1. Name of training program	Electricity - Electronics
2. Degree:	University
3. Training codes:	7510301
4. Admission candidates:	Following the current University Admission Regulations of the Ministry of Education and Training and Tay Do University, Vietnamese citizens who meet the following conditions are eligible to register for admission: - Having a high school Diploma or equivalent under the regulations of the Ministry of Education and Training; - Being healthy enough to study and work according to current regulations of the Ministry of Health, Education and Training; - Submitting all documents and registration fees in full and on time according to the regulations of the Ministry of Education and Training.
5. Training time:	04 years (12 semesters, 3 semesters/year)
6. Training form:	Full-time
7. Required credits:	151 credits (Excluding prerequisites: physical education and national defense education)
8. Scale	Nationwide enrollment
9. Diploma:	Electrical - Electronics Engineer
10. Working position:	With the knowledge and skills learned, strong political will, good health, and in-depth knowledge. Electrical and Electronics Engineering Engineers can complete the following tasks: - Manage, exploit, operate and deploy electrical and electronic projects in agencies, companies, enterprises, and manufacturing plants. - Research, design, provide technical advice, and maintain electrical and electronic systems in factories, plants, and workshops.

	- Work as teaching, training, scientific research, and management staff at universities, colleges, and vocational training schools. - Work in management at State management agencies in the fields of civil and industrial electricity and electronics. - Continue study higher levels (master's, doctorate) to become an expert in a specialized field.
11. Possibility for further education:	Able to self-study, self-research, enrich knowledge, and professional and soft skills. Able to study other bachelor's degrees or continue learning postgraduate programs in the country and abroad according to regulations.

B. TRAINING OBJECTIVE AND LEARNING OUTCOMES

I. Training Objectives

1.1. General objectives

The training program in Electrical and Electronics Engineering at the university level aims to train modern engineers with the ability to reason, design new techniques, and have practical experience in highly technical design. meets social requirements, has creative tendencies, and has political and moral qualities; Has good health to meet the requirements of national defense and has professional knowledge, professional practice capacity, ability to work in groups, ability to work independently and creatively to solve problems of trained majors, capable of continuing to study and research to improve qualifications in the field of Electricity - Electronics.

1.2. Specific objectives

Electrical - Electronics Engineer program is designed with the aim of training graduates who possess the following abilities:

G1. Knowledge of political theory, national defense and security, physical education, and basic knowledge of natural and social sciences.

G2. Basic and specialized foreign language and information technology knowledge.

G3. Basic knowledge in the field of electricity and electronics as a premise for learning specialized knowledge.

G4. In-depth knowledge in the field of electricity and electronics to meet the needs of research and professional work.

G5. Ability to apply mathematical, scientific, and technical knowledge to problems in the fields of civil and industrial electricity and electronics.

G6. Ability to design and conduct experiments, and analyze and interpret data in electricity and electronics. Ability to organize and monitor the operation of electrical systems and automatic systems in factories and enterprises to meet desired needs with practical constraints such as economic, environmental, social, political, ethics, health and safety, sustainability.

G7. Good teamwork, communication, presentation and reporting skills.

G8. Skills to use English effectively in searching for documents in English on the internet. Use specialized software well.

G9. Correctly exercising the rights and obligations of citizens according to the provisions of law. Have professional ethics and high responsibility in work and in life. Have an industrial demeanor, respect and sincerely cooperate with colleagues.

G10. Being conscious of preserving and protecting the environment.

G11. Ability to update new knowledge and be creative at work. Have a progressive spirit, passion for scientific research and a sense of self-study and self-development.

II. Learning outcomes:

2.1. Knowledge

Learning outcomes	Description
LO1	Systematically grasp the basic knowledge of political theory, law, national security, and defense. Have good health to serve your studies as well as serve the country.
LO2	Knowledge of mathematics, social knowledge, and natural sciences to apply in studying and researching specialized fields.
LO3	Have knowledge of foreign languages and information technology facilities.
LO4	Ability to apply basic knowledge, general principles, and core technical foundation elements in the field of Electricity - Electronics. Ability to analyze, design, and repair electrical and electronic circuits for practical applications.
LO5	Ability to apply in-depth knowledge in the field, using modern methods and tools to design and evaluate Electrical and Electronics systems.
LO6	Have knowledge of specialized English and specialized software.

2.2. Skills

2.2.1. Professional skills

Learning outcomes	Description
LO7	Able to operate, maintain, and repair electrical systems and automation systems; power plants, and transformer stations.
LO8	Able to plan the research, manufacture, and implementation of electrical and electronic systems and automatic production lines to serve different requirements

LO9	Able to update technical information and new technology, domestic and foreign experience related to the industry.

2.2.2. Soft skills

Learning outcomes	Description
LO10	Have effective communication skills through writing, presenting, discussing, negotiating, controlling situations, and effectively using modern tools and means.
LO11	Have organizational, leadership, teamwork, and multidisciplinary team skills to accomplish a common goal.
LO12	Have good use of information technology (advanced IT level) and foreign languages (English level 3/6 of Vietnam's foreign language proficiency framework, level equivalent to TOEIC ≥ 450 points) to serve professional work.

2.3. Level of autonomy and responsibilies

Learning outcomes	Description
LO13	Respect the law, and properly and fully exercise the rights and obligations of citizens.
LO14	Be Humble, honest, objective, responsible in work and life, industrial style, steadfast, serious service attitude; Respect and sincerely cooperate with colleagues.
LO15	Be aware of the close connection between technical solutions and economic and social factors in a globalized world. From there, creating products contributes to improving the quality of human life and production efficiency, promoting the economic development of the country.
LO16	Be conscious of saving energy and protecting environmental resources when researching, designing, and manufacturing products for a sustainable development goal.
LO17	Have a progressive spirit, passion for scientific research, and a lifelong sense of learning and career development.

III. The content of studying program (name and credit for each subject): 151 credits

Total credits		**151**
1	**General knowledge**	**48**
2	**Professional knowledge**	**98**
	- Foundational knowledge	37

	- Compulsory knowledge	53
	- Optional knowledge	8
3	**Graduation**	**16**
	- Graduation Intership - Graduation thesis (or do the minor graduated thesis and study 02 alternative subjects)	16

3.1. General Knowledge: 48 credits

Number	Code	Subject	Credits	Note
1	0301001769	Marxist-Leninist philosophy	3	
2	0301001825	Marxist-Leninist political economy	2	
3	0301001826	Science socialism	2	
4	0301001827	History of the Communist Party of Vietnam	2	
5	0301000665	Ho Chi Minh Thought	2	
6	0301000667	General law	2	
7	0301000946	TOEIC-oriented English 1	4	
8	0301000947	TOEIC-oriented English 2	4	
9	0301000679	Basic informatics	3	
10	0301000670	Calculus A1	3	
11	0301000671	Calculus A2	3	
12	0301000672	Linear Algebra and Geometry	2	
13	0301000673	Probability statistics	3	
14	0301000978	Research methods and writing scientific reports	2	
15	0301001035 0301001036 0301001037	Physical education 1**	1	
16	0301000660 0301001038 0301001039	Physical education 2**	1	
17	0301001030 0301000661 0301000662	Physical education 3**	1	
18	0301000650	Defense and security education	8	

3.2. Professional knowledge: 98 credits

Number	Code	Subject	Credits	Note
1. General knowledge			**37**	

Number	Code	Subject	Credits	Note
1	0301001083	Technical Mathematics	2	
2	0301001280	Circuit theory	3	
3	0301001084	electronic components	3	
4	0301001668	Analog electronic circuit	2	
5	0301001669	Practice Analog electronic circuit	2	
6	0301002408	Digital circuit	2	
7	0301000703	Practice Digital circuit	2	
8	0301002527	Pulse technique	2	
9	0301000276	Basic programming – Electronics	2	
10	0301000704	Practice Basic programming – Electronics	2	
11	0301000540	Technical English	3	
12	0301001646	Microprocessor engineering	2	
13	0301001647	Practice Microprocessor engineering	2	
14	0301001278	Electrical tools – Electrical safety	2	
15	0301001286	Electrical engineering	2	
16	0301002521	Practice Electrical engineering	2	
17	0301001285	Electrical systems 1, 2	2	
2. Compulsory Knowledge			**53**	
1	0301002016	Audio and Video Engineering	4	
2	0301001662	Power electronics	2	
3	0301002427	Practice Power electronics	2	
4	0301001279	Practice Electrical and electronic skills	2	
5	0301000502	Electrical system design	2	
6	0301002459	Practice Electrical system design	1	
7	0301002388	Data transmission	3	
8	0301000256	Refrigeration technicians	3	
9	0301001316	Programmable Logic Control (PLC)	3	
10	0301001302	Sensor	3	
11	0301002390	Theory of automatic control of linear systems	3	
12	0301001306	Matlab và Labview	3	
13	0301002024	Renewable energy	2	
14	0301002391	IOTs basis and applications	3	
15	0301002020	Robotics Engineering	2	
16	0301001303	Hard technical calculator	3	
17	0301000729	Industrial automatic control engineering	3	
18	0301001305	Printed circuit design	3	
19	0301002019	CAD in electrical engineering	3	
20	0301000378	Proceedings 1 Electricity - Electronics	1	
21	0301000381	Proceedings 2 Electricity - Electronics	1	
22	0301001476	Actual tour	1	

Number	Code	Subject	Credits	Note
3. Optional Knowledge *(Choose 9 credits of the following subjects)*			**8**	
1	0301002396	Technologie hydraulique et pneumatique	3	
2	0301002022	Embedded programming	3	
3	0301001308	Fuzzy control	3	
4	0301001307	Move information	3	
5	0301002023	Artificial neural network	3	
6	0301001311	Lighting engineering	2	
7	0301002026	Electric Factory	2	
8	0301002027	Store energy in the electrical system	2	
9	0301002028	Management and use of electricity	2	

3.3. Graduation: 16 credits

Number	Code	Subject	Credits	Note
1. Graduation Internship:			**16**	
1		Internship	6	
2		Minor graduated thesis	6	
3		Alternative subjects *(choose TWO subjects of the optional knowledge subjects)*	4	
2. Graduation thesis:			**16**	
1		Internship	6	
2		Graduation thesis	10	

Note: ** Scores are not calculated to cumulative GPA.