

MINISTRY OF EDUCATION & TRAINING
HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY & EDUCATION

UNDERGRADUATE PROGRAM

Major of
**ELECTRICAL AND ELECTRONICS
ENGINEERING TECHNOLOGY**

May 2021

UNDERGRADUATE PROGRAM

Education Program: Industrial Electricity

Level: Undergraduate

Major: Electrical and Electronics Engineering Technology

Type of Program: Full time

(Decision No.....date....on.....)

1. Duration of Study: 4 years

2. Student Enrollment: High-school Graduates

3. Grading System, Curriculum and Graduation Requirements

Grading System: 10

Curriculum: Based on regulations of Decision No 43/2008/BGDDT

Graduation Requirements:

General condition: Based on regulations of Decision No 43/2008/BGDDT

Condition of specialty: None

4. The objectives and Expected Learning Outcomes

4.1 Goals

Training engineers in Electrical and Electronic Engineering Technology have fundamental science knowledge, fundamental and advanced knowledge of Electrical-Electronics Engineering; have the ability to analyze, solve the problem and evaluate solutions; have the ability to build and manage electrical power supply and automatic electric drive systems; have the communication skill and team work; and have an appropriate professional attitude to meet the development requirements of industry and society. Students after graduation will able to work at:

1. Power companies;
2. Companies and factories have requirements on designing, operating and maintaining the electrical power supply, automatic electric drive systems,
3. Research institutes, training institutions, vocational training centers related to the field of electrical and electronics engineering;
4. Other companies.

4.2 Objectives

1. Have the ability to work in the manufacturing practices of electrical and electronics engineering with the ability to identify and solve important issues in many areas of application areas.
2. Have the ability to develop successful careers in industry, academic and community service, demonstrate the technical leadership in business, careers and communities.
3. Have the ability to participate in the process of promoting comprehensive economic development in the Southern of Vietnam through a combination of technical proficiency, leadership spirit and entrepreneurship spirit.

4. Have the ability easily adapt to new technologies, methods and tools to keep abreast of the development of electrical engineering industry with the ability to respond to the challenges of changing environments.

4.3 Program Learning Outcomes:

No.	Program outcomes	Competence level
1	Knowledge and argument to solve technical problems	
1.1	The ability to identify, propose and solve complex technical problems by applying the principles of engineering, science and math.	5
1.2	Applying natural science knowledge and mathematical analysis to build, test, operate and maintain electrical systems and similar systems.	5.5
1.3	The ability to use differential math and integral math to describe the operating characteristics of electrical systems.	5
2	The ability to absorb and apply new knowledge, career skills and personal skills	
2.1	The ability to receptive and apply new knowledge by using appropriate learning strategies.	5
2.2	The ability to perceive moral and professional responsibilities in technical situations and to make arguments based on consideration of the effects of technical solutions in the economic, social and environmental context, and global.	4
3	Effective communication skills and skills to teamwork in a multidisciplinary environment	
3.1	The ability to communicate effectively in a technical group, create a cohesive and collaborative environment, set goals, plan tasks to meet goals	5
3.2	The ability to read and present with images, technical drawings, text and speak effectively in technical and non-technical environments	5.5
4	Skills of designing the electrical systems and automatic electric drive in the corporate and social context	
4.1	The ability to analyze, design, implement and operating power supply and distribution systems, automatic electric drive systems to create solutions to meet specific needs consider to the health, safety and community welfare, as well as economic, environmental and social factors.	5.5
4.2	The ability to analyze, design the programmable control circuits, (digital and analog) components in the electrical system based on technical standards for construction, inspection, operation and maintenance of electrical systems	5.5
4.3	The ability to develop and implement experiments, analyze and interpret data, and use technical arguments to make conclusions.	5.5
4.4	The ability to apply project management techniques in works related to electrical systems	4.5

Describe the expected level of Expected Learning Outcomes

Competence level		Description
$0.0 \leq CL \leq 1.0$	Basic	Remember: Students remember / recognize / recall knowledge by actions such as defining, repeating, listing, identifying, identifying, ...
$1.0 < CL \leq 2.0$	Qualified	Understand: Students create knowledge from materials and knowledge by actions such as explanation, classification, illustration, reasoning, ...
$2.0 < CL \leq 3.0$		Application: Students implement/ apply knowledge to create products such as models, real objects, simulation products, reports, ...
$3.0 < CL \leq 4.0$	Competently	Analysis: Students analyze materials / knowledge into details / parts and show their overall relationship by actions such as analysis, classification, comparison, synthesis, ...
$4.0 < CL \leq 5.0$		Assessment: Students make judgments, predictions about knowledge / information according to standards, criteria and indicators that have been determined by actions such as comments, criticisms, proposals, ...
$5.0 < CL \leq 6.0$	Excellent	Creativity: Students create / arrange / organize / design / generalize details / parts in a new / new way to create new structures / models / products.

5. Blocks of knowledge in the whole program: 150 credits (without Physical Education, Military Education, and Supplementary Courses)

6. Allocation of credits

Groups of Courses	Credits		
	Total	Compulsion	Elective
Foundation science courses	63	59	4
Political Education	13	13	0
Social Science	4	0	4
Mathematics and Natural Sciences	23	23	0
Informatics	3	3	0
Introduction to Electrical & Electronics Engineering Technology	3	3	0
English	17	17	0
Electrical and Electronics Engineering Courses	87	72	15
Fundamental EEE courses	26	20	6
Advanced EEE courses + Projects	32	23	9
Practice and laboratory	16	16	0
Industry Internship + Extracurricular activities + seminars specialized	4+2	4+2	0
Capstone project	7	7	0

7. Program content

A – Compulsory courses

7.1. Foundation science courses: 63

No.	Course's ID	Course name	Credits	Note
I.		Political Education and General Laws	13	
1.1	LLCT130105E	Philosophy of Marxism and Leninism	3	
1.2	LLCT120205E	Political economics of Marxism and Leninism	2	
1.3	LLCT120405E	Scientific socialism	2	
1.4	LLCT220514E	History of Vietnamese communist party	2	
1.5	LLCT120314E	Ho Chi Minh's ideology	2	
1.6	GELA220405E	General Laws	2	
II.		Introduction to Electrical & Electronics Engineering Technology	3	
2.1	IEET130145E	Introduction to Electrical & Electronics Engineering Technology	2+1	1 Practice
III.		Informatics	3	
3.1	CPRL130064E	C program language	3	
V.		Mathematics and Natural Sciences	23	
5.1	MATH132401E	Calculus 1	3	
5.2	MATH132501E	Calculus 2	3	
5.3	MATH132601E	Calculus 3	3	
5.4	MATH132901E	Mathematical Statistics for Engineers	3	
5.5	AMEE142044E	Applied Mathematics for Electrical and Electronics Engineering	4	
5.6	PHYS130902E	Physics 1	3	
5.7	PHYS111202E	Physics - Lab 1	1	
5.8	GCHE130603E	General Chemistry for Engineers	3	
VI.		Social Science (choose 02 out of 12 courses)	4	
6.1	GEEC220105E	General Economics	2	
6.2	SYTH220491E	Creativity Methodologies	2	
6.3	PLSK320605E	Planning Skill	2	
6.4	INMA220305E	Introduction to Management	2	
6.5	INSO321005E	Introduction to Sociology	2	
6.6	IQMA220205E	Introduction to Quality Management	2	
6.7	INLO220405E	Introduction to Logics	2	
6.8	PRSK320705E	Presentation Skills	2	
6.9	SYTH220505E	Systems Thinking	2	
6.10	ULTE121105E	University Learning Methods	2	

6.11	IVNC320905E	Vietnamese Culture	2	
6.12	TDTS320805E	Writing Scientific and Technical Documents	2	
VII.		Supplementary Courses	17	
7.1	EHQT130137E	Academic English 1	3	
7.2	EHQT230237E	Academic English 2	3	
7.3	EHQT330337E	Academic English 3	3	
7.4	EHQT430437E	Academic English 4	3	
7.5	TEEN120146E	Technical English 1	2	
7.6	TEEN230246E	Technical English 2	3	
VIII.		Physical Education	5	
	PHED110513E	1. Physical Education 1	1	
	PHED110613E	2. Physical Education 2	1	
	PHED130715E	3. Physical Education 3 (compulsory)	3	
IX.		National Defense Education	165 periods	

7.2. Electrical and Electronics Engineering Courses

7.2.1. Fundamental EEE courses: 26

No.	Course's ID	Course name	Credits	Note
EEE related courses			26	
1.	ELCI140144E	Electric Circuit	4	
2.	BAEL340662E	Basic Electronics	4	
3.	DIGI330163E	Digital Systems	3	
4.	ELMA230344E	Electric Machines	3	
5.	MICR330363E	Microprocessor	3	
6.	POEL330262E	Power Electronics	3	
7.		<i>Elective Fundamental course 1</i>	3	
8.		<i>Elective Fundamental course 2</i>	3	
	Elective Fundamental course 1, 2 (Students choose 2 out of the below mentioned courses)			
1.	EMIN330244E	Electrical Measurement and Instruments	3	
2.	ELIN330444E	Electricity instruments	3	
3.	PLCS330846E	Programmable Logic Controller	3	
4.	ELFI230344E	Electromagnetic Field	3	
5.	EEMA330544E	Electronic and Electrical Materials	3	
6.	ELPS330345E	Electrical Power Supply	3	Bỏ
7.	SISY330164E	Signals and Systems	3	
8.	EMSE232244E	Instrumentation and Sensors	3	
9.				

7.2.2.a Advanced EEE courses: 32 credits

No.	Course's ID	Course name	Credits	Note
I		Compulsory	23	
1.	ELPS246545E	Power Supply System	4	
2.	POSY346645E	Power System	4	

3.	ELDR346445E	Automatic Electric Drive	4	
4.	IPSC343045E	Industrial power system control	4	
5.	RENE346745E	Renewable Energy	4	
6.	PRES316845E	Project on Power Supply System	1	
7.	PRED316945E	Project on Electric Drive	1	
8.	PISC414545E	Project on Industrial power system control	1	
II	Elective		9	
		<i>Elective Advanced course 1</i>	3	Project/ Assignment
		<i>Elective Advanced course 2</i>	3	Project/ Assignment
		<i>Elective Advanced course 3</i>	3	Project/ Assignment
1.	ELDR330545E	Automatic Electric Drive	3	
2.	CADA430546E	CAD for Automation and Control Engineering	3	
3.	IMPR 432446E	Image Processing in Industrial	3	
4.	EMSY437764E	Embedded Systems	3	
5.	MASC330146E	Modelling and Simulation using Computer	3	
6.	PRCO431846E	Process Control	3	
7.	FMCI431746E	FMS and CIM	3	
8.	ELPS330345E	Power Supply System	3	
9.	MSET437345E	MATLAB/SIMULINK for Power Electricals.	3	
10.	LTRI437445E	Lighting Techniques in Residential and Industrial	3	
11.	SSSY437545E	Building Access Control and Security System	3	
12.	SPEM437644E	Special Electrical Machine & Calculation of Electrical Machine	3	
13.	PLSU438445E	Power Station and Power Plant	3	
14.	ENAE437945E	Energy Audit and Efficiency	3	
15.	POQA438545E	Power Quality in Power System	3	
16.	BMSY438345E	Building Management System	3	
17.	SSAS438045E	ATS and Power Backup System	3	
18.	PJMA438145E	Industrial Management & Project Management	3	
19.	PIPS437745E	The Problems in Power Systems	3	
20.	APES437845E	Application power electronics	3	
21.	REPR438245E	Relay Protection and	3	

		Automation in Industrial Power System		
22.	AIFA436864E	AI Facility and Application	3	
23.	IMPR432463E	Image Processing in Industrial	3	
24.	CIDE431163E	Electronic circuit design	3	
25.	BIME331665E	Design models on computers	3	
26.	INSK331663E	Industrial skills	3	
27.	ADMI330763E	Advanced Microprocessor	3	

7.2.2.b. Advanced EEE courses: 22 (courses in workshop, industrial internship, Extracurricular activities + seminars specialized)

No.	Course's ID	Course name	Credits	Note
		Practice and experiment	16	
1.	ELPR210644E	Electricity in Practice	1	
2.	PREM310744E	Electric Machine in Practice	1	
3.	ELPR320762E	Electronics in Practice	2	
4.	POEP320262E	Power Electronics in Practice	2	
5.	PRDI310263E	Digital System in Practice	1	
6.	PRES327145E	Power Supply System in Practice	2	
7.	PRMI320463E	Microprocessor in Practice	2	
8.	PELE327245E	Electric Drive in Practice	2	
9.	PREN417045E	Practice on Renewable Energy	1	Đổi từ PREN427045E Thành PREN417045E
10.	IPSP425245E	Industrial power system control in practice	2	
		Internship	4+2	
11.	SPSE329145E	Extracurricular activities + seminars specialized	2	
12.	ININ442745E	Industry Internship	4	

7.2.3. Graduation Thesis (or graduation examination): 7

No.	Course's ID	Course name	Credits	Note
1	FIPR479245E	Graduation Thesis	7	

8. **Curriculum Distribution** (*Expectation, and only main semesters: 1, 2, ..., 8*)

1st Semester:

No.	Course ID	Course Title	Credits	Prerequisite
1.	MATH132401E	Calculus I	3	
2.	LLCT130105E	Philosophy of Marxism and Leninism	3	
3.	PHYS130402E	Physics 1	3	
4.	GCHE130603E	General Chemistry	3	
5.	PHED110613E	Physical Education 1	0(1)	
6.	IEET130145E	Introduction to Electrical & Electronics Engineering Technology	3	
7.	EHQT130137E	Academic English 1	3	
8.	EHQT230237E	Academic English 2	3	
Total			21	

2nd Semester

No.	Course ID	Course Title	Credits	Prerequisite
1.	PHYS110602E	Physics - Laboratory 1	1	
2.	MATH132501E	Calculus II	3	
3.	LLCT120214E	Political economics of Marxism and Leninism	2	
4.	LLCT120405E	Scientific socialism	2	
5.	CPRL130064E	C programming language	3	
6.	ELCI140144E	Electrical Circuits	4	
7.	EHQT330337E	Academic English 3	3	
8.	TEEN120146E	Technical English 1	2	
Elective Social Science 1				
9.		Social Science	2	
Total			22	

3rd Semester (June 3, 2022)

No.	Course ID	Course Title	Credits	Prerequisite
1.	LLCT120314E	Ho Chi Minh's Ideology	2	
2.	MATH132601E	Calculus III	3	
3.	ELPR210644E	Electricity in Practice	1	
4.	MATH132901E	Mathematical Statistics for Engineers	3	
5.	BAEL340662E	Basic Electronics	4	
6.	ELMA230344E	Electric Machines	3	
7.	EHQT430437E	Academic English 4	3	
8.	TEEN230246E	Technical English 2	3	
Elective Fundamental course 1				
9.		Elective Fundamental course	3	
10.				
Total			25	

4th Semester

No.	Course ID	Course Title	Credits	Prerequisite
1.	DIGI330163E	Digital System	3	
2.	AMEE142044E	Applied Mathematics for Electrical and Electronics Engineering	4	
3.	POEL330262E	Power Electronics	3	
4.	ELPS246545E	Power Supply System	4	
5.	PREM310744E	Electric Machine in Practice	1	
6.	ELPR320762E	Electronics in Practice	2	
7.		Elective Fundamental course 2		
8.		Elective Fundamental course	3	
9.				
Total			20	

5th Semester

No.	Course ID	Course Title	Credits	Prerequisite
1.	LLCT220514E	History of Vietnamese communist party	2	
2.	MICR330363E	Microprocessor	3	
3.	POSY346645E	Power System	4	
4.	ELDR346445E	Automatic Electric Drive	4	
5.	PRES316845E	Project on Power Supply System	1	
6.	POEP320262E	Power Electronics in Practice	2	
7.	PRDI310263E	Digital System in Practice	1	
8.	PRES327145E	Power Supply System in Practice	2	
Total			19	

6th Semester

No.	Course ID	Course Title	Credits	Prerequisite
1.	GELA220405E	General Laws	2	
2.	IPSC343045E	Industrial power system control	4	
3.	RENE346745E	Renewable Energy	4	
4.	PRED316945E	Project on Electric Drive	1	
5.	PRMI320463E	Microprocessor in Practice	2	
6.	PELE327245E	Electric Drive in Practice	2	
7.	PTPM329645E	Professional development topics in the direction of power system - ME	0(2)	
Elective Social Science 1				
8.		Social Science	2	
Total			17	

7th Semester

No.	Code	Course name	Credits	Prerequisite
1.	PISC414545E	Project on Industrial power system control	1	
2.		Elective Advanced course 1	3	
3.		Elective Advanced course 2	3	
4.		Elective Advanced course 3	3	
5.	PREN427045E	Practice on Renewable Energy	1	
6.	IPSP425245E	Industrial power system control in practice	2	
7.	PTEA429745E	Professional development topics in the direction of Electric Drive - Automation	0(2)	
8.	PTRE429845E	Professional development topics in the direction of Renewable Energy	0(2)	

Total	13	
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8th Semester

No.	Course ID	Course Title	Credits	Prerequisite
1.	ININ442745E	Industry Internship	4	
2.	SPSE329145E	Extracurricular activities + seminars specialized	2	
3.	FIPR479245E	Graduation Thesis	7	
Total			13	

Note: Extracurricular activities + seminars specialized 2 credits:

Encourage students to start participating from the first semester of the program but will be required in semesters 5,6,7 to get better quality.

9. Campus Infrastructure

Follow the Ministry of education and training's regulations.

9.1 Workshops and Laboratories:

- Electricity in Practice Laboratory
- Electronics in Practice Laboratory
- Instrument in Practice Laboratory
- Electrical machine in Practice Laboratory
- Electrical Drive in Practice Laboratory
- Programmable Logic Controller in Practice Laboratory
- Power Supply System in Practice Laboratory
- GE-UTE Training Center

9.2 Library, Website

- University's Library
- Faculty's Library
- Faculty's Website

10. PROGRAM GUIDE

- Credit hour is calculated as:

- 1 credit = 15 lecture hours
- = 30 laboratory hours
- = 45 hours practice
- = 45 hours self -study
- = 90 workshop hours.
- = 45 hours for project, thesis.

- Graduation thesis: conduct a research project to solve specific problems related to the major.

RECTOR

DEAN OF FACULTY

