SELF - ASSESSMENT REPORT FOR AUN-QA

HCMUTE

HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY AND EDUCATION

FACULTY OF ELECTRICAL AND ELECTRONICS ENGINEERING

BACHELOR OF ENGINEERING

IN ELECTRICAL AND ELECTRONICS ENGINEERING TECHNOLOGY

AUN-QA
A Touch of Quality

The 59th AUN Quality Assessment at Programme Level

March 15 - 17, 2016

HCMUTE

ASEAN University Network

AUN-QA SELF-ASSESSMENT REPORT

of the Bachelor of Engineering in

ELECTRICAL AND ELECTRONICS ENGINEERING TECHNOLOGY

We hereby confirm to approve this AUN-QA Self-Assessment Report of the Bachelor of Engineering in Electrical and Electronics Engineering Technology programme for assessment according to AUN-QA Criteria (V2.0).

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Dean

Faculty of Electrical and Electronics Engineering

LIST OF ABBREVIATIONS

No.	ABBR	Vietnamese ABBR [1]	Explanations
1		DT	Academic Affairs Office
2		TB	Announcement
3	ABB		ASEA Brown Boveri - http://www.abb.com/
4	ATS		Automatic Transfer Switches
5	CAD		Computer-Aided Design
6	CDIO		Conceive - Design - Implement - Operate
7	CER		Council for Emulation and Reward
8	CV		Curriculum Vitae
9		QD	Decision
10		ND-CP	Decree-Government
11	EEET		Electrical and Electronic Engineering Technology
12	ELOs		Expected Learning Outcomes
13	FEEE		Faculty of Electrical and Electronic Engineering
14	GE		General Electric - http://www.ge.com/
15	GPA		Grade Point Average
16	HEEAP		Higher Engineering Education Alliance Program - www.heeap.org
17	HCMUTE	DHSPKT	Ho Chi Minh City University of Technology and Education
18	KOHLER		http://www.kohler.com/
19	OMRON		http://www.omron.com.vn/
20		TCCB	Human Resource Management Office

[1] The Vietnamese abbreviations in this Self-assessment Report are used in the Number of the documents, which can be seen in the name of evidences.

21	ITEC		Indian Technical and Economic Cooperation
22	KPI		Key Performance Indicator
23		NGCBQLGD	Lecturers and Educational Managerial Staff
24	MOET	BGDDT	Ministry of Education and Training
25		KH	Plan
26	PLC		Programmable Logic Controller
27		QLKH	Research Scientific Affairs
28		CTHSSV	Student Affairs Office
29		HSV	Student Association
30	VEF		Vietnam Education Foundation
31		DTN	Youth Union

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PART I: INTRODUCTION

1. Ho Chi Minh City University of Technology and Education (HCMUTE)

Founded on October 05th 1962, HCMUTE is one of the leading universities in training and supplying high quality human resources in science and technology, serving the industrialization and modernization of the cities and provinces in the South of Vietnam.

As of 2015, HCMUTE has 15 faculties, 16 functional units, and 14 institutes and centers. There are 577 lecturers in HCMUTE. The University has an area of 21.036 hectares, with 60.333 hectares of construction floors.

Vision

HCMUTE is to be the national top center for training and applying scientific research in technology and professional pedagogy, on a par with other major universities in South-East Asia and the world. HCMUTE is to serve as the driving force behind the sustainable development of the nationwide vocational education system.

Mission

HCMUTE is to:

- Be an organization for training, research, technology transfer, and vocational education science;
- Provide technical manpower and high quality scientific products to construct and develop the country;
- Contribute actively and positively to the fundamental and comprehensive innovation in education and training Vietnam;
- Integrate into the international education community and maintain sustainable development.

2. Faculty of Electrical and Electronics Engineering (FEEE)

FEEE was founded in 1976. With the motto “to ensure the continuous improvement of education”, FEEE has constantly improved itself in order to offer the best conditions and environment for learners to make the most of their potential in creativity, enhance their knowledge and necessary skills to meet the needs of the society.

Vision

FEEE strives to become recognized as outstanding in training, scientific research and technological transfer in the field of Electrical and Electronics Engineering technology, Electronics and Telecommunications technology, Control and Automation, and Computer Engineering in the technical university sector and technology education in Vietnam, and gradually rose to the regional and international levels.

Mission

The mission of FEEE is to create the best learning environment for students to solve problems in the field of Electrical and Electronics Engineering Technology, Electronics and Telecommunications Technology, Control and Automation Technology, and Computer Engineering, and at the same time associating teaching and learning with real-life problems, scientific research and technology transfer in order to provide high-quality human resources serving the industrialization and modernization of the country and international integration.

Core Values

- Maintaining and developing traditional values;
- Supporting talents and creativity;
- Respecting learner's benefit, and being learner-centered in all activities;
- Building up learning society;
- Highly value quality, efficiency, and society trust;
- Integration, cooperation, and sharing.

Organizational Structure

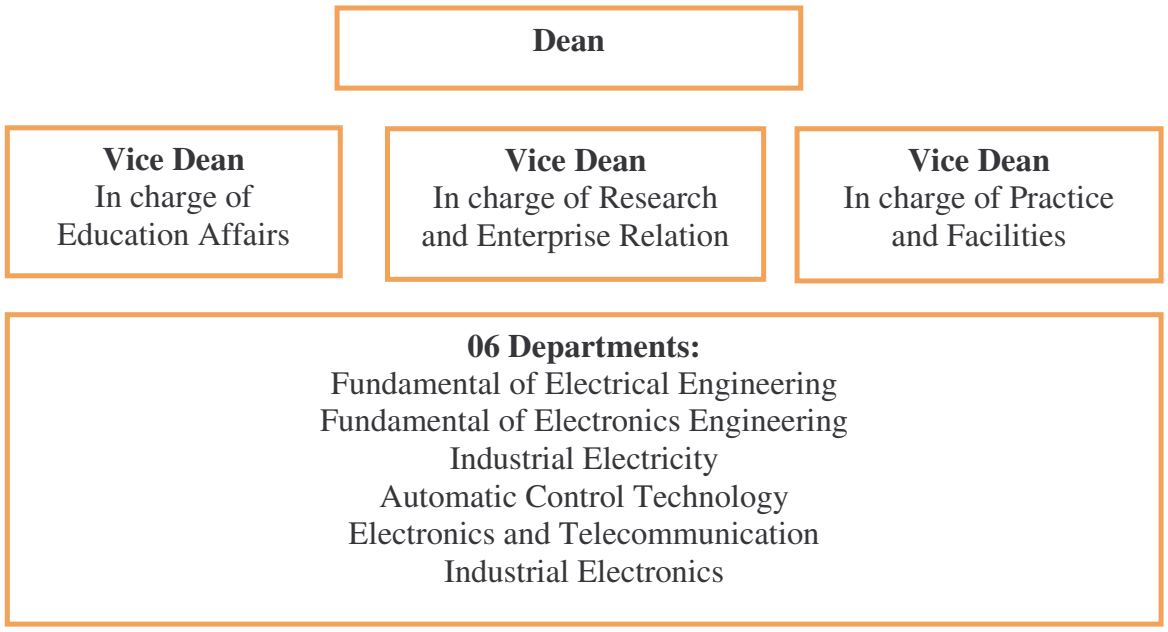

Figure i. Organizational Structure of the FEEE

Table i. Alignment between the mission of FEEE and the mission of HCMUTE

HCMUTE Mission	FEEE Mission
To be an organization for training, research, technology transfer, and vocational education science.	To create the best learning environment for students to solve problems in the field of Electrical and Electronics Engineering Technology, Electronics and Telecommunications Technology, Control and Automation Technology, and Computer Engineering.
To provide technical manpower and high quality scientific products to construct and develop the country; To actively and positively contribute to the fundamental and comprehensive innovation in education and training Vietnam; To integrate into the international education community and maintain sustainable development.	To associate teaching and learning with real-life problems, scientific research and technology transfer in order to provide high-quality human resources serving the industrialization and modernization of the country and international integration.

The Electrical and Electronic Engineering Technology (EEET) Programme

The EEET programme started the first cohort in 1976; until 2015, there have been 40 cohorts.

Concept of the programme

To implement the educational point of view of *"student-centered approach"*, Faculty of Electrical and Electronics Engineering is applying the two following educational principles:

- The 1st principle: The learning process only occurs if students are actively learning;
- The 2nd principle: Students construct their understanding and knowledge of the world through real life experiences and reflecting on those experiences.

This philosophy is applied into the programme through teaching and learning strategies that aim to make the students *"to learn genuinely, to become good practitioners"*.

Programme Educational Objectives (POs)

The EEET programme is to prepare students:

- PO1: To form a solid foundation of general knowledge, foundational technical knowledge and specialized knowledge in the field of Electrical and Electronics Engineering.
- PO2: To form proficient self-studying skills, problem solving skills and technical skills in the field of Electrical and Electronics Engineering.
- PO3: To communicate effectively, be able to organize, lead and conduct teamwork.
- PO4: To apply competences to conceive, design, implement, and operate the systems of Power Supply System, Power Conservation, and Electric Drive, to improve or create new electrical and electronics products.
- PO5: To understand society's needs, social responsibilities and professional ethics, and conception of life-long learning.

Job opportunities

The EEET programme equips graduates with competences to meet the various requirements of different labor markets. After graduation, the graduates will be able to work in companies, factories, industrial manufactories, electric power plants and stations, companies providing electrical consultancy, design, and installation, electricity companies, education organizations, research and technology transfer institutes in the field of industrial electricity, or technical services and research related to electricity and electronics, industrial automation.

PART II: AUN-QA CRITERIA AT PROGRAMME LEVEL

1. Criterion 1 - Expected Learning Outcomes

1.1 The expected learning outcomes have been clearly formulated and translated into the programme

The formulation of the expected learning outcomes

The expected learning outcomes have been stated and published in the Academic Curriculum and Students' Handbook [Exh.1.1: Student Handbook].The process to formulate includes several steps as follows:

- Analysis of the national standards towards undergraduate education, stated in Chapter VI of the Vietnam Education Law 2005;
- Identifying requirements in regulations of education of the MOET;
- Analysis of feedback from the employers, industrial consulting experts, lecturers, alumni, and students in terms of knowledge, skills and attitude, stakeholders' expectation of the graduates [Exh.1.2: Minute of the meeting with skilled experts to analyze the electrical and electronic career], [Exh.1.3: Summative report on survey results in 2007-2009];
- Referring and benchmarking with related programs from other prestigious domestic and oversea universities, such as Hanoi University of Science and Technology, HCMC University of Technology, Georgia Institute of Technology, University of California, Berkeley – USA, University of Melbourne – Australia, University of Auckland – New Zealand, Madras University - India, Hong Kong University of Science and Technology, Bandung Institute of technology – Indonesia, Nanyang Technological university – Singapore, Chulalongkorn University – Thailand, and other universities [Exh.1.4: Summative report on benchmarking results of EEET Programme with other proportional programs];
- Translating the requirements of stakeholders into the ELOs of the program;
- Receiving feedback from stakeholders in the workshop about ELOs of the program.

After the promulgation in 2008, FEEE organized discussion among lecturers to review the ELOs in 2011. The revision was to improve the ELOs to ensure that the ELOs meet the requirements and regulations at Section 4 of the Vietnam Higher Education Law 2012. As the result, the ELOs were improved to be more sufficient and concise, and promulgated in 2012 [Exh.1.5: Decision No.558 date 28/07/2012 promulgation of the ELOs in 2012].

Learning outcomes of the programme: After completing the program, graduates are able to:

- ELO 1: Apply fundamental knowledge of mathematics, natural science and social science; achieve more specialized knowledge and study further at higher levels.
- ELO 2: Construct the basis of core technological knowledge about Power System and Automatic Electric Drive.
- ELO 3: Create the combination of advanced specialized knowledge in the fields of Power System, Power Saving and Automatic Electric Drive.
- ELO 4: Analyze and argue for technical matters; brainstorm systematically, and solve electrical and electronic matters.
- ELO 5: Examine and experiment electrical and electronics matters.
- ELO 6: Implement proficiently professional skills in the electrical and electronics field.
- ELO 7: Work independently; lead and work in a team.
- ELO 8: Communicate effectively in various methods: written communication, electronic communication, graphics and presentation.
- ELO 9: Use English in communication.
- ELO 10: Realize the roles and responsibility of engineers and social circumstance which has impacts on the technical activities of electrical and electronics industry.
- ELO 11: Comprehend business culture, work ethics principles, and working style of industrial organizations.
- ELO 12: Be aware of life-long learning.
- ELO 13: Take shapes of ideas, set up requirements, determine functions and elements of the Power System, Power Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive.
- ELO 14: Design required elements of the Power System, Power Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive.
- ELO 15: Implement hardware and software for elements of small Power System, Power Supply System integrated with recycled power with consideration to Power Saving and Automatic Electric Drive.
- ELO 16: Operate Power System, Power Supply System, and Automatic Electric Drive systems; manage the operation of the electrical and electronic systems.

Table 1.1. Expected learning outcomes of the EEET programme

Group of ELOs	ELOs After completing the programme, graduates are able to:
General knowledge	▪ ELO 1: Apply fundamental knowledge of mathematics, natural science and social science; achieve more specialized knowledge and study further at higher levels.
Technological knowledge	▪ ELO 2: Construct the basis of core technological knowledge about Power System and Automatic Electric Drive. ▪ ELO 3: Create the combination of advanced specialized knowledge in the fields of Power System, Power Saving and Automatic Electric Drive. ▪ ELO 4: Analyze and conduct technical reasoning, systematic thinking, and solving of electrical and electronics problems.
Generic skills	▪ ELO 7: Work independently; lead and work in a team. ▪ ELO 8: Communicate effectively in various methods: written communication, electronics communication, graphics and presentation. ▪ ELO 9: Use English in communication.
Attitude and awareness	▪ ELO 10: Realize the roles and responsibility of engineers and social circumstance, which has impacts on the technical activities of electrical and electronics industry. ▪ ELO 11: Comprehend business culture, work ethics principles, and working style of industrial organizations. ▪ ELO 12: Be aware of life-long learning.
Professional skills	▪ ELO 5: Examine and experiment electrical and electronic matters. ▪ ELO 6: Implement proficiently professional skills in the electrical and electronic field.
	▪ ELO 13: Take shapes of ideas, set up requirements, and determine functions and elements of the Power System, Power Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive. ▪ ELO 14: Design required elements of the Power System, Power

	Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive. ▪ ELO 15: Implement hardware and software for elements of small Power System, Power Supply System integrated with recycled power with consideration to Power Saving and Automatic Electric Drive. ▪ ELO 16: Operate Power System, Power Supply System, and Automatic Electric Drive systems; manage the operation of the electrical and electronic systems

The ELOs are translated appropriately into the programme

Table 1.2 clearly shows that the ELOs of the programs align with its educational programme objectives (POs).

Table 1.2. The relationship and alignment of the objectives and ELOs of EEET Programme

POs	ELOs															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PO1	✓	✓	✓													
PO2				✓	✓	✓										
PO3							✓	✓	✓							
PO4													✓	✓	✓	✓
PO5										✓	✓	✓				

To transfer the ELOs into the programme, the FEEE has analyzed the requirements of ELOs and then identified the knowledge (general and technical knowledge), skills (generic and professional skills) and attitudes-awareness (ethics and life-long learning) that should be taught to students along the programme. The programme helps students to achieve its ELOs through courses (see Figure 3.2) and extra-curriculum activities such as field trips, practicum, seminars, technical contests, and cultural and social activities [Appendix 2: Skill matrix for the contribution of courses for the ELOs]; [Appendix 3: Matrix for the contribution of extra curriculum activities for the ELOs].

The Figure 1.1 shows structure of the curriculum. The last and most important course of the curriculum is the graduation thesis. The order of the courses and studying plan are considered

thoroughly to consolidate each other, so that the graduates are able to achieve the learning outcomes of the programme.

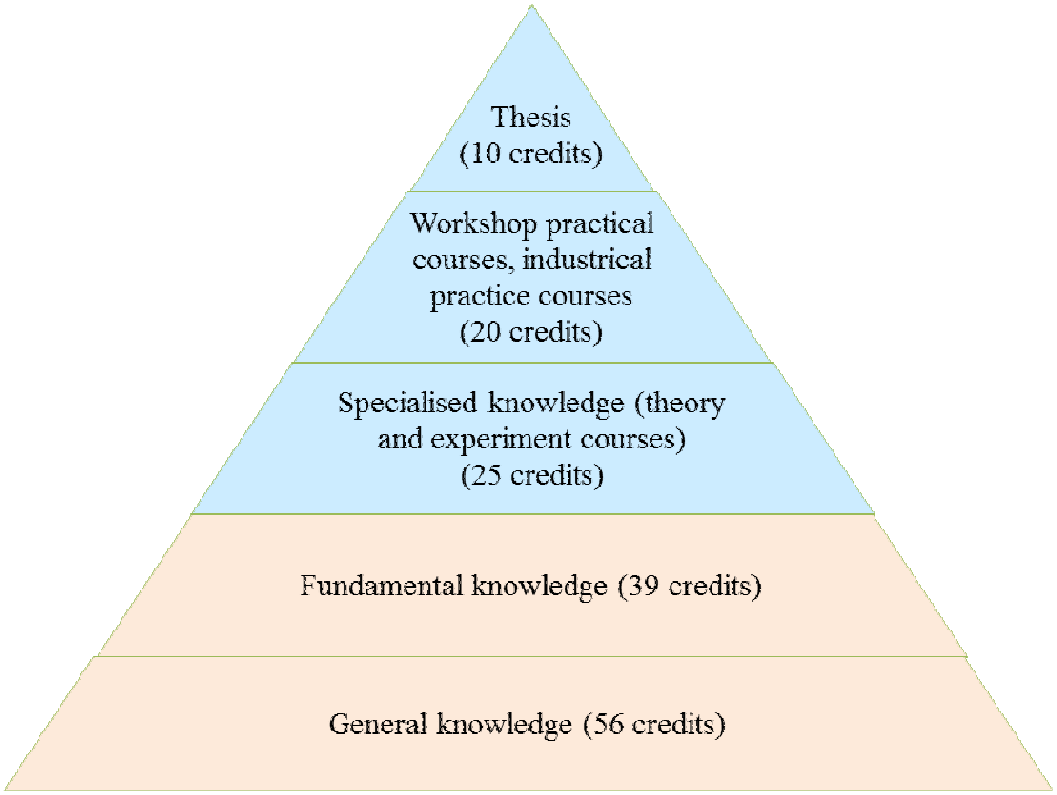

Figure 1.1 Structure of the curriculum

The general courses focus on basic concepts and necessary skills to enable learners to pursue life-long learning. The fundamental and specialized courses concentrate on majored and specialized knowledge and skills related to electrical and electronics field, combining with learning methods and working styles like an electrical and electronics engineer. The EEET Programme has 150 credits which are divided as in Table 1.3.

Table 1.3. List of general courses, fundamental courses and specialized courses in EEET Programme

Block of Courses	Cluster	Course name	Credits	Total
General Courses	Orientation	Introduction to Electrical and Electronics Engineering	3	**3**
	Political Education	Principles of Marxism	5	**12**
		Ho Chi Minh's Thoughts	2	
		Revolutionary Lines of VCP	3	
		General laws	2	

	Mathematics and Natural Sciences	Advanced Mathematics 1	3	**23**
		Advanced Mathematics 2	3	
		Advanced Mathematics 3	3	
		Applied Probability	3	
		General Physics A1	3	
		General Physics A2	2+1 lab	
		Complex Functions and Laplace Transforms	2	
		General Chemistry A1	3	
	Foreign Languages	English 1	3	**9**
		English 2	3	
		English 3	3	
	Social Science (choose 03 among the 06 courses)	General Economics	2	**6**
		Creativity Methodologies	2	
		Planning Skill	2	
		Introduction to Management	2	
		Introduction to Sociology	2	
		Introduction to Quality Management	2	
	IT	Introduction to Information Technology	2+1 lab	**3**
Fundamental Courses	Broad knowledge for the group of majors	Electrical Circuits	4	**25**
		Basic Electronics	4	
		Digital System	3	
		Electrical Measurement and Instruments	3	
		Power Electronics	3	
		Automatic Control Systems	3	
		Microprocessor	3	
		Electrical Safety	2	
	Deep knowledge for the major	Electric Machines	4	**14**
		Electricity Instrument	2	
		Power Supply System	3	
		Automatic Electric Drive	3	

		Electronic and Electrical Materials	2	
Specialized Courses	Compulsory	Programmable Logic Controller	3	**19**
		CAD for Electrical Engineering	2	
		Power System	3	
		Data Acquisition System and SCADA	2	
		Relay Protection and Automation	2	
		Power System Analysis and Simulation	3	
		Professional Development Training	1	
		Project on Electric Drive	1	
		Project on Power Supply System	1	
		Project on Programmable Logic Controller	1	
	Elective (06 credits)	*Application Software*		**6**
		MATLAB/SIMULINK for Power System	2	
		Advanced CAD for Electrical Engineering	2	
		Calculation, Selection and Control of Electrical Devices		
		Lighting Techniques in Residential and Industrial	2	
		Building Access Control and Security System	2	
		Electrical Control Devices	2	
		Special Electrical Machine	2	
		Calculation of Electrical Machine	2	
		Power Station and Power Plant	2	
		New Energy Resource and Power Saving		
		Renewable Energy	2	
		Energy Audit and Efficiency	2	
		Power Quality in Power System	2	
		Building Management System	2	
		ATS and Power Backup System	2	
		Technical management		
		Industrial Management	2	

		Project Management	2	
	Specialized knowledge (courses in workshop, industrial internship)	Electronics in Practice	2	**20**
		Electricity in Practice	1	
		Electrical Measurement in Practice	1	
		Digital System in Practice	2	
		Microprocessor in Practice	2	
		Electric Machine in Practice	2	
		Power Electronics in Practice	2	
		Programmable Logic Controller in Practice	2	
		Power Supply System in Practice	2	
		Electric Drive in Practice	2	
		Industrial Internship	2	
	Graduation Thesis	Graduation Thesis	10	**10**

1.2. The programme promotes life-long learning

The EEET programme develops 08 students' key competences of life-long learning in accordance with the European Framework:

- Communication in the mother tongue: students practise listening, speaking, reading and writing skills in Vietnamese through oral presentations in classroom; group work and others communication in such as thesis writing. The university and the faculty organize other social and cultural activities for them to joint.
- Communication in foreign languages: students practise their listening, speaking, reading and writing skills in English in 03 English courses of the program and others communication situations such as international seminars, conferences and contests.
- Mathematical competence and basis competence in science and technology: the program teaches Mathematics and Science courses in the first year. Then, students use mathematics and scientific knowledge to solve the engineering problems in the fundamental and specialization majors. The programme prepares students for continued learning for their professional or academic development after graduation (see Figure 1.2).

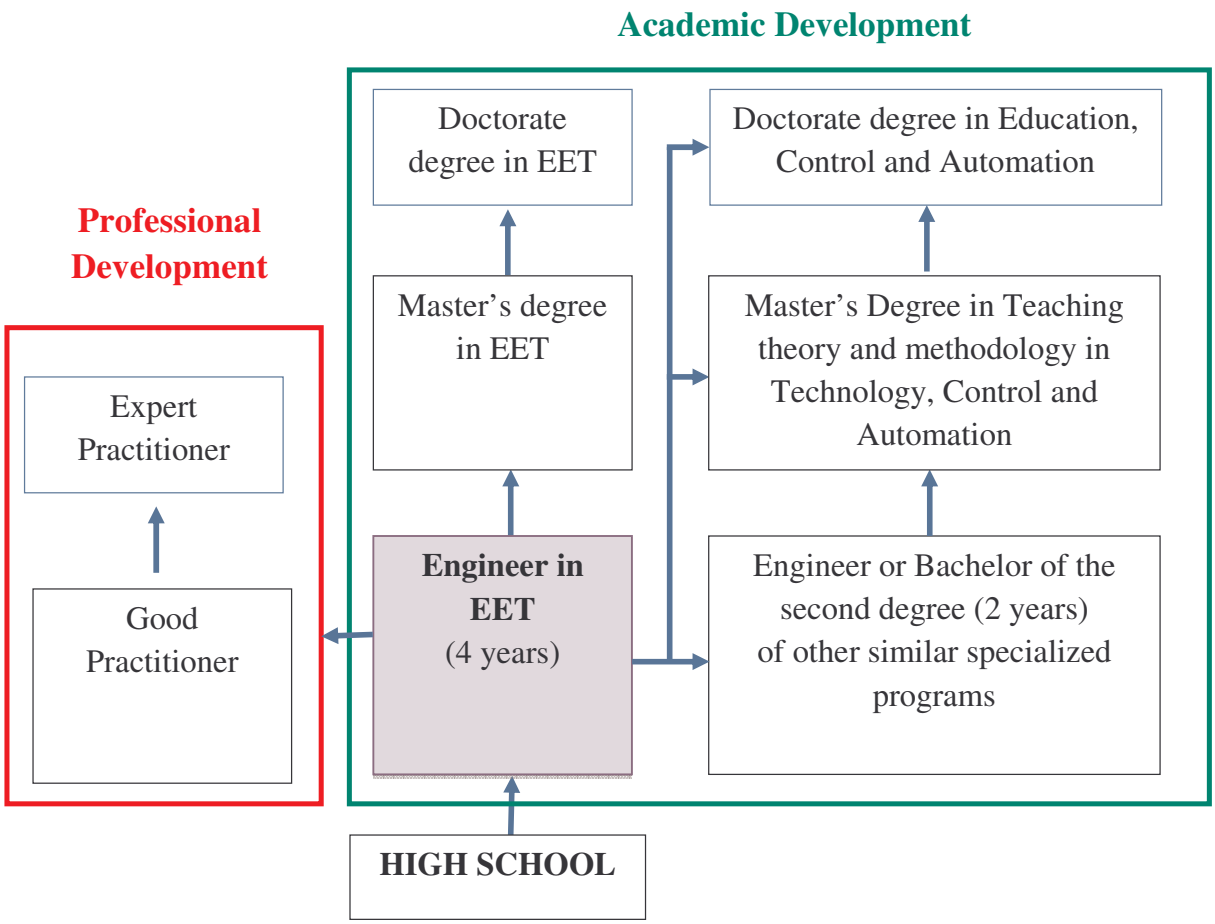

Figure 1.2. Flowchart of life-long learning routine for students of EEET Programme

- Digital competence: the programme consists of computing courses. Along with the program, students are trained to use Internet, computer software and electronics resources to do assignments and projects. They use computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative works via the Internet.
- Learning to learn: there is an orientation for new students about learning methods. Afterwards, in the programme, students' active learning is facilitated.
- Social and civic competences: Physical training courses and environment education are taught in the programme. These help students know how to improve their health and know how to protect themselves. The political courses teach students about social issues such as gender equality and how to develop their democratic participation.
- Sense of initiative and entrepreneurship: students are helped to develop their ideas of entrepreneurship, ethnic and social responsibility in Introduction course

at the first year and then, in course projects and practicum at companies in other years of the program.

- Cultural awareness and expression: students are given opportunities to attend social and cultural activities organized by the university and faculty.

1.3. The expected learning outcomes cover both generic and specialised skills and knowledge

The ELOs of the EEET Programs cover both general and technological knowledge and skills, as well as attitude and awareness, as shown at Table 1.1. They reflect the mature of students in developing their own personality to have an academic attitude and to be competent in the field of Electrical and Electronics Engineering. While the first outcome corresponds to knowledge of fundamentals science, the remaining outcomes are oriented to the job market to ensure that the graduates can develop their career by themselves.

1.4. The expected learning outcomes clearly reflect the requirements of the stakeholders

The ELOs and curriculum of the EEET Programme are consolidated from the requirements and regulations of the State and the MOET. Through meetings, employers, industrial consulting experts, lecturers, alumni, and the representatives of current students informed their requirements and expectation of graduate competences [Exh.1.6: Minute of the meetings with: employers, industrial consulting experts, lecturers, alumni, and the representatives of current students]. These requirements and expectation are analyzed and transferred into ELOs [Exh.1.7: Minute of the meeting with the Board of Science and Education faculty of the programme adjustment]. The ELOs are refined as following:

- Basic knowledge of mathematics and science;
- Professional knowledge and skills in electrical and electronics engineering;
- Communication skills and teamwork;
- Ethics and social responsibility;
- Willingness to learn new knowledge and skills.

These requirements and expectation can be seen in the ELOs of the program (see Table 1.1).

According to the regulations of the University, every year, the FEEE conducts meeting and survey to collect stakeholders' feedback on ELOs and curriculum for the continuous improvement. All results from 2011 to 2015 have showed that the ELOs are highly agreed by stakeholders. [Exh.1.8: Questionnaires for stakeholder survey to design the ELOs of the EEET Programme and the summative survey results from 2011 to 2015].

2. Criterion 2 - Programme Specification

2.1. The university uses programme specification

Application documents for opening the EEET programme were approved and officially promulgated by the University [Exh.2.1: Decision No. 559/DHSPKT, date 04/09/2012 about

issuing training programme], [Exh.2.2: Application documents for opening the EEET Programme], in which, the Programme Specification was attached and described in details [Appendix 1: Programme specification of EEET Programme]. Besides, the curriculum map was also included in the Students' Handbook and on the FEEE website [Exh.1.1: Student Handbook].

The programme specification of Electrical and Electronics Engineering Technology has the following information:

- Awarding institution: Ho Chi Minh City University of Technology and Education
- Teaching institution: Faculty of Electrical and Electronics Engineering, Ho Chi Minh City University of Technology and Education
- Details of the accreditation by a professional or statutory body: were recognized in 2010 by Ministry of Education and Training (MOET)
- Name of the final award: Bachelor of Engineering in Electrical and Electronics Engineering Technology
- Programme title: Electrical and Electronics Engineering Technology
- **Learning outcomes of the programme:** After completing the program, graduates are able to:
    a. ELO 1: Apply fundamental knowledge of mathematics, natural science and social science; achieve more specialized knowledge and study further at higher levels.
    b. ELO 2: Construct the basis of core technological knowledge about Power System and Automatic Electric Drive.
    c. ELO 3: Create the combination of advanced specialized knowledge in the fields of Power System, Power Saving and Automatic Electric Drive.
    d. ELO 4: Analyze and argue for technical matters; brainstorm systematically, and solve electrical and electronic matters.
    e. ELO 5: Examine and experiment electrical and electronics matters.
    f. ELO 6: Implement proficiently professional skills in the electrical and electronics field.
    g. ELO 7: Work independently; lead and work in a team.
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    i. ELO 9: Use English in communication.

j. ELO 10: Realize the roles and responsibility of engineers and social circumstance which has impacts on the technical activities of electrical and electronics industry.

k. ELO 11: Comprehend business culture, work ethics principles, and working style of industrial organizations.

l. ELO 12: Be aware of life-long learning.

m. ELO 13: Take shapes of ideas, set up requirements, determine functions and elements of the Power System, Power Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive.

n. ELO 14: Design required elements of the Power System, Power Supply System, Renewable Energy, Power Saving, Electric Machines, and Automatic Electric Drive.

o. ELO 15: Implement hardware and software for elements of small Power System, Power Supply System integrated with recycled power with consideration to Power Saving and Automatic Electric Drive.

p. ELO 16: Operate Power System, Power Supply System, and Automatic Electric Drive systems; manage the operation of the electrical and electronic systems.

- Admission criteria or requirements to the programme: National Entrance Examination in July.

Admission point equals to total points of 3 subjects (in 2015 intake, Mathematics score is multiplied by factor of 2) plus the priority point set up by MOET.

Subject group (A00): Mathematics, Physics, Chemistry

Subject group (A01): Mathematics, Physics, English

Subject group (D00): Mathematics, Literature, English

The programme reserves 10% direct admission for selected candidates who have excellent academic performance with honors from high school.

- Programme outcomes such as knowledge, skills and attitudes: have been stated in programme educational objectives, page 8 and
- Programme structure and requirements including levels, modules, credits

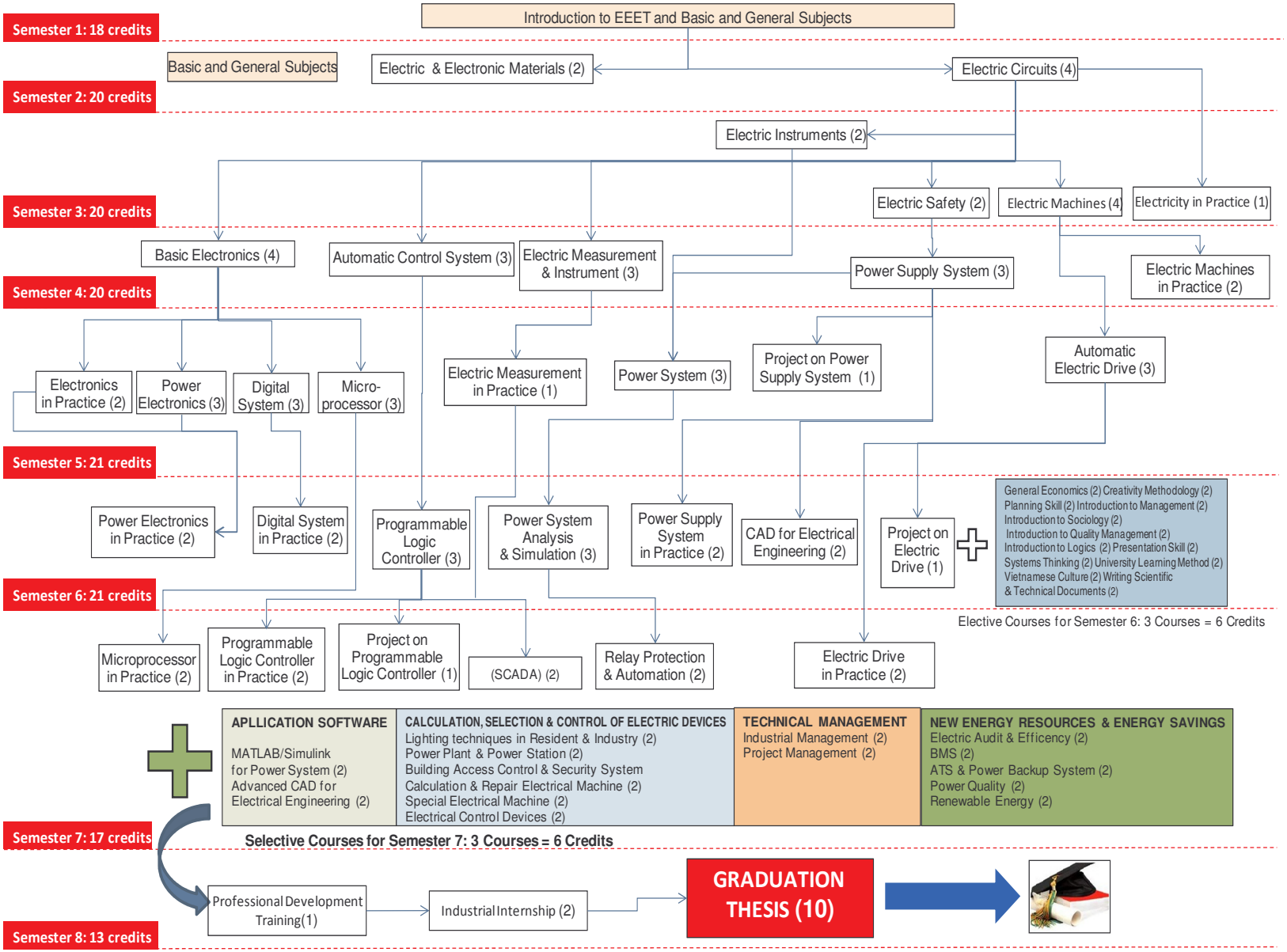


Figure 2.1 Curriculum map

- Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated

    a. Learning by doing;
    b. Enhancing student's active learning;
    c. Project based learning;
    d. Encouraging students' teamwork;
    e. Integrating theories in professional practice through field trips and internship;
    f. Applying information and communication technology for blended learning;
    g. Developing student's research an thesis
    h. Course assessment
    - Formative assessment: at least three times (presentation, project, Mid-term exam): 50%;
    - Final exam: 50%

The programme specification has been used by relevant stakeholders (university and faculty leaders, lecturers, students) in the following process:

- Before each semester, FEEE refers to the programme specification of EEET Programme to make the "Teaching plan of EEET Programme in the academic year" to determine courses to be taught in the semester, and then allocates the courses to suitable departments.
- Every department builds the "Course allocation" to assign to courses for lecturers. The Academic Affairs Office makes the timetable for the courses in the semester, and then informs students.
- Students make the most reasonable timetable for their own and then register the courses in the semester.
- The lecturer in charge of the course refers to the course specification, which is included in the programme specification to review and improve "Course profile" [Exh.2.3: Regulations about revision and updating the course profile]. [Exh.2.4: Course specification of several representing courses].
- The University performs necessary upgrade and maintenance, to ensure the effective supports for teaching and learning activities of the courses in the semesters [Exh.2.5: Report on revision and assessment of facilities].

2.2. The programme specification shows the expected learning outcomes and how these can be achieved

The programme specification shows the complete ELOs of the programme. In order to help students achieve the ELOs, the learning journey of students is designed as following:

First of all, the course "Introduction to Electrical and Electronics Engineering Technology Programme" stimulates students' motivation of learning and helps them understand the overview of the EEET, the basic problems of professional practice, scientific research methods, the requirements of the discipline, and the work environment [Exh.2.6: Course

specification of "Introduction to Electrical and Electronics Engineering Technology Program], [Exh.2.7: Course specification of Digital Technology, Microprocessor, Digital Technology Practice, Microprocessor Practice, Programmable Control, Programmable Control Practice, and Programmable Control Project]. After the course, most students are strongly motivated and can visualize their learning route described in curriculum map (see Figure 2.1).

Secondly, the EEET Programme is operated in the credit-based system, which enables students to learn accordingly to their ability and expectation from the general education courses to the professional education courses, and end with a thesis. Reflective learning of students are developed through the assignments, project of the courses in which lecturers encouraged and guided students to implement the activities identified issues, analyze, evaluate, test solutions, and learn from experience [Exh.2.8: Course Project 1, 2, graduation dissertation].

The learning environment is open. Lecturers foster students' ideas, encourage and orient students to participate actively in research. They are ready to consult students in contact hours [Exh.2.9: List of projects conducted by students in 2010-2015].The teaching assistants interact with students to share and help them to overcome their challenges.

Last but not least, the extra curriculum activities organized by the university and the FEEE contribute to the students' achievement of the generic skills described in the ELOs [Appendix 2: Skill matrix for the contribution of courses for the ELOs]; [Appendix 3: Matrix for the contribution of extra curriculum activities for the ELOs].

2.3. The programme specification is informative, communicated, and made available to the stakeholders

The programme specification contains all basic and necessary information for relevant stakeholders (for students, lecturers, and particularly for employers), including general information of the institution, degree, name of the programme; and information about educational objectives, ELOs of the programme, job opportunities; educational philosophy, teaching and learning principles; programme structure and content, faculty quality, and conditions for quality assurance of teaching and learning.

The FEEE organizes meeting with newly enrolled students to introduce and explain the programme specification clearly and thoroughly, so that students completely comprehend and know how to use the programme specification to create and adjust their studying plan. Studying methods and academic regulations are also introduced via this meeting [Exh.2.10: Meeting with newly enrolled students].

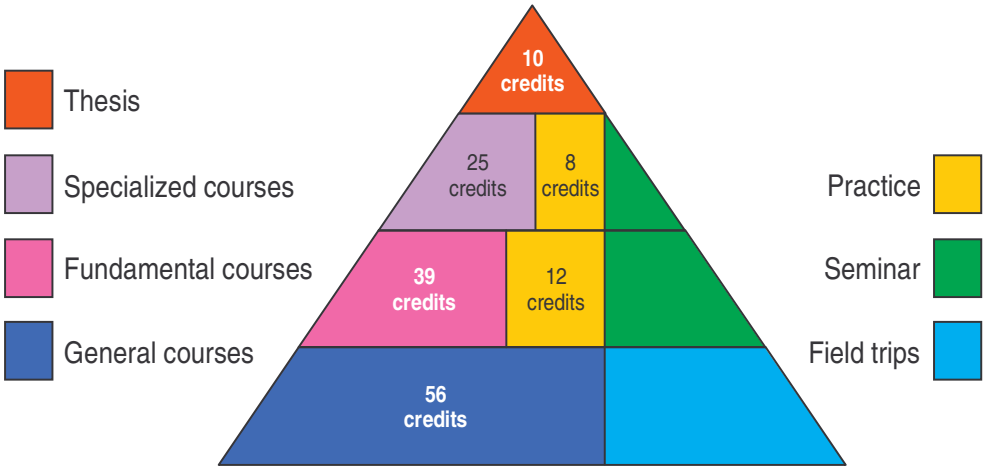
The hard copy of the programme specification is always available in the faculty office as a handbook for supporting staff, lecturers in regular affairs such as making timetable, allocating teaching workload and consulting students. At course level, lecturers write the course specification of their courses, then introduce and explain to students at the first time of the course. The programme specification of EEET Programme is publicized on websites, Student

Handbook, printed as a hard copy to be used at the faculty office, and posters to be posted at announcement boards of the faculty to inform relevant stakeholders.

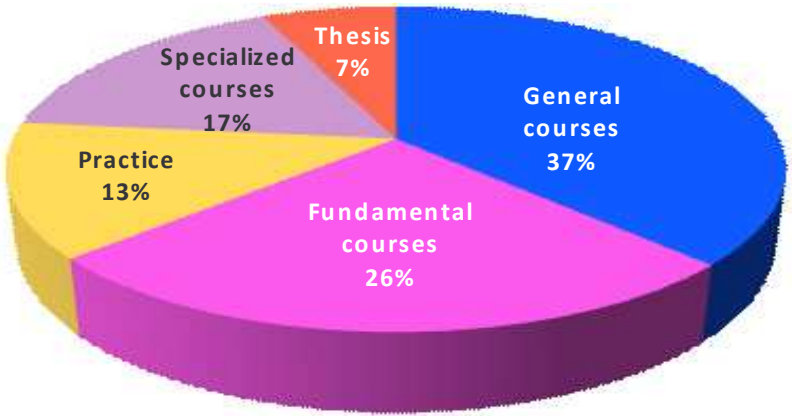
3. Criterion 3 – Programme Structure and Content

3.1. The programme content shows a good balance between generic and specialized skills and knowledge

The clusters of courses are distributed with reasonable ratios (see Figure 3.1), which have created a balance and effectiveness in teaching and learning.



(a) Credit course distribution of programme



150 credits = 100%

(b) Percentage of course distribution of programme

Figure 3.1 Credit allocations of courses in EEET Programme

3.2. The programme reflects the vision and mission of the university

To fulfill the mission of the university, which is to supply high quality human resources, the EEET program has been designed in a way that students have “learning by doing”. The theory courses go along with proportional practical and experimental courses that account for 13% of the programme. Students are given opportunities to do course projects, field trips and practicum in national and international big factories. The FEEE develops a creative environment for students to develop their own ideas of technical innovation through their projects, contests and theses. These make them best adaptable to the rapid change of technology.

In addition, the programme equips students with ethics and good attitude to serve the community through social activities such as Green Summer, Blood donation, etc. The programme contributes to fulfill the mission of the university, which is to provide qualified lecturers, engineers, managers, and researchers for the objectives of socio-economic development of Vietnam [Appendix 4: Vision and mission of HCMUTE].

3.3 The contribution made by each course to achieving the learning outcomes is clear

The achievement of ELOs by students is shown clearly at the table of Skill matrix of contribution of courses to the ELOs of EEET Programme [Appendix 2: Skill matrix of contribution of courses to the ELOs of EEET Programme].

It is regulated that every course has its own course ELOs [Exh.3.1: Course specification of sample courses]. The course ELOs contribute to achieve the ELOs of the programme [Exh.3.2: Course Profile]. The contribution of every course to the ELOs is clearly reflected. Moreover, the feedback from stakeholders, particularly from the employers, shows that they are satisfied with the quality of the graduates working at their businesses and students achieve the knowledge, skills and attitude from each individual course.

3.4. The programme is coherent and all subjects and courses have been integrated

The programme specification shows the ELOs of the programme. List of courses and the course specifications, curriculum map (see Figure 2.1) help students learn and achieve the ELOs during their learning process. The contribution of the course ELOs to the programme ELOs is reviewed, adjusted periodically in every year to ensure that students' successful completion all courses equals to the their achievement of the programme ELOs.

3.5. The programme shows breadth and depth

To be designed using Bloom Taxonomy and to be arranged as the Figure 3.3 below, the programme shows its depth and breadth of knowledge. There are totally 150 credits in the programme, in which there are 23 credits for mathematics and natural sciences, making up 15.3% of the total credits. The professional knowledge is 94 credits, making up 62.7% and is divided into 03 specialized branches: Industrial Electricity and Electronics, Electric Drive and Automatic Control. Hence, the EEET programme shows both depth and breadth in specialized courses within the programme.

Matrix courses vs. learning outcomes

H: Highly Supportive S: Supportive N: Non Supportive

No	Group of courses			Course	# credit	Learning Outcomes														
						A			B			C						D			
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	General Courses	Introduction	IEET130145	Introduction to Electrical & Electronics Engineering Technology	3	N	N	N	S	S	S	H	S	S	H	H	S	N	N	N	N
2		Political Education	LLCT150105	Principles of Marxist-Leninism	5	S	N	N	N	N	N	N	N	N	N	S	N	N	N	N	N
3			LLCT120314	Ho Chi Minh's Ideology	2	S	N	N	N	N	N	N	N	N	N	S	N	N	N	N	N
4			LLCT230214	Revolutionary Lines of VCP	3	S	N	N	N	N	N	N	N	N	N	S	N	N	N	N	N
5			GELA220405	General Laws	2	S	N	N	N	N	N	N	S	N	S	S	S	N	N	N	N
6		IT	VBPR131085	Visual basic program	3	H	N	N	N	N	N	N	N	S	S	N	H	N	N	N	N
7		Foreign Languages	ENGL130137	English 1	3	S	N	N	N	N	N	S	S	H	N	N	H	N	N	N	N
8			ENGL230237	English2	3	S	N	N	N	N	N	S	S	H	N	N	H	N	N	N	N
9			ENGL330337	English 3	3	S	N	N	N	N	N	S	S	H	N	N	H	N	N	N	N
10		Mathematics and Natural Sciences	MATH130101	Advanced Mathematics1	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
11			MATH130201	Advanced Mathematics2	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
12			MATH130301	Advanced Mathematics3	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
13			MATH130401	Applied Probability	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
14			PHYS120102	General Physics A1	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
15			PHYS120202	General PhysicsA2	3	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
16			MATH12120	Complex Functions and Laplace Transforms	2	H	S	N	N	N	N	N	N	N	S	N	H	N	N	N	N
17			GCHE130103	General Chemistry A1	3	S	S	N	N	N	N	N	N	N	S	N	S	N	N	N	N
18		Physical Education	GEEC220105	1. Physical Education 1		N	N	N	N	N	N	S	N	N	N	N	S	N	N	N	N
19				2. Physical Education 2		N	N	N	N	N	N	S	N	N	N	N	S	N	N	N	N
20			PLSK320605	3. Physical Education 3 (compulsory)		N	N	N	N	N	N	S	N	N	N	N	S	N	N	N	N
21		Social Science (choose 03 among the 06 courses)	GEEC220105	General Economics	2	S	N	N	N	N	N	N	S	N	S	S	S	N	N	N	N
22				Creativity Methodologies	2	S	N	N	N	N	N	N	S	N	S	S	S	N	N	N	N
23			PLSK320605	Planning Skill	2	S	N	N	N	N	N	S	S	N	S	S	S	N	N	N	N
24			INMA220305	Introduction to Management	2	S	N	N	N	N	N	S	S	N	S	S	S	N	N	N	N
25			INSO321005	Introduction to Sociology	2	S	N	N	N	N	N	S	S	N	S	S	S	N	N	N	N
26			IQMA220205	Introduction to Quality Management	2	S	N	N	N	N	N	S	S	N	S	S	S	N	N	N	N
27	General Courses	Social Science (choose 03 among the 06 courses)	INLO220405	Introduction to Logics	2	S	N	N	N	N	N	N	S	N	N	S	S	N	N	N	N
28			PRSK320705	Presentation skills	2	S	N	N	N	N	N	S	H	N	N	S	S	N	N	N	N
29			SYTH220505	Systems Thinking	2	S	N	N	N	N	N	S	S	N	N	S	S	N	N	N	N
30			ULTE121105	University learning methods	2	S	N	N	N	N	N	S	S	N	N	S	S	N	N	N	N
31			IVNC320905	Vietnamese culture	2	S	N	N	N	N	N	N	S	N	N	S	S	N	N	N	N
32			TDTS320805	Writing Scientific and Technical Documents	2	S	N	N	N	N	N	S	S	N	N	S	S	N	N	N	N
33	Fundamental Courses	Broad knowledge for the group of majors	ELCI140144	Electrical Circuits	4	H	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
34			BAEL340662	Basic Electronics	4	H	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
35			DIGI330163	Digital System	3	N	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
36			EMIN330244	Electrical Measurement and Instruments	3	S	H	N	S	H	N	N	N	N	S	N	S	N	N	N	N
37			POEL330262	Power Electronics	3	S	H	N	S	N	N	N	N	N	S	N	H	N	N	N	N
38			ACSY330346	Automatic Control Systems	3	H	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
39			MICR330363	Microprocessor	3	S	H	N	S	N	N	N	N	N	S	N	H	N	N	N	N
40			ELSA320245	Electrical Safety	2	H	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
41		Deep knowledge for the major	ELMA240344	Electric Machines	2	S	S	N	S	N	N	N	N	N	S	N	S	N	N	N	N
42			ELIN320444	Electricity Instrument	4	H	S	N	S	N	N	N	N	N	S	N	H	N	N	N	N
43			ELPS330345	Power Supply System	3	N	N	S	H	H	N	N	N	S	S	S	H	N	N	N	N
44			ELDR320545	Automatic Electric Drive	3	S	H	N	H	S	N	N	N	S	S	N	H	N	N	N	N
45			EEMA220544	Electronic and Electrical Materials	2	S	S	S	S	S	N	N	N	S	S	S	H	N	N	N	N
46	Specialized Courses	Compulsory	PLCS 330846	Programmable Logic Controller	3	N	H	S	H	S	N	N	N	S	S	N	S	N	N	N	N
47			ECAD320645	CAD for Electrical Engineering	2	N	H	S	S	S	N	N	N	S	S	N	S	N	N	N	N
48			POSY330445	Power System	3	S	H	N	S	S	N	N	N	S	S	N	H	H	S	S	S
49			SCDA420946	Data Acquisition System and SCADA	3	S	H	N	S	S	N	N	N	S	S	N	H	H	S	S	S
50			REPR320745	Relay Protection and Automation	2	S	H	N	H	S	N	N	N	S	S	N	H	H	S	S	S
51			PSAS430845	Power System Analysis and Simulation	2	S	H	S	H	S	S	N	S	S	S	S	S	H	S	S	S
52		Compulsory	PRTO412445	Professional Development Training	1	S	S	S	S	S	S	H	H	S	H	H	S	H	S	S	S
53			PRED410945	Project on Electric Drive	1	S	S	H	H	H	S	H	H	S	H	H	S	H	H	H	S
54			PRES411045	Project on Power Supply System	1	S	S	H	H	H	S	H	H	S	H	H	S	H	H	H	S
55			PLCR 311146	Project on Programmable Logic Controller	1	S	S	H	H	H	S	H	H	S	H	H	S	H	H	H	S
56		Elective (06 credits)	ELCD321545	Electrical Control Devices	2	N	S	H	H	S	S	S	S	S	H	S	S	S	S	H	H
57			RENE321745	Renewable Energy	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
58			ENAE321845	Energy Audit and Efficiency	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
59			PQE320755	Power Quality in Power System	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
60			LTRI321345	Lighting Techniques in Residential and Industrial	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
61			SCDA 420946	Data Acquisition System and SCADA	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
62			SSSY321445	Building Access Control and Security System	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
63			PLSUE40445	Power Station and Power Plant	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
64			EMCE321744	Calculation of Electrical Machine	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
65			SPMA32CD44	Special Electrical Machine	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
66			ACAD321245	Advanced CAD for Electrical Engineering	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	H	H
67			MSET321145	MATLAB/Simulink for Power System	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	H	H
68			BMSY322045	Building Management System	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
69			SSAS322045	ATS and Power Backup System	2	N	S	H	H	S	S	S	S	S	H	S	S	H	H	S	H
70			PJMA 322345	Project Management	2	N	S	H	H	S	S	S	S	S	H		S	H	H	S	N
71			IDMA322245	Industrial Management	2	N	S	H	H	S	S	S	S	S	H		S	H	H	S	N

H: Highly Supportive S: Supportive N: Non Supportive

Matrix courses vs. learning outcomes

No	Group of courses		Course	# credit	Learning Outcomes															
					A			B			C						D			
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
72	Specialized Courses	Specialized knowledge (courses in workshop, industrial internship)	ELPR320762	Electronics in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
73			ELPR210644	Electricity in Practice	1	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
74			PMEM31084	Electrical Measurement in Practice	1	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
75			PRDI320263	Digital System in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
76			PRMI 320463	Microprocessor in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
77			PREM221244	Electric Machine in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
78			POEP320262	Power Electronics in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	S	S
79			PPLC321346	Programmable Logic Controller in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	H	H
80			PRES322545	Power Supply System in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	H	H
81			ELEC322645	Electric Drive in Practice	2	S	H	H	S	H	H	S	S	S	H	S	S	H	S	H	H
82			ININ422745	Industrial Internship	2	S	H	H	H	H	H	H	S	S	H	H	S	H	S	H	H
83		Grad. Thesis	FIPR 402845	Graduation Thesis	10	H	H	H	H	H	H	H	H	S	H	S	H	H	H	H	H

Figure 3.2 Skill matrix of contribution of courses to the ELOs of EEET Programme

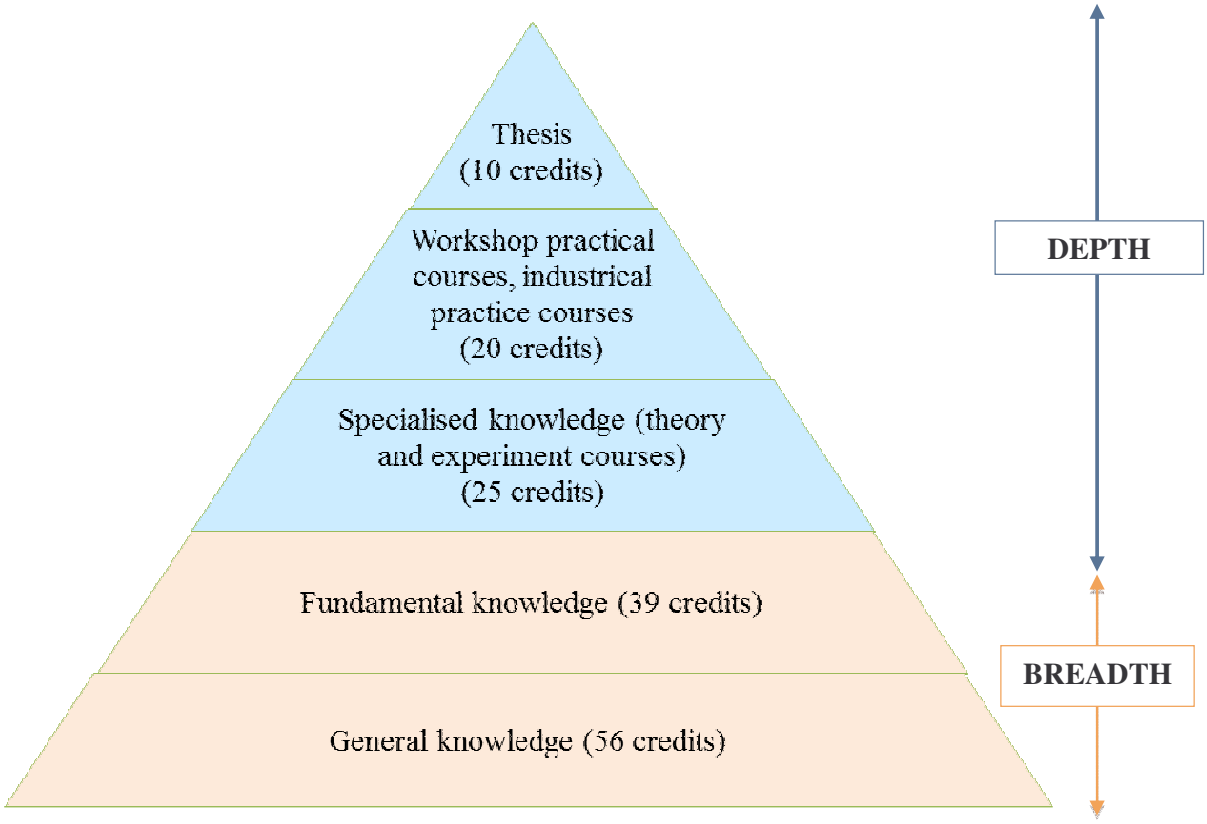


Figure 3.3 Diagram of the arrangement of knowledge blocks in EEET Programme

3.6. The programme clearly shows the basic courses, intermediate courses, specialised courses and the final project, thesis or dissertation

The Figure 3.2 and Figure 3.3 show in details the flow of the courses in the programme, as well as the requirements of prerequisite courses. It is clear that the curriculum contains general/basic courses, fundamental/intermediate courses, specialized courses, and the final thesis. Students should refer to this information to make their own studying plan for the entire programme.

3.7. The programme content is up-to-date

HCMUTE issued Procedure on Adjustment of Training Programme. Updating cycle of the training programme is 12 months [Exh.3.3: Procedure on Adjustment of Training Programme]. The Dean and Head of the Industrial Electricity Department plan for updating and adjusting programs and through the Council of Science and Education Department [Exh.3.4: Minutes of the meeting of the Board of Science and Education department of the programme adjustment]. At the course level, each department also organizes meeting to update the curriculum for all lecturers.

The programme content updated based on learning from leading domestic and oversea universities. The lecturers of the programme have been trained by many prestigious universities and institutions in the world. English competence of students is improved to be equivalent to international standards, to ensure their ability to work in multicultural and multinational environment [Exh.3.5: Electrical and Electronics programme of several domestic and international universities].

4. Criterion 4 - Teaching and learning strategy

4.1. The faculty or department has a clear teaching and learning strategy

The University conducts a policy that encourages lecturers to facilitate students' self-learning on new knowledge and develop their maturity. [Exh.4.1: Regulation No 117/DHSPK HCMC on renewal/improvement of teaching and learning methods], [Exh.4.2: Minutes of meeting of department for teaching strategy].

The educational philosophy of the programme is “learning by doing”, all lecturers use the common teaching strategy that is to stimulate students’ independent thought and to engage them in “action learning” through the diversity of teaching and learning activities:

- Classroom activities such as lectures, class discussion, group discussion;
- Students’ group work such as assignment, laboratory experiments, students’ project
- Professional practice such as field trips, internship;
- Research and thesis where student and supervisor interact in research process;
- E-learning is used in all courses to support students’ self-learning and develop the interaction between lecturers and students;
- Students’ reflective learning is stimulated and fostered in courses, lab experiments, practicum, course projects and theses.

4.2 The teaching and learning strategy enables students to acquire and use knowledge academically

According to criterion 3, based on structure and contents of programme that is designed using Bloom Taxonomy approach, lecturers teach students knowledge from basics to advance, from breath to depth.

Descriptions show that students initiate in learning and analyze related events to improve their quality of learning. Lecturers stimulate students' passion in experiment and exploration. Theory is taught in parallel with practice in order for students to acquire and use/resolve basic problems of EEE knowledge academically. Students start to resolve basic problems of EEE knowledge from simple to complex to widen breadth and depth knowledge. Students are coached with some basic components of engineering profession, professional skills, and soft skills [Exh.4.3: Introduction to Engineering Project- Course Syllabus].

As a part of the EEET Programme, students must complete course projects on various topics such as power supply system, automatic electric drive, and programmable logic controller. Several course contents help students work on these projects; for example, courses on Power Supply System, Electrical safety can support the projects on Power Supply System; courses on Automatic Electric Drive, Electric Machines can support the projects on Automatic Electric Drive; courses on Programmable Logic Controller, Automatic Control Systems can support projects on Programmable Logic Controller.

These course projects provide students with design methods for electronics network delivered to shops (including features of workshops, data of additional charge, groups of additional charge, building diagram for splice wires, counting of additional charge in each level, choosing quantity and capacity transformer, choosing of power of spare generator, choosing compensated power and compensated project, choosing cables, choosing on/off equipment, choosing cabinet for electronic deliverability, calculating for short-circuit, calculating the wires connected under the ground and designing for estimation, etc). In parallel, students know how to use, consolidate learned knowledge on electric machines, electricity Instrument, Automatic Electric Drive, Electrical Control Devices, in order to resolve cases in practice for automatic electronic deliverability.

Course projects are implemented during the semester that the projects are scheduled. Students either work in groups or individually. At the end of the semester, there representative of each group or individuals must present the results of the course project in front of the class and nominated lecturers and reviewers. Course projects are considered as regular courses, so the final score of the course will consist of the score of the course lecturer and the reviewer's score.

Students have the first contact with research on the orientation week. The EEE faculty organizes a research tour to introduce students to the laboratories and research achievements of the lecturers and students of the programme. Then, they are encouraged to joint student research teams where senior and junior students work in groups under the supervision of lecturers. They can develop their own research and are helped by lecturers and teaching assistants during the development of the research.

In addition, extracurricular activities such as seminars given by employers give students' insights about practice. The international and national technical contests are environments where students' creative thinking are stimulated and fostered.

4.3. The teaching and learning strategy is student oriented and stimulates quality learning

a) The teaching and learning strategy is student oriented

To help students know how to learn actively, the university prepares them for orientation in the first week. Students are supposed to prepare four self-study hours at home per one face-to-face hour in class, so lecturers provide students with learning methods and instruction to help them access different materials before class. Based on faculty/department's guidelines and ELOs, students must build their individual learning plan and choose learning methods so that they could meet requirements of lecturers.

According to student-centered teaching method, "lecturers'' role is a "facilitator" and helps students to experience experiments that "help them to explore new knowledge by themselves". Students develop independent thinking and reflective learning through experiments provided by lecturers or themselves.

b) The teaching and learning strategy stimulates quality learning

Learning activities in the EEET programme stimulate "independent and genuine learning that make students to become good practitioners". Students are engaged in action learning through course projects, graduation thesis and scientific research. These give students opportunities to do trial, errors and reflection.

E-learning and Mobile (E/M) learning provides students with opportunities to interact with their lecturers and classmates [Exh.4.4: CAD in Power System Engineering – Teaching Document. Some video lectures via online-course of electronic apply]. Students have access to laboratories with modern equipment and tools that are widely used in industries [Exh.4.5: Pictures of laboratories with modern facilities in industries (Room GE, OMRON, etc.)].

Students can participate in competition such as Robocon (Robot Contest) [Exh.4.6: Rewards for winners' competition of Robocon], Car Racing Prize [Exh.4.7: Pictures of Solar Car Racing Prize]. They also had chances to approach big companies such as General Electric (GE), ABB, KOHLER, Omron, Texas Instruments (TI), etc. The university and FEEE often organize training workshops, conferences to collect feedback from employers [Exh.4.8: Some pictures of workshops, conferences of industries].

Lecturers use power point presentations, videos and photos to illustrate simple to complex contents. Beside, simulation results using softwares as Labview, Matlab, Power World, Etap are used to visualize complex technical systems [Exh.4.9: CAD in Power System Engineering – Teaching Document; Some video lectures via online- course of electronic application].

The GE-UTE room is used for students to practice electrical deliver ability, re-creation of energy and electronic system and conduct projects, scientific research for graduation dissertations [Exh.4.10: Students' products in laboratories], [Exh.4.11: Some winners/students' awards in laboratories].

Finally, theses for graduation is an opportunity for students to develop their own ideas of electrical and electronics technology systems. Then, under the supervision of lecturers they design, implement and operate their products [Exh.4.12: List of Theses 2010-2015].

4.4. The teaching and learning strategy stimulates action learning and facilitates learning to learn

All teaching and learning activities in the EEET programme promote "independent learning" and achieve "genuine learning, profesionalism". The teaching and learning strategy stimulating "action learning" and facilitating "learning to learn" are carried out by lecturers mainly through course projects, capstone projects and research projects. Learning through projects is a process of problem-based learning, trial and errors. Reflective learning of students is triggered from lecturers' instant feedback and recommendation for their results. When students do tasks given by their lecturers, they often receive feedback or recommendation. During that process, students make these action chains "define problems, analyze, evaluate, system thinking and propose possible solutions, estimate results, recommendation and apply new solutions". After applying new solutions students get feedback or critique again from lecturers. The above action chains repeat continuously with higher and higher demanding problems. Eventually, students establish the "habit" and "reflective analysis" competency. It is the "independent thinking" and "experience-based analyzing" that will elevate their learning quality in school and sucessfully solve practical problems when they go to work as well as support their life-long learning.

From lecturers' point of view, during their work they also make "reflective teaching" through action chain "teach, analyze, evaluate and improve" and repeat this cycle continuously with better teaching efficiency target. Reflective teaching is undertaken with supports among colleagues by means of teaching visits to observe and share experience with each other [Exh.4.13: Minutes teaching visit reports of Industrial Electricity department]. Other valuable source of information is the students' comment survey results after they finish their courses [Exh.4.14: Statistic reports for courses evaluation of students from 2010-2015].

5. Criterion 5 - Student assessment

5.1. Student assessment covers student entrance, student progress and exit tests

Student assessment in entrance

Prospective students are assessed by the national examination. In Vietnam, in July candidates from high schools participate in the mandatory National University Entrance Examination (NUEE) in order to pursue university degree [Appendix 5: Regulation of the MOET for the NUEE]. The University makes a plan and specific process for the NUEE and uploads on website.

In order to be admitted to FEEE, candidates must take examinations in 03 subjects including a group of Mathematics, Physics and Chemistry or a group of Mathematics, Physics, English

or a group of Mathematics, Literature, English. [Exh.5.1: Regulation of MOET about subjects for the NUEE].

Depending on quota for NUEE from the MOET, candidates must get good grades that satisfy with 2 levels: basic grade set up by MOET and programme intake grade set up by FEEE. After passing 2 levels, new students must participate in an English test of input to be assigned to class level. If students do not meet English language requirements, they can participate in the 2nd English test for the improvement of their marks [Exh.5.2: Regulation of Department of Academic Affairs on English skills for input]. Placement English test is given to new students [Exh.5.3: Placement English test result].

Student assessment in progress

In addition to different features for quality assurance of the study programme, lecturers of FEEE and department actively apply Bloom Taxonomy approach to design study programme, as the result, students gain basic to advanced knowledge effectively and systematically.

Assessment methods include oral presentation, homework, exercise, multiple-choice questions, writing, speaking, group work, course projects [Exh.5.4: Some presentations, reports]. Various types of assessment helps students consolidate their knowledge, apply theory into practice/research and accumulate them to achieve the ELOs. Besides, lecturers analyze their students' learning to improve their teaching.

Student assessment at the end of course accounts for 50% of total marks. Assessment methods include general tests, final projects, writing topics, final exams [Exh.5.5: Products of students' final projects]. Questions in examinations aim to evaluate students' achievement of the course's ELOs. Assessment method are evaluated and adjusted every semester.

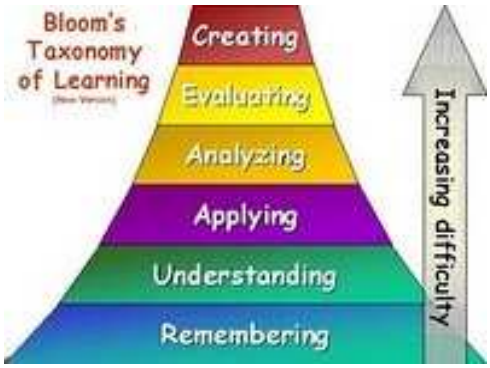


Figure 5.1 Bloom Taxonomy

Student assessment in final examination (exit tests)

For graduation in the last semester, students are required to write their theses based on their research or projects [Exh.5.6: Regulation on the implementation of the scheme of graduation for students]. Students must defend their theses/dissertations in front of the Dissertation Committee and members of the academic community [Exh.5.7: Thesis assessment grading sheet].

Students who complete the course work and defend successfully their theses will be approved for graduation [Exh.5.8: Decision of graduation].

5.2. The assessment is criterion-referenced

There are criteria for assessment at course level. All lecturers use effectively the criteria to assess students' learning in their courses. Students are introduced to the criteria for assessment in a course on the first day of the course. These criteria are included in the syllabi of the courses and students' handbook [Exh.5.9: Course specification of some courses]. The grading scales are present in Table 5.2.

Table 5.2 Grading scale

Cumulative GPA	Classifications
From 8.50 to 10	Good
From 7.00 to 8.49	Fair
From 5.50 to 6.99	Average
From 4.00 to 5.49	Average - Poor
Below 4.0	Very poor

Lecturers prepare rubrics to analyze the questions for assessment. That ensures that the examination covers the ELOs of the course [Exh.5.10: Rubrics to analyze and evaluate profile courses].

Students are not allowed to participate in the evaluation activities if they are absent more than 20% of class time. However, there is a policy that allows them to postpone their study for one year due to their illness or acceptable personal reasons.

5.3. Student assessment uses a variety of methods

The FEEE requests lecturers to apply different assessment methods such as: [Exh.5.11: Assessment methods and grade weighting of some course specifications].

- Multiple-choice questions;
- Essay questions;
- Presentation;
- Questions and Answers in classroom;
- Homework;
- Assignments;
- Group activities;
- The mid-term and final exams;
- Practicum report;
- Thesis

[Exh.5.12: List of assessment methods of course specifications]

In addition to academic activities, students are assessed through the activities in social work, trade unions, associations; community service. Students' Affair Office assess students' attitudes based on their participation in social activities every semester [Exh.5.13: Student's social activity assessment results]. The points will be reviewed when students apply for scholarship or graduation [Exh.5.14: Scholarship Regulations].

5.4 Student assessment reflects the expected learning outcomes and the content of the programme

Group of lecturers who teach the same subjects have discussed to build up the objectives of their courses based on the expected learning outcomes of the EEET programme. The objectives of each course are transferred to criteria to assess students' achievement in the courses (see Figure 3.2) [Exh.5.15: Specification courses]. In general, the criteria for assessment are used to assess students' higher levels of cognition: apply, analyze, evaluate and create (Benjamin Bloom, 1981; Anderson & Krathwohl, 2001) [Exh.5.16: Midterm exam papers]; [Exh.5.17: Final exam papers].

5.5. The criteria for assessment are explicit and well-known

On the first day of the course, lecturers must inform students the criteria for assessment of the course and the method that will be used to evaluate students. The grade distributions of tests (mid-term, end of period), class assignments, homework, reports, etc. are also communicated to students. These can be found in students' handbook or via the website of the Academic Affair Office (http://online.hcmute.edu.vn).

For courses that require report, presentation, students will work in a group of 3 to 4 members. Each group will work together, do course projects, and present in class. Group work is also evaluated based on the criteria set up by lecturers and informed to students before they start their group work.

5.6. The assessment methods cover the objectives of the curriculum

The programme objectives are transferred into the programme's ELOs, and the resulting ELOs of courses. To evaluate students' level of cognitive and skills that are stated in the programme objectives, students' assessment is made through classroom communication, assignments, laboratories activities, exams (mid-term and final), students' projects and thesis.

- Classroom communication, assignments, laboratory activities, exams (mid-term and final): are designed to evaluate the simplest to more complex levels of Bloom Taxonomy which are "apply" (use a concept in a new situation or unprompted use of an abstraction).
- Students' project and thesis: are used to assess students' levels of "apply" (applies what was learned in the classroom into novel situations in the work place), "analyze", "evaluate" and "create" [Exh.5.18: Assessment methods

compatible with course learning outcomes], [Exh.5.19: Process for marking exam papers].

5.7. The standards applied in the assessment are explicit and consistent

Currently the lecturers are required to compile course syllabi (that is called "course profile") for the courses that they teach. Course syllabus need to cover the form of assessment for each chapter, examinations and assessment methods and all are compatible with the respective outcomes of the course as well as those of the programme. On that basis, lecturers can prepare the same types of questions for midterm exams, end of period appropriate to those ELOs [Exh.5.20: Some course profiles]. The Department holds a meeting at the end of the semester to settle on the content of the examinations in accordance with the ELOs of the courses, and agree on the exam writers. The exam is then sent to the Head of Department for review. [Exh.5.21: Process for marking exam papers].

6. Criterion 6 - Academic staff quality

6.1. The staffs are competent for their tasks

Lecturers of the EEET programme are highly qualified for their tasks. Procedures and criteria for recruitment and appointment of faculty members are clearly stated. [Exh.6.1: Process of the human resource training and development], [Exh.6.2: Decision No. 42/QD-DHSPKT-TCCB, date 09/04/2013 on standards of lecturers of HCMUTE], [Exh.6.3: Plan No. 107/KH-DHSPKT-TCCB, date 30/6/2014 on recruitment plan for 2014], All lecturers of EEET programme fulfill the requirements of MOET and the university [Exh.6.4: Scientific CV of lecturers], [Exh.6.5: List of lecturers participating into the programme].

Currently, the number of permanent lecturers of FEEE is 88, of which 05 are Associate Professors, 20 are lecturers holding PhD degrees and 15 PhD candidates who are doing researches in Vietnam and other countries such as Canada, Germany, Australia, The USA, Korea, Taiwan…. All lecturers are qualified in pedagogy (by holding Level 2 Certificate of Pedagogy or Certificate of Higher Education).

The FEEE has plans for human resource development in which the continuous improvement of qualification for all lecturers is planned based on the faculty and personal needs. Every year, lecturers of EEET programme have opportunities to attend technical and educational training workshops in Vietnam, USA and other countries to improve their professional knowledge and skills [Exh.6.40: Decisions on appointment of staff to participate into training courses and professional enhancement].

6.2. The staffs are sufficient to deliver the curriculum adequately

The FEEE has annual proposal to recruit lecturers for every semester (using the template of Human Resource Management Department regarding quantity, qualification, and professional requirements) basing on the workload, the number of available lecturers, and the number of lecturers who are studying for qualification enhancement [Exh.6.6: Faculty recruitment plan], [Exh.6.7: Process of staff recruitment in HCMUTE], [Exh.6.8: Announcement No. 109/TB-DHSPKT-TCCB, date 16/7/2014 on lecturers and staff recruitment]. The recruitment plan

and criteria are approved by the President of HCMUTE, and are then published on the HCMUTE's website and on public means of communication.

Because of the university's preferential policies to attract more doctorate lecturers to the university and FEEE's creative strategies in staff development, the faculty always has the sufficient number of lecturers who have Doctorate degree and Master's degree for the programme [Exh.6.9: Announcement No. 73/TB-TCCB, date 12/12/2013 about report on personnel situation and orientation for staff development in the period of 2013-2018], [Exh.6.10: List of visiting lecturers in 2012-2013, 2013-2014 of the faculty], [Exh.6.11: Evidence on implementation of the process of inviting and monitoring visiting lecturers].

Table 6.1 Qualification of teaching staff and gender ratio (till 2015)

Category	**M**	**F**	**Total**		**Percentage of PhDs**
			People	FTEs*	
Professors/Associate Professors	3	2	5	3	100%
Full time lecturers (Industrial Electricity Department)	15	1	16	16	19%
Full time lecturers **(Non Industrial Electricity Department members)	52	20	72	16.4	24%
Full time lecturers ***(Non Faculty of Electrical and Electronics Engineering members)	86	84	170	17	18%
Teaching Assistant	28	3	31	3.1	0%
Visiting professors/ lecturers	2	0	2	0.4	50%
Total				55.9	

(*) FTE stand for Full Time Equivalent

** Lecturers of FEEE and non Industrial Electricity Department members

*** Lecturers from other faculties:

- English Department
- Mathematics – Physics – Chemistry
- Social science
- Information Technology
- Economics

Table 6.2 Staff/student ratio and staff/graduate ratio (2011-2015)

Academic year	Total FTE of teaching staff*	Number of students	Number of graduates	Number of students per FTE of teaching staff	Number of graduates per FTE of teaching staff
2015-2016	55.9	1347	157	24.10	2.81
2014-2015	53.5	1152	145	21.53	2.71
2013-2014	40.7	954	161	23.44	3.96
2012-2013	39.4	799	152	20.28	3.86
2011-2012	35.1	719	139	20.48	3.96

(*) Realistic estimation of the number of FTEs of teaching staff

6.3. Recruitment and promotion are based on academic merits

Every newly recruited lecturer has one year on probation [Exh.6.12: Decisions on allocation of instructing lecturers for probation period]. They are supervised by their mentors, who are experienced lecturers. If they perform well, the faculty will recommend the university to appoint them as a lecturer [Exh.6.13: Consideration files of probation completion], [Exh.6.14: Decisions on recognition of probation period].

Appointment of lecturer, senior lecturer, associate professor, professor, career's scale and salary promotion are regulated by MOET and the laws. These appointments are published on the website of the university (Human Resource Management Department). The promotion of academic staff is based on management capacities, achievement of research and teaching. Based on individual achievements, the faculty votes the most excellent staff for the rewarded titles of government-level [Exh.6.15: Guide elect the emulation titles],[Exh.6.16: Decision No. 675/QD-DHSPKT-TCCB on recognition of emulation titles in 2013-2014 for individuals and units] as well as raise of salary [Exh.6.17: Decision on early raise of salary for lecturers of the faculty] or promotion.

6.4. The roles and relationship of staff members are well defined and understood

HCMUTE has formulated regulations and policies to determine functions, roles and responsibilities of all lecturers. The role of lecturer is stated with each position and in contract work. In every unit, the organization structure of the unit is well-described and published, showing the title, position and duties of every staff in the unit [Exh.6.18: Description of functions and duties of department members], [Exh.6.19: Faculty organization structure].

The Dean and the three Vice Deans are in charge managing all activities of the faculty including research, business relationships, international relationships, student affairs, teaching, facilities and infrastructure [Exh.6.20: Description of functions and duties of department members]. The leaders of faculty are also responsible for evaluation the performance of academic and supporting staffs based on the MOET regulations and the guideline of the University [Exh.6.21: Individual report in the academic year].

The lecturers of FEEE are divided into 6 departments: Department of Computer and Communication Engineering, Department of Industrial Electrical Engineering, Department of Industrial Electronics Engineering, Department of Fundamentals of Electronics, Department of Fundamentals of Electrical Engineering and Department of Automation Control. In every department, there are the head and deputy head of the department, to be in charge of administration and orientation for the activities of the department. Besides, there is the Professional Council who is responsible for mentoring young lecturers in teaching, scientific research [Exh.6.22: List of professional groups].

Lecturers are required to take part in the curriculum design and development. The lecturers who teach the same subject are required to work together in design ELOs of the courses, course syllabi, contents and questions for exams. They regularly perform peer-review of lectures and help each other to improve their teaching quality.

6.5. Duties allocated are appropriate to qualifications, experience and skills

Lecturers are appointed to teach subjects that are of their specialties. Every subject is allocated with at least two lecturers [Exh.6.23: Teaching allocation in the semester]. The theory portions of the courses are taught by PhD lecturers and Master lecturers, and the practical portions (at workshops and laboratories) are undertaken by experienced lecturers with qualified professional skills [Exh.6.24: Workload allocation of staff in the department].

The FEEE provides lecturers with teaching assistants who support them with lesson preparation, tutoring, laboratory instruction, practice and exam grading [Exh.6.25: List of teaching assistants of Electrical and Electronics Engineering in semester 2, 2014-2015]. The roles, responsibilities, and rights of lecturers and teaching assistants are well defined and approved by faculty and university.

6.6. Staff workload and incentive systems are designed to support the quality of teaching and learning

The workload of every lecturer is set up by MOET as following:

Table 6.3 Workload of every lecturer for a year

Title	Teaching and consultant workload [hour]	Research Equivalent workload [hour] (*)
Professor	360 (~12 hours/week)	140
Associate professor	320	130
PhD/Senior Lecturer	320	120
Master /Lecturer	280	90

(*) Research equivalent hours are based on the quality of research output, for example, publishing a paper in SCI journal is equivalent to 400 Research equivalent hours.

Every year, the faculty reviews the reports on the workload of lecturers (including teaching, research, counseling, and community services) to keep the balance in lecturers' workload and to determine the demand for new recruitment [Exh.6.1: Process of human resource training and development].

Lecturers are evaluated through:

- Their individual achievement report;
- Faculty evaluation about the lecturers;
- Student evaluation on their courses

The key performance indicators (KPIs) are used to evaluate academic and supporting staff [Exh.6.26: Evaluation system of KPIs].

6.7. Accountability of staff members is well regulated

Based on objectives and responsibilities of the faculty, duties of each lecturer are defined in details in documents of the university [Exh.6.2: Decision No. 42/QD-DHSPKT-TCCB, date 09/04/2013 on standards of lecturers of HCMUTE]. All academic and supporting staff are responsible to report and account for their performance towards the assigned tasks. [Exh.6.21: Individual report in the academic year]. These are the fundamental clues to evaluate and consider the awards for individuals and units [Exh.6.16: Decision No. 675/QD-DHSPKT-TCCB on recognition of emulation titles in 2013-2014 for individuals and units].

Moreover, every year the university organizes an activity for lecturers to be assessed and ranked their English competence, to provide further training, or to determine the awards and promotion. In addition, along the process of teaching of each lecturer, teachers always perform reflective teaching through activities about "teaching, analysis, evaluation and improvement". It implemented through several circles to get the best practice. Reflective teaching is carried out among colleagues through class visits, group discussion, meeting of departments and individual reflective activities. Another source of reflective teaching is the course evaluations of students [Exh.6.27: Results of examination for raising the scale of lecturers in the faculty], [Exh.6.26: Evaluation system of KPIs], [Exh.6.28: Description of functions and duties of lecturers],[Exh.6.29: Report on results of profession and skill further training for lecturers], [Exh.6.17: Decisions on early raise of salary for lecturers of the faculty], [Exh.6.30: Result on student evaluation of teaching activities of the course].

6.8. There are provision for review, consultation and redeployment

The regulations review, consult and redeploy academic and supporting staff are stated by MOET and Vietnamese law. The Human Resource Management Department is responsible for the input (recruitment), employment, development and redeployment applying these regulations and law. Every year, the faculty makes a report on its human resource, suggestion about review, consultant and redeployment to send to the university. The report and suggestions are reviewed carefully and transferred into the university plan of human resource development to operate during the year [Exh.6.31: Mid-term strategic development plan in the period of 2011-2015, 2016-2020 of FEEE], [Exh.6.9:Announcement No. 73/TB-TCCB, date 12/12/2013 about report on personnel situation and orientation for staff development in the period of 2013-2018], [Exh.6.32: Plan No. 05/KH-DYK date 14/6/2013 and Plan No. 227/KH-DU, date 20/8/2013 on planning of human resource at executive committee and staff at leadership and management positions to 2020 and the next years].

6.9. Termination and retirement are planned and well implemented

The university has clear plans and policies for retirement or termination, following strictly under the regulations of the MOET and decree of the government regulated the retirement procedures for lecturers. The Vietnam Labor Code and Vietnam Social Insurance Law also define the retirement age of 55 for female staff, and 60 for male staff; besides, the staffs also receive proper welfare from the university. The faculty has a plan to hire retired lecturers to be visiting lecturers or researchers. Lecturers are invited to stay longer from 05 years (for PhD lecturers) to 07 years (for professors and associate professors) in the university [Exh.6.33: Decree No. 29/2012/ND-CP, date 12/4/2012 of the government about recruitment, employment, and management of employees], [Exh.6.34: Law No. 22/2008/QH12 Law on Cadres and Civil servants], [Exh.6.35: Law No. 58/2010/QH12 – Law on public employees], [Exh.6.36: Vietnam Labor Code], [Exh.6.37: Vietnam Social Insurance Law].

The Human Resource Management Department is in charge of the process to rehire, retirement, and redeployment of retired lecturers.

6.10. There is an efficient appraisal system

The university has an efficient appraisal system for the quality of academic and supporting staffs. At the end of the academic year, each staff conducts the report on his/her performance using KPIs. Basing on these reports, the department, the faculty and the Council for Emulation and Reward (CER) carry out staff evaluation, as well as consider their reward and promotion [Exh.6.21: Individual report in the academic year], [Exh.6.26: Evaluation system of KPIs].

From the proposal of the faculty, the CER of the university will approve and make official decision of recognition for the title “Emulation Fighter” at three levels: Grassroots-Level (institutional), Ministerial-Level, and National-Level [Exh.6.38: Laws No. 15/2003/QH11 on Emulation and Commendation]. To be recognized for the title at each level, the individual has to fulfill several requirements with specific criteria [Exh.6.16: Decision No. 675/QD-DHSPKT-TCCB on recognition of emulation titles in 2013-2014 for individuals and units].

Conventionally, salary raise for staff will take place every 3 years. However, if staff make significant achievement, salary can be raised in 2 years [Exh.6.39: Decision No. 05/QD-DHSPKT-TCCB, date 03/01/2014 on raise of salary, beyond seniority allowance for employees in 2013], [Exh.6.17: Decision on early raise of salary for faculty lecturers].

The “Prime Minister's Diploma of Merit”, “Labor Order” (First-class, Second-class, and Third-class), and other valuable titles as “Teacher of Merit”, “People’s Teacher” are given to the faculty or individual according to their achievements. In addition, HCMUTE has extra rewards when the lecturers achieve the title ‘lecturer of the year” award, completed advanced study degree, scientific achievements, associate professor, and professor [Exh.6.16: Decision No. 675/QD-DHSPKT-TCCB on recognition of emulation titles in 2013-2014 for individuals and units].

7. Criterion 7 - Support staff quality

7.1. The library staff are competent and adequate in providing a satisfactory level of service

The library staffs of HCMUTE and FEEE are well qualified to support teaching, learning, and research affairs.

Currently, the university library has 19 staffs, of which 10.5% have master's degree, 47.3% have bachelor's degree and 37% have college degree. 84.2 % of the staffs have degrees in Library and Information. In addition, they were also trained and have experiences in library management. There is an online library to offer services to learners and lecturers [Exh.7.1: http://lib.hcmute.edu.vn]. Besides, the library also offers online support to provide instant assistance for library users when needed [Exh.7.2: https://www.facebook.com/hcmute.lib?fref=ts].

The library of HCMUTE and FEEE is organized appropriately [Exh.7.3: Map of library management]. The library has a clear plan and policies for staff development that meets the demand of the library for the period of 2013-2018 and the vision to 2020 [Exh.7.4: Plan for staff development in 2013-2018]. In particular, the library usually organizes specialized training courses and seminars [Exh.7.5: Statistics of specialized training courses and seminars in 2013-2014].

The library also offers internship to students, who major in library and information from other higher education institutions [Exh.7.6: Plan for receiving and allocating students for internship in 2011-2014].

Periodically, the library organizes training for students on how to use the library at the beginning of each school year. In order to improve and enhance the quality of service and support of the library staff, HCMUTE carries out periodic surveys for stakeholder's feedback (implemented by the Department of Student Affairs), as well as surveys on quality of support staff (implemented by the Administrative Affairs Office), and offer the comment mailbox to get feedback from support and academic staffs and students [Exh.7.7: Summative result of feedback from staff, lecturers and students], [Exh.7.8: Needs survey questionnaire]. Students can look up books at computer lab with 50 computers equipped with Internet service.

7.2. The laboratory staff are competent and adequate in providing a satisfactory level of service

The laboratories of HCMUTE and FEEE are organized appropriately, with clear plan and policies for staff development. Currently, the FEEE has 37 laboratories. In each lab, there is a lab manager, whose field of research is related to that of the lab, to supervise the lab. That person is responsible for managing, maintaining and repairing experimental equipment, to enhance the quality of teaching and learning process [Exh.7.9: List of laboratory staff of Electrical and Electronics Engineering], [Exh.7.10: Form of suggestion for laboratory managing staff]. Those laboratories are also supported by Facility Management Office and Equipment and Materials Office.

The system of laboratory has appropriate plan and regulations of usages [Exh.7.11: Plan for laboratory practice in semester 2, 2014-2015]. In addition, to ensure the best quality of learning, the number of students in a practice group is always lower than 25. Besides, students are also facilitated to register for using the laboratory outside working hours [Exh.7.12: Laboratory diary]. To improve and enhance the quality of laboratories, HCMUTE conducts surveys on students' satisfactory of the laboratory operation every year.

7.3. The computer facility staff are competent and adequate in providing a satisfactory level of service

The system of computer labs of HCMUTE and FEEE is organized appropriately, with clear plan and policies for staff development. The administrators of the Information and Network Center are recruited in many high specialized fields, including experts in network administration, technical support, and administration of the university website, center secretary, network, computer and telephone troubleshooting… They are responsible for daily tasks related to information technology such as maintenance, software installation, equipment set up, as well as maintenance of IT for computers in offices, personal computers, networks, and websites of the whole university, faculties and all other units [Exh.7.13: Regulations on functions and duties of the Information and Network Center].

There are 08 staffs in the center, including 01 director, 01 vice director, 03 officers and 03 technicians [Exh.7.14: List of staff of the Information and Network Center].

The Information and Network Center builds up the computer and network system, to serve for every class in accordance with the course and programme [Exh.7.15: Pictures of some computer labs].

Another important duty of the staff of Information and Network Center is to develop the websites of the university and faculties. In addition, the Information and Network Center constructs an online service system, in order that the lecturers are able to provide materials and conduct online student assessment, such as the online student training system, the online system to provide learning materials for students [Exh.7.16: http://lms.hcmute.edu.vn; https://online.hcmute.edu.vn/].

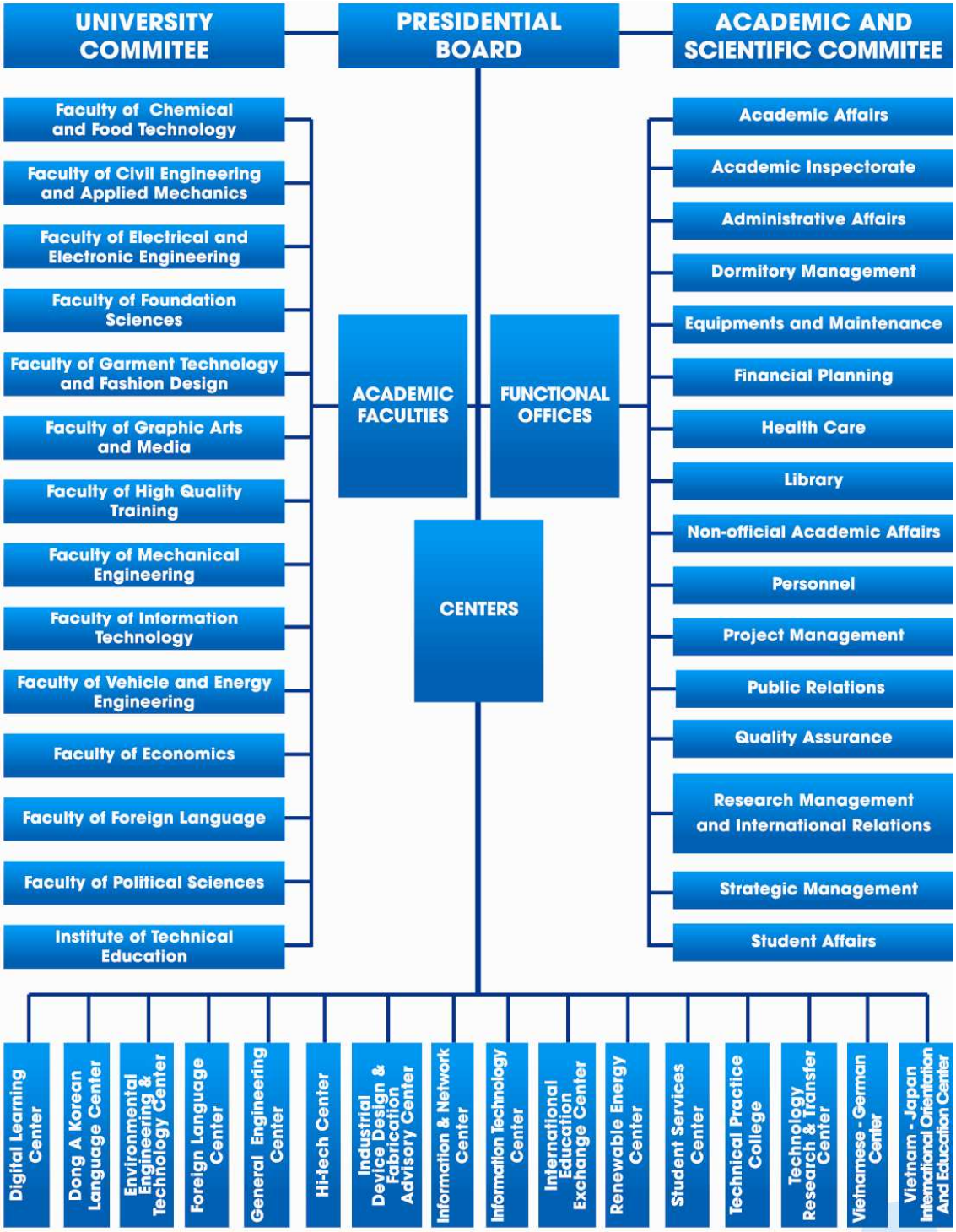


Figure 7.1 Units and centers of HCMUTE

The survey on students' evaluation of the quality of service provided by the Information and Network Center is conducted after each semester [Exh.7.17: Evaluation on the quality of services provided by staff of the Information and Network Center].

7.4. The student services staff are competent and adequate in providing a satisfactory level of service

At the time of 2015, the university has 16 functional units, 14 institutes and centers that are in charge of student services (see Figure 7.1).

All supporting staff has qualification and profession related to the supported fields. They are also qualified and chosen carefully by HCMUTE and faculties, and continuously trained to upgrade their qualification. Besides, there is also a plan to develop and enhance the qualification of staff in every unit [Exh.7.18: Plan for qualification upgrade of supporting staff].

Beside the main functions, the offices of the university provide students with supporting services (see Table 7.1).

Table 7.1 Supporting services

No.	Field of activities	Supporting units	Services
1	Academic	Academic Affairs	Consulting students about learning fields such as course registeration, timetable adjustment.
			Consulting, answering and guiding students in order to obtain and to implement Education law of MOET, Regulations of HCMUTE about Education affairs.
			To consult students about withdrawing a course, choosing a course, open course and grade complaint.
			To consult students about graduation, in-debt credit, and other matters in related to graduate certificate and qualifications
			To consult international students
		Faculty	To guide students to personal learning planing scheme
			To consult students to choose and to register courses each semester.
			To consult students about learning methods, solving difficult problems on learning process
			To consult and to guiding students about science research.
2	Social	Admissions and Student Affairs	To organize activities about regulations processes for first-year students.
			To consult students to implement regulations of student activities, processes of training assessment, regulations of social work program.
			To consult and support faculties in HCMUTE entrance exam
			To consult youth union, organize social work activities, social activity assessment.
			To consult student documents, pausing learning temporarily, re-entrance, dropping out of university, transferring to another university
			To consult students about rewards and disciplines

		Student Service Center	To support facilities, learning environment, social extra work activities.
			To organize student skill clubs and another clubs to experience skills.
3	Physical	Health and Medical Service	To consult students about health, anti-disease and health insurance fees.
4	Psychology	Student Services Center	To consult students to solve difficult life problems, family problems, sexual problems To consult educational and social psychology and student life.
5	Career	Public Relationship and Enterprises	To seek a job or part-time jobs To find a scholarship To contact with companies or enterprises to gain experience for students To organize seminar, to train soft skills for students.
		Student Services Center	To consult, to introduce to students a part-time job
			To train short-term technical training classes, soft skill classes for students
6	Finance	Admissions and Student Affairs	To consult students about a living allowance, school fees, social work allowance, reduced tuition document.
			To consult students about tuition, studying scholarships document for scholarships
			To consult students in difficult situations to borrow tuition supported by government.
7	Others	Student service center	To meet students daily to connect students with faculty consultants
			To organize international student festivals friendship services and international student exchanges
		Library	To introduce, to advertise information of HCMUTE library for students
			To guide students to find, to use documentation, e-books and related services
		Dormitory	To support students to register dormitory, internship regulations.

To ensure the quality and enhance the capacity of staff and employees, HCMUTE conducts surveys for satisfactory level of staff and students towards the supporting units [Exh.7.19: Surveys for satisfactory level of students towards the quality service when they graduate]. Most of unit and centers conduct their annual survey to collect students' feedback on the quality of their services. The feedback are analyzed and used for continuous improvement. The quality of the student services staff is also assessed in the dialogue meetings between the HCMUTE, faculty and students.

8. Criterion 8 - Student Quality

8.1. There is a clear student intake policy

The student intake policy of HCMTUE and EEET programme is in according to the national regulations and laws. There is a national entrance examination for graduates from high schools to enter the university programme. The MOET set up the quota of intake students for HCMUTE and then, the HCMUTE set up the quota for EEET programme. To apply for the admission to enter the EEET programme, the candidates have to register before the entrance examination. They will be in the list of selection for EEET programme admission if they pass two levels of passing marks, the first is national basic passing mark and other is EEET passing mark. According to the quota, the FEEE will take students from the top to bottom. In recent years, due to the reputation of the EEET programme, the quality of intake students increased remarkably.

In 2015, MOET changed the regulation of recruitment that lengthens the time for students' registration and enables candidates to see their position in the list of candidates, the quality of intake students has been increased.

Table 8.1 Minimum grade admission to the EEET programme

Year	2010	2011	2012	2013	2014	2015
Passing mark (for EEET)	15	15	15.5	19.5	20	30.75*
Base mark (set by MOET)	13	13	13	13	13	20

** In 2015, Maths score is multiplied by 2.*

8.2. The student admission process is adequate

To improve the quality and quantity of student intake, the HCMUTE regularly organizes many activities such as counseling for vocational high school students and parents (streamed on Youtube), direct participation admissions consultant with major newspapers (Tuoi Tre, Thanh Nien, Giao Duc) and television stations (HTV, VTV). [Exh.8.1: http://tuyensinh.hcmute.edu.vn/;http://feee.hcmute.edu.vn/; https://www.youtube.com/watch?v=kQ3TfOa_a-Q].

The analysis about the quantity of the first year students of EEET Programme in Table 8.2 shows that the intake amount of students to the programme during the past 5 years is increasing stably, when we look at the admission grade and the number of passed students year by year (Table 8.3).

Table 8.2 Total amount of students of FEEE (during the past 5 years)

	Undergraduate		
Year	**Male**	**Female**	**Total**
2015	1334	13	1347
2014	1138	14	1152
2013	945	9	954
2012	785	14	799
2011	693	26	719

Table 8.3 The admission grade and the number of passed students year by year

School year	Number of applicants	Number of admission	Admission grade
2010-2011	993	161	15
2011-2012	1422	156	15
2012-2013	2438	265	15.5
2013-2014	3188	337	19.5
2014-2015	2296	362	20
2015-2016	Admission grade benchmark published (*)	365	30.75

** In 2015, Maths score is multiplied by 2.*

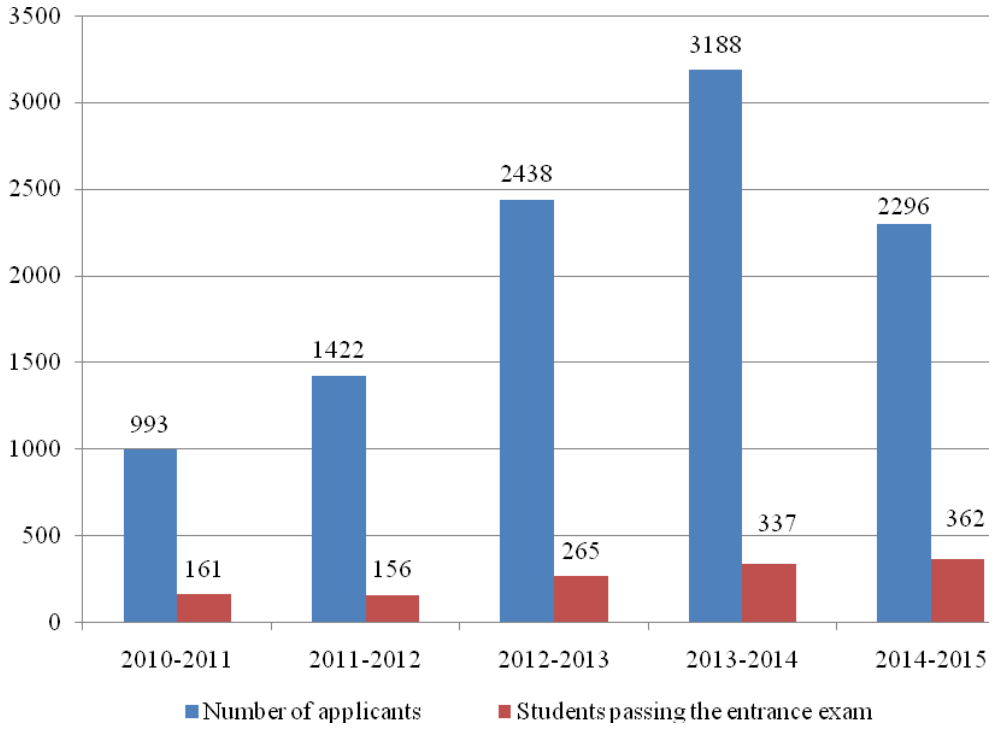


Figure 8.1 The number of applicants and students passing the entrance exam vs. years (2011-2015)

8.3. The actual study load is in line with the prescribed load

The credit-based curriculum of EEET contains 150 credits, which are distributed in 04 years, and 03 semesters each year (Fall, Spring and Summer). The study load is arranged quite equilaterally in an academic year with about 15-20 credits for each semester. Each credit consists of 15 in-class hours and 60 self-study hours (01 period in class with at least 04 periods of self-study) [Exh.8.2: Example of course specification].

Lecturers in the EEET programme set up a plan to meet students in contact hours. Students can make an appointment to meet their lecturers to talk about their problems. Each course has teaching assistants who interact with students during a course.

The students with average academic performance can complete the EEET programme on time. Faculty tracks the study progress of students with GPA and social work indicators. These students with a GPA below the average index will be watched closely for consulting. Students drop out usually because that discipline is not appropriate to their preferences.

9. Criterion 9 - Student advice and support

9.1. There is an adequate student progress monitoring system

Right after the students complete the course registration in the semester successfully, they receive a clear timetable and studying plan for the semester. The lecturer who undertakes the course has the list of students registering for the course, and the lecturer is required to monitor the student learning progress within his/her course through the grading system

including progress assessment and final assessment. [Exh.9.1: website http://online.hcmute.edu.vn].

Since 2012, HCMUTE has used website (http://online.hcmute.edu.vn) and dashboard system to monitor student learning progress. This system monitors data related to student personal profiles, announcements from HCMUTE, semester schedule (timetable), examination calendar, grades, and assessments… This monitoring system is definitely effective to help the Academic Affairs Office, HCMUTE, FEEE and lecturers to keep a good track with student learning progress. In the case that students have problems with their studying, they will receive the academic warning, so they realize to improve themselves.

By using this system, students are able to access quickly to their learning results, make their own reasonable studying plan to complete the programme successfully and within the allowed time frame. Students and alumni can definitely ask the Academic Affairs Office to provide their grading sheets and send to their address if required.

Students, who have excellent results in their studying will be honored and be able to apply for scholarships. In addition, students also received a lot of scholarships from enterprises. For those who are potentially not able to complete the studying plan on time, the system will automatically send them the academic warning; besides, they are also advised by the academic advisors, consultants, board of heads of department, board of deans, basing on these kinds of data [Exh.9.1: Website http://online.hcmute.edu.vn].

The monitoring system for ethics, morals, extra curriculum activities as well as providing student supports is through organizations and centers of HCMUTE such as the Student Association, the Youth Union, Student Affairs Office, Student Services Center [Exh.9.2: Decision No. 150/QD-DHSPKT-TCCB date 19/11/2013 about the function of Student Services Center], [Exh.9.3: Website of Student Affairs Office], [Exh.9.4: Report No. 409/BC-DHSPKT-TCCB date 14/10/2014 about evaluation report on the results of student training], [Exh.9.5: Announcement No. 15/TB-DHSPKT date 15/01/2015 about evaluation report on the results of student training].

HCMUTE also implements the dashboards system to help students, lecturers and HCMUTE monitoring the learning process as well as the progress of students on many aspects. The three systems connect closely to each other to help students complete their own studying plan, cultivate their dignity, and improve their living skills, which facilitate to be able to meet various requirements of the labor market at present and in the future.

9.2. Students get adequate academic advice, support and feedback on their performance

HCMUTE and FEEE have constructed the network of consultants, Youth Union, Student Association to discuss and consult students on matters related to studying, research, as well as issues about psychology and student life. Those consultants are lecturers, senior students, master's degree students who have experience and are chosen thoroughly [Exh.9.6: Decision No. 389/QD-DHSPKT-CTHSSV date 19/9/2014 about regulations of consultancy affairs], [Exh.9.7: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about assigning the

consultants], [Exh.9.2: Decision No. 150/QD-DHSPKT-TCCB date 19/11/2013 about the function of Student Services Center].

Moreover, students of EEET programme of FEEE are able to set schedule to meet the Board of Deans of FEEE and the Board of Heads of department though the faculty secretary. For the programme of cohort 2012, students have been encouraged to contact with consultants via email or phone [Exh.9.1: website http://online.hcmute.edu.vn], [Exh.9.6: Decision No. 389/QD-DHSPKT-CTHSSV date 19/9/2014 about regulations of consultancy affairs], [Exh.9.7: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about assigning the consultants].

Board of Deans of FEEE and leaders of HCMUTE have a meeting at the beginning of every academic year with students, especially the first year students. This is the an important orientation meeting to help students have a pictures of living conditions, health care conditions, as well as activities organized by the faculty and university. Thanks to the meeting, students are well prepared in term of the psychology in order to have a good direction for their studying [Exh.9.8: Meeting at the beginning of academic year], [Exh.9.9: Summation of consulting activities at the beginning of academic year].

In every semester, Board of Deans of FEEE and leaders of HCMUTE also organize dialogues with students to keep in touch with students' feedback, so that they can show their thoughts, expectation and difficulties in their studying; thus, it shows solutions to make the university and the faculty better and better. In addition, students can also give their feedback via the online system or hot line/email of the Dean and the President [Exh.9.1: website http://online.hcmute.edu.vn], [Exh.9.10: Plan No. 435/KH-DHSPKT-CTHSSV date 19/11/2014 about meeting and dialogue with students in semester 1, 2014-2015].

Every year, FEEE has meetings, scientific workshops, employment workshops, which are organized by the enterprises, and alumni meeting. Though these meeting, students make adjustments for their entire studying plan to meet the requirement of society's demands [Exh.9.11: Meeting with enterprises, dialogues with enterprises, employment orientation]. Students also have the opportunity to participate in academic clubs as Open Lab, young scientists club, etc.

Each semester, students are trained to use the library at the beginning of each school year. HCMUTE and FEEE organize factory tours, send students to graduate practice at the factory, guide final project. Besides, to encourage student scientific research, HCMUTE held counseling sessions to guide the students in scientific research, do final project, support finance for students in scientific research.

Moreover, to enhance self-learning ability of students, HCMUTE has E/M learning system (https://lms.hcmute.edu.vn/), teaching assistant system to support and help students in the learning process as well as self-study.

9.3. Mentoring for students is adequate

Student's consultancy and supports are implemented sufficiently. HCMUTE also provides the online system to facilitate lecturers to access to student profiles to inform and make appointments. Students who have below average results will receive academic warning. Those students are encouraged to meet the consultants of FEEE to address their difficulties, so that the consultants are able to give them suitable advice. In case that those students still need more advise, they can have appointment with the head and vice head of the department, or the dean and vice-dean.

It is required for the first year students to participate into the orientation program in the first semester. Seminars and workshops, job fairs, CV writing workshop, enterprises training organized by FEEE and HCMUTE have equipped students with transferable skills, and provided sufficient consultancy so that students have a good preparation for their future career.

In addition to providing satisfied consultancy by the lecturer of each course, students are also supported well when they carry out the graduation thesis, course projects or scientific research projects, with devoting instruction of the lecturers of FEEE [Exh.9.1: website http://online.hcmute.edu.vn], [Exh.9.12: Specification of Introduction to Electric and Electronic Technology], [Exh.9.13: Workshop about self-reflection skills beyond employers].

The working hours of the FEEE consultants for students are always available. The consultants are able to meet students during the whole academic year. Besides providing advice for studying, the consultants also support students in terms of career opportunities, soft skill, seminar, final project, psychology, and society and student life. Along with the group of FEEE consultants, the Student Services Center, which was founded in 2013, is also a place to support students in studying, jobs, entertainment, relaxation, physical training and living skills training. Activities related to culture, sports and art performance at institutional level that are consulted and supported by the Student Affairs Office are the active play grounds for students. The consultants and the Student Affairs Office indeed provide sufficient information about scholarships, students allowances and related services [Exh.9.6: Decision No. 389/QD-DHSPKT-CTHSSV date 19/9/2014 about regulations of consultancy affairs], [Exh.9.7: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about assigning the consultants], [Exh.9.2: Decision No. 150/QD-DHSPKT-TCCB date 19/11/2013 about the function of Student Services Center], [Exh.9.14: Website of Student Affairs Office].

In the regulations of the university about consultancy contents, the content about academic psychology and student life is one of the three key consultancy contents of this set of regulations. The consultants for psychology matters who are chosen among experienced psychology lecturers have aided students to prevent or overcome difficulties and psychological shocks during the learning progress [Exh.9.6: Decision No. 389/QD-DHSPKT-CTHSSV date 19/9/2014 about regulations of consultancy affairs], [Exh.9.7: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about assigning the consultants].

9.4. The physical, social and psychological environment for the student is satisfactory

To ensure the environmental, physical, psychological and social learning, HCMUTE has facilities systems: library, dormitories, canteens, self-learning space, sports facilities, clubs (teams - society - Student Service Center). HCMUTE cares about its student's health. Sport campaigns are launched regularly by the Student Affairs Office, Youth Union and Student Association. HCMUTE has a wide and airy campus, with large sport fields, which are excellent places for sports and physical training.

Students of FEEE are taken physical examination at admission and had a good and sufficient care of their health. According to the regulation of MOET, all students have to purchase health insurance. Every school year, HCMUTE organizes health examination for teachers. The university medical station is well equipped with sufficient medical tools to take care of emergency. [Exh.9.15: Medical Station]. The district hospital locates only 1.0 km from the university that can provide students with efficient treatments.

Students are facilitated to participate into courses about social life, languages, to enhance their life skills such as health education, life skills, Japanese, English language, and laws [Exh.9.16. Extra curriculum activities].

Extra curriculum activities and group activities as sports and community services are supported and encouraged, as ways to impulse students to integrate into the campus life and enhance their awareness and responsibilities to the society. Students are eager to participate into volunteer activities such as "Supporting candidates for university entrance examination", "Green Summer", "Open Day"… Students have information about the activities on FEEE's website, Student Affairs Office, students' email and HCMUTE's website [Exh.9.16. Extra curriculum activities].

Figure 9.1 Student field trip at the factory: Toshiba, Vina Acecook

During the programme, students also have psychological and social supports from the group of FEEE's consultants. This group of consultants provides helpful advice for both academic psychology and difficulties in emotional life, marriage and family [Exh.9.6: Decision No. 389/QD-DHSPKT-CTHSSV date 19/9/2014 about regulations of consultancy affairs], [Exh.9.73: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about assigning the consultants].

Regarding integrating into the labor market, the department offers the graduation internship programme at summer time for the 4th year students. Besides, seminars and workshops are also held to train student's professionalization, with the participation of alumni, experts from outside the university. Also, field trip at enterprises are also carried out [Exh.9.17: Field trip at the transformer station], [Exh.9.18: Alumni meeting].

In general, students of EEET programme have had a good management for their studying plan. Their learning progress has been monitored closely through a smart and fully constituted managerial system. Supports and consultancy from FEEE, centers and offices in the university are adequate and satisfactory. Students have received a profound care and timely supports to overcome their difficulties in studying and academic life. Those ensure that students feel secure to study and spend their student life in HCMUTE during the entire programme.

10. Criterion 10 - Facilities and infrastructure

For quality assurance, teaching and learning facilities and infrastructure play a very important role. As a result, the University and FEEE concentrate on building and improving the quality of classrooms, library, laboratories and computer rooms systematically.

10.1. The lecture facilities (lecture halls, small course rooms) are adequate

The University has a good system of classrooms in which there are 183 lecture halls, 58 labs, 98 practice rooms and 16 computer rooms. In addition, there are library and audio-visual rooms with the surface of 127.884m^2 to support activities of teaching and learning [Exh.10.1: Facilities to support teaching and training activities],[Exh.10.2 Infrastructure and Facilities from 2009 to 2014].

The University's facilities are divided into 3 levels: department, faculty and university level. Practice courses use facilities of department and faculty. Besides, the university arranges classrooms for theory courses. Students and lecturers can access to view the availability and schedule for classrooms, lecture halls, computer rooms [Exh.10.3: http://online.hcmute.edu.vn, Cost estimation from 2013 to 2014].

Department level

The Department of Industrial Electricity is located in Building C. The office is used to welcome students and offer them with consultancies. In the department, there are some experimental rooms and research rooms [Exh.10.4: Laboratories of the FEEE].

Faculty level

The FEEE has its own facility in entire Building D and partly in Building C, where technological classrooms and students' activities are located. Descriptions of all experimental rooms are summarized and shown the facilities that the faculty and department are provided and kept in good conditions. There are tables, chairs, Wi-Fi at the surrounding area where students can use for self-study [Exh.10.5: Students' self-study area in the surrounding areas of the university and faculty].

University level

At the university level there are classrooms, computer rooms that all faculties can use for teaching and learning [Exh.10.6: Classrooms].The university adjusts plan yearly to provide new facilities, upgrade the existing infrastructure and facilities. Classrooms and labs have spacious areas, good facilities that meet the standards for university. In addition, the maintenance, repair, replacement are maintained yearly. [Exh.10.7: estimated funding for works and facilities 2013 and 2014].

10.2. The library is adequate and up-to-date

The library of HCMUTE has an area of 1430m^2. By September 2014 all electronic materials have summary/abstracts in library [Exh.10.8: Electronic textbooks]. There are thousands of summary/ abstracts of electronic materials, in which there are a lot of EEE electronic materials [Exh.10.9: Announcement for compiling textbooks]. Yearly, the university library plans to add many kinds of materials to satisfy the needs of academic staff and students. The library is updated regularly. Early each school year, the library sent notices to Faculties and Departments to plan for buying new books. Then, based on the list of books need to buy, the library will buy new books to fully satisfy needs for lecturers and students. The variety of materials is indicated in the list of books [Exh.10.10: Library-Book Fair], [Exh.10.11: List of buying books of library need to buy annual].

The library has organized self-learning space for teachers and students to use for group work. The library often organizes activities such as "exchange old books for new books", book fairs, seminars - specialized reports. All students can freely access digital journals available on the library website (http://thuvien.hcmute.edu.vn/Default.aspx?PageId=00000000-0000-0000-0000-000000000000). In order to support students, each semester, the library lends books and other materials to them. The library also conducts survey to explore the level of satisfaction of readers as well as types of borrowed materials to improve the library services in the future.

Besides the university library, FEEE has reading room to support teaching and learning where lecturers and students can access free materials. The library is organized in the form of specific topics in library faculty.

10.3. The laboratories are adequate and up-to-date

FEEE has 37 laboratories updated and supplemented from 2009-2015 through the financial support by HCMUTE and sponsors from industry. In recent years, the Faculty has obtained funding for facilities from big companies such as Rockwell (America) group: $ 355,000; Panasonic SGU $ 25,000, ABB (Italy) group: $ 75,000. Especially, in 2010 General Electric (GE) (America) group funded $ 1.2 million for facilities. Each laboratory has a support staff or manager to help FEEE manage, maintain and repair experimental equipment, to enhance the quality of teaching and learning process. [Exh.10.12: Decision No. 2831/QĐ-BGDĐT 18/03/2009 about the admission of equipment funding from corporations Rockwell, [Exh.10.13: Decision No. 2479/QĐ-BGDĐT 9/7/2012 about the admission of equipment funding from corporations Tektronix, Fluke and Keithley], [Exh.10.14: Decision No.

4403/QĐ-BGDĐT 01/10/2010 about the admission of equipment funding from corporations General Electric Pacific PTE.LT], [Exh.10.15: Decision No. 4450/QĐ-BGDĐT 06/07/2009], [Exh.10.4: List laboratories staff of FEEE].

The Labs managed by FEEE are well equipped with computers for student use. Students can also bring in their own laptops to the labs.

10.4. The computer facilities are adequate and up-to-date

The central buildings are equipped with computers with Internet access to serve the courses that need practice on computers in 16 computer rooms. The number of classrooms with computer access and the number of computers in each room are from 29 to 45 computers respectively. HCMUTE invested $1 million computer network infrastructure from 2013. Cables with high speed Internet access are ready for laptop use [Exh.10.16: Computer labs of FEEE], [Exh.10.17: Information and Network Center]. Wireless network covered throughout the center building, helped students access to information, learning materials easily and quickly. Computers installed specialized softwares such as Ecodial, Visual, Doc & CAT, AutoCAD, DIALux, etc. By the beginning of each semester, support staff checks update software and computers to make sure they are ready for use. Technical staff is always available in computer rooms to help users.

10.5. Environmental health and safety standards meet requirements in all aspects

Hygiene, environment and health care

The university and related units provide health services for students, academic and supporting staffs [Exh.10.18: Plan for health check]. The university supports students to find free services for health check. For all students, health insurance is mandatory. The Health Care Station of the university meets the standards of the Department of Health, HCMC in 2014. The university cooperates with the local Health Care Station to spray chemicals to prevent epidemic disease from insects, mosquito and mice. In the FEEE, all labs are provided with medical cabinets, and first aids.

The University hires sanitation workers from the Department of Hygiene and Environment to assure safe hygiene in all areas [Exh.10.19: Hygiene and environment, Fire protection].

Safety and Security

Classrooms, lecture theatres, labs, halls are all spacious, have enough light and the safety standards on water, power, exits. The University and FEEE strongly consider activities to prevent fire and always comply with fire regulations. In all areas of the university and faculty, especially in the labs and practice rooms there are adequate tools (fire extinguishers, water, sand...) to prevent and fight fire. The University regularly has a plan to maintain, repair or replace safety equipment [Exh.10.20: Fire prevention and fighting].

Students having a problem/issue of safety may call Dean or security team. The University's security team works all day (24/24). The security team has the contact number of hotline phones to call emergency (phone number: 114) to intervene as soon as possible. The

University coordinates with local government to prevent crimes, and to comply with law and local regulations.

In conclusion policies/law for health standards, hygiene, environment, safety and security in university are fulfilled very well. For example, smoking is not allowed in buildings; and both students and staff must wear safety helmet while riding a motorcycle.

11. Criterion 11 - Quality assurance of teaching and learning process

11.1. The curriculum is developed by all teaching staff members

All lecturers are invited to participate in curriculum design and development process [Exh.11.1: Process for design and adjustment of study programs]. There were many discussions among them to design ELOs and the curriculum of the EEET programme. Then, departments organized meetings for lecturers to discuss and design course ELOs, course syllabi, course objectives, contents and structure of courses so that the courses can contribute to the ELOs of EEET programme as well as to keep the balance and relationship among courses. [Exh.11.2: Minutes of meeting of all teaching staff members of the department and faculty about design and development of study programs].

During the curriculum development, lectures can suggest changes in the curriculum. They can present their suggestion in department or faculty meetings or directly talk with the Dean of the FEEE. The suggestion of changes in curriculum are reviewed and approved by the Scientific and Academic Committee of the faculty, and then they are submitted to Scientific and Academic Committee of the University for Approval.

11.2. The curriculum development involves student

For course development, students can give comments/ feedback about the contents, structure of the study programme by direct participation in the committee of course design and development, or via the class meeting with faculty members/study consultants, or via discussion panels. At the end of each course, the university asks all students to conduct their courses' evaluation online. The feedbacks of students are analyzed to use for the curriculum revision.

For students in the 1st academic years, the faculty pays attention to the "catch up" with basic knowledge of foundation courses in order to adjust content and teaching methods in a timely manner in accordance with the Bloom Taxonomy so that they can have effective learning methods.

For students from the 2nd year to 4th year, they can provide feedback about clusters of professional knowledge and teaching methods, practice, internship, research orientation, dissertation and others. The Faculty also collects feedback from students via direct communication between the representatives of the faculty and students each semester [Exh.11.3: Questionnaire for students, for graduates], [Exh.11.4: Announcement for meeting between Board of Dean, Board of President with students], [Exh.11.5: Direction ideas from university leaders].

For graduates, they can provide feedback about quality of the whole study programme in different levels of their satisfaction. Their feedback are taken into consideration and analyzed by the university and the faculty to improve the programme [Exh.11.6: Questionnaire for graduates], [Exh.11.7: Reports of survey results on graduates over the years].

Year by year, these results from feedback of students have been considered to improve the quality of the programme, teaching methods, facilities and infrastructures towards achievement of regional and international standards.

11.3. The curriculum development involves the labour market

The university and faculty periodically conduct surveys to investigate, evaluate comments and feedback of labour market/alumni about the study programme. In November each year, the University and Faculty organize the Alumni Day to welcome to campus graduates, domestic and international companies and enterprises to collect their feedback [Exh.11.8: List of 87 companies, colleges, professional intermediate schools, universities], [Exh.11.9: Questionnaire for labour market/alumni in traditional meeting, 20/11].

According to the university's devolvement, departments can adjust 5%-10% of contents of study programme with approval from Scientific Committee of university and faculty, so that they can meet the needs of labor market. For example, according to analysis of feedback of employers regarding English capacity and soft skills of graduates, English is added as an input standard; students who do not meet the English requirements must take extra English courses, University and companies organized several soft skills class for students to improve their soft skills through workshops with the companies.

11.4. The curriculum is regularly evaluated at reasonable time periods

As stated in 11.1, 11.2 and 11.3, development and improvement of study programme are based on needs of society. Clearly there is great contribution from lecturers, graduates, alumni, and labor markets, so regular evaluation of the curriculum is essential.

The study programs are evaluated by many methods at the department and faculty level via professional workshops to evaluate the training results, rate and quality of the study programme [Exh.11.10: Adjustment of the curriculum from 187 credits to 150 credits according to Decision No. 43/2007/BGDDT]. The assessment performed periodically from 2010-2012. In particular, training programme has been assessed by the standard of the MOET in 2012.

Before 2003, the study programme offered over 219 credits; in 2008 it was reduced to 186 credits. In 2012 the study programme consisted of 150 credits according to Decision No. 43/2007/BGD-DDT. In 10 years, 70 credits were reduced. Clearly, every 5 years the study programme is adjusted in both number of credits and its contents. At the same time, the university must adjust teaching and learning strategy, change activities of management, and support services: teaching assistants, student consultants, online learning, etc.… to enhance quality of the study programme.

Stakeholders' feedbacks are also considered to improve the study programme. In parallel, the university updates and improves the study programme by referencing other study programs in Vietnam and abroad.

Cycle to update study programs is 12 months. The university enforces the cycle for adjustment of study programs on August 01st 2015 [Exh.11.11: Training programme revision process], [Exh.1.7: Minute of the meeting with the Board of Science and Education faculty of the programme adjustment].

Specially, in 2015-2016 the study programme is participated to accreditation towards AUN-QA criteria (ASEAN University Network – Quality Assurance). All results of evaluation of curriculum are uploaded on university website.

11.5. Courses and curriculum are subject to structured student evaluation

University has structured system for students to evaluate courses and curriculum. All students can give their feedback in meetings with lecturers in classroom, meeting with academic advisors or consultants, meeting with the Head of department, Board of Dean and Board of President via forums or email and every semester. Especially, students can provide their feedback via the questionnaires in paper-based surveys and online surveys. Faculty, department, Quality Assurance Office, Student Affairs Office, and Academic Affairs Office together note and deal with feedback students' feedback [Exh.11.3: Questionnaire for students, for graduates], [Exh.11.4: Announcement for meeting between Board of Dean, Board of President with students], [Exh.11.12: Minutes for class meeting], [Exh.11.13: Questionnaire for students' feedback for practice and practice courses].

As stated in 11.2, students and graduates participate in providing feedback for courses. Graduates and alumni provide feedback for curriculum.

In order to implement these activities, the coordination among the university, the Quality Assurance Office, Student Affairs Office, Academic Affairs Office, faculty, department, and advisors is needed. In addition, there are also regulations and guideline for the activities. For example, there are regulations for evaluation enforced by the President of HCMUTE. Besides that, the MOET formulated guidelines for collecting feedback from students towards the teaching activities [Exh.11.14: Decision No 38/QĐ-ĐHSPKT-ĐT, 14/4/2008: Regulation about feedback collection from students for lecturers' teaching activities], [Exh.11.15: Document No. 7324/BGDDT-NGCBQLGD, date 08/10/2013 about guidelines for feedback collection from students towards lecturer's teaching activities].

11.6. Feedback from various stakeholders is used for improvement

Feedback from stakeholders have been collected and used for improvement since 2010 from the university to the faculty. Many important changes for the programme have been made, as mentioned in Table 11.1 below.

Table 11.1 Proposals from stakeholders for adjustments of the programme in 2010-2016

Proposal for improvement	Changes
Time: **2010-2011**; Stakeholders include **student, lecturers, alumni and employers**	
1) Students can use English well. 2) Teach students knowledge for ATS, PLC, and C; 3) Students can use Visual Basic; 4) Students' skills for ATS; 5) Students have more knowledge of energy resource management.	1) Improve the quality of English courses and English clubs 2) Adding knowledge for ATS, PLC, and C; 3) Replace introduction of informatics course with Visual Basic course; 4) Adding practice for ATS; 5) Increase knowledge for energy resource management. [Exh.11.16: Minutes for meeting of Faculty and department for adjustment of curriculum 2011]
Time: **2011-2012;** Stakeholders include **student, lecturers, alumni, employers and expert.**	
1) Students have a stronger foundation of EEE 2) Reduce the number of credits for politics subjects; 3) Enhance students' capacity to design; 4) Orientation to EEE for new students; 5) Logic Introduction Increase practice load, theses, and dissertation.	1) Adding foundation EEE course; 2) Reduce the number of credits for politics subjects; 3) Provide students with more opportunities to design; 4) Build teaching plan for the introduction course for EEE; 5) Logic Introduction Increase practice load, theses, and dissertation. [Exh.11.17: Decision No.558 date 28/07/2012 promulgation of the ELOs in 2012], [Exh.11.18: Decision No. 559/QD-DHSPKT-DT about the Curriculum in 2012].
Time: **2012-2013;** stakeholders include **lecturers.**	
▪ Proposals for having teaching assistants	▪ Regulation for teaching assistant was formulated [Exh.11.19: Decision No. 279/QD-DHSPKT-DT 03/10/2013].
Time: **2013-2014;** stakeholders include **employers, graduates, and alumni.**	

▪ Having social activity days.	▪ Students have to spend days doing social activities during the programme [Exh.11.20: Decision No 757/HD-DHSPKT-DT on date 03/09/2014]
Time: **2014-2015;** stakeholders include **experts, lecturers, graduates and alumni.**	
▪ Add content of ethics for profession into objectives;	▪ Content of ethics for profession into training objectives; [Exh.11.21: Training objectives and ELOs of the programme in 2015]
Time: **2015-2016;** stakeholders include **lecturers and students.**	
▪ Change training plan for some courses.	▪ Training plan for some courses has been changed. [Exh.11.22: Proposals for adjustment of curriculum, 13/8/2015]

The feedback in Table 11.1 from academic year 2010-2011 to 2015-2016 shows comments, stakeholders involved, changes that are made for the programme, and the evidence for the changes [Exh.11.23: Evidences for adjustments of study programme].

Besides the Faculty also refer to the curricula from prestigious schools in the country as HUT-HN, HCMC University of Technology and abroad as the Georgia Institute of Technology, University of California, Berkeley - USA, Great Study Melbourne - Australia, The University of Auckland - New Zealand, University of Madras - India, Hong Kong Polytechnic University, Institute of Technology Bandung - Indonesia, NTU Singapore, Chulalongkorn University - Thailand [Exh.1:04: Synthesis Report of Results can be compared with the D EMT Worker Training sector with other EMT].

11.7. The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement

According to Criterion 4, the teaching and learning strategy helps students to acquire and use knowledge academically, orients and stimulates quality learning, active learning and facilitates learning to learn, in parallel with quality assurance for lecturers, support staff, facilities and infrastructures. Besides, the university founded the Quality Assurance Office, whose functions are to conduct survey or evaluation of the quality of education internally (http://qao.hcmute.edu.vn/ArticleId/a4c8cf77-6f42-43d1-bed2-eb668022febe/danh-muc-quy-trinh-hien-hanh), as well as to coordinate the programme assurance, assessment and

accreditation in accordance with MOET standards and international standards [Exh.11.24: Functions of Quality Assurance Office].

According to Criterion 5, the university has a plan for evaluation of input, student assessment in process and output, teaching methods, achievement of ELOs, contents of study programme, assessment covering all programme objectives [Exh.11.25: Cycle for design of examination plan, for examination fulfilling], [Exh.11.26: Process to design and protect examination paper].

Academic Inspectorate Office implements control for all activities above and submit reports to the Board of Presidents and Board of Deans [Exh.11.27: Functions of department of Education Inspection], [Exh.11.28: Reports of Academic Inspectorate Office about the activities].

All activities run through plans, towards international standards in Vietnamese conditions, all are checked and evaluated and processing results are used for quality assurance and continuous improvement.

12. Criterion 12 - Staff development activities

12.1. There is a clear plan on the needs for training and development of both academic and support staff

To fulfill university mission, vision, and objectives, it is very necessary for the University and Faculty to own adequate academic and supporting staff with high capability and they are always in sustainable plan for development.

The University and Faculty have developed strategic plans for HCMUTE and FEEE in which training and development for academic and support staff was paid great attention. Academic and support staff are required and provided opportunities for training in pedagogic profession, foreign language, computer science, specialized in master, doctorate; specialized training for support staff. All plans for training are announced publicly and uploaded on the website [Exh.12.1: Process for training and development of human resources], [Exh.12.2: Strategic plan for development of FEEE], [Exh.12.3: Announcement for training for academic staff], [Exh.12.4: Questionnaire for survey of training needs for quality enhancement], [Exh.12.5: Results of registration to enhance profession and sample of training activities].

In regards to research activities, the Faculty relies on Process of conducting research projects at university level and announcement on process of conducting yearly research projects [Exh.12.6: Process of conducting research projects at university level], [Exh.12.7: Announcement on process of conducting yearly research projects]. The faculty members register for research proposals based on their specialization. The Faculty collects research proposals from the faculty members and submits them to the University for Approval. The University selects the best ones, approves, allocates the budget, and signs the contract with approved proposals. Then faculty members will conduct approved research projects.

In regards to the support for conferences, seminars, short-term courses on campus, off campus, and internationally, the Faculty investigates and looks for relevant information to plan, select the most relevant ones, then announces publicly. Participants will report and share knowledge after participating in these activities.

12.2. The training and development activities for both academic and support staff are adequate to the identified needs

The University and Faculty pays attention to the training and development needs of academic and support staff in terms of improving professional skills, English capacity, leadership skills, and information technology to meet the needs and aspirations of the staff.

Faculty members pursuit graduate studies, both in master and doctorate degrees in Vietnam, the U.S., the UK, Canada, Spain, Italia, Japan, Korea, Australia, etc. by using different sources of funding such as internal funding, joint-projects with companies, international scholarship, as well as funding from 911 Project (Government funding). In addition, the university yearly implements the education collaboration programs with foreign countries such as the HEEAP programme (Higher Engineering Education Alliance Program sponsored by Intel and USAID), short training courses to improve English capacity in the Philippines, short training courses in India in accordance with the collaborative program in economics and technology ITEC, VEF scholarship and other sources of scholarship from other countries [Exh.12.8: List of faculty members participating in professional development], [Exh.12.9: Approval for academic staff participating in the HEEAP program], [Exh.12.10: Approval for academic staff participating in short training courses to improve English capacity in the Philippines], [Exh.12.11: Approval for academic staff participating in short training courses in India], [Exh.12.12: Announcement of VEF scholarship].

Additionally, the University and Faculty have a transparent policy about tuition subsidy for staff that pursues graduate degree in Vietnam [Exh.12.13: Tuition subsidy for academic staff pursuing graduate degrees in Vietnam]. After the completion of training programs, they need to report their study results to the faculty and university. For those who have articles or research projects that are published in Vietnam or internationally, the University has a compensation policy [Exh.12.14: University compensation policy for research projects].

The University encourages academic staff to participate in workshops, conferences, and publish articles to improve professional capacity and increase the number of research published abroad. The University has compensation policy to motivate academic staff that has research projects at different levels and articles published in international journals [Exh.12.15: List of topics in conferences/proceedings], [Exh.12.16: List of articles published in foreign journals], [Exh.12.17: List of articles].

Enhancement of English capacity is prioritized at FEEE. The faculty allows academic staff to join English capacity improvement courses initiated by the MOET. The University also obtains a compensation policy to encourage those who obtain high standards in English. Moreover, all academic staff have to take English tests organized by the University

[Exh.12.18: List of academic staff participating in English courses], [Exh.12.19: Awarded list of English learners' achievement], [Exh.12.20: List and result of English takers].

The Faculty regularly organizes academic seminars where academic staff as speakers or international guest speakers report and share their professional initiatives [Exh.12.21: List of participants of academic seminars].

Activities supporting teaching and learning activities

In liaison with the Academic Affairs Office, the Faculty organizes E/M Learning workshops for faculty members in order to update modern online teaching methods to support learning and teaching activities such as announcement of schedules, homework, knowledge sharing [Exh.12.22: List of participants in E/M Learning].

Improvement of teaching methods is a focus of the University, i.e. courses in reasoning in undergraduate teaching, undergraduate pedagogy is regularly held [Exh.12.23: List of staff participating in pedagogy training programs].

Activities for support staff development

In coordinating with the University, FEEE organizes courses on the enhancement of management capacity for support staff [Exh.12.24: List of support staff participating in short training courses].

In conclusion, FEEE always has a feasible plan for the needs for development and training of academic and support staff. To achieve the targeted needs, the University and Faculty implement many activities in order to meet the needs for improving knowledge and professional development aligned with the strategic development of the University and Faculty.

13. Criterion 13 - Stakeholders feedback

The process of design, development and improvement for programme is based on mission, vision and requirements of stakeholders. To do this thing, university/faculty has the QA system to implement and collect feedback from the students about course evaluation; from graduates, alumni, the labour market and staff about quality of the programme.

13.1. There is adequate structured feedback from the labour market

According to the process to evaluate customer satisfaction with the training programme – 2015, faculty has issued Decision No.15 on 14/11/2013 about conducting survey for feedback from employers about the programme, the main contents of questionnaire are focusing on quality of programme, performance, skills, competence of employees (alumni of the university) and recommendations ò the employers for improving the programme [Exh.13.1: Decision No.15 about Regulation for employer survey], [Exh.13.2: Questionnaire for satisfaction feedback about employees' satisfaction of needs of jobs from employers].

Employers meetings discussing about the quality of graduates and the curriculum is held every year. Employer surveys have been conducted every 2 years. The questionnaires are delivered directly to employers or by different ways such as telephone, post, e-mail, in job

fair, conference, etc. The number of feedback from employers is increasing. For example, the response of the survey I 2014 was 74.4% [Exh.11.9: Questionnaire for labour market and alumni in traditional meeting on 20/11], [Exh.13.2: Questionnaire for satisfaction feedback about employees' satisfaction of needs of jobs from employers],[Exh.13.3: Results of survey about FEEE graduates' employees' satisfaction of needs of jobs from employers in semester II, academic years 2013-2014].

Results of the surveys are delivered to FEEE for continuous improvement [Exh.13.4: Announcement for reviewing groups of courses]. FEEE reviews results of survey with recommendations and proposes to the Board of President for programme adjustment.

The faculty organizes meetings to deliver the final report of survey to relevant participants and informs plans for improvement in the fields of teaching, student management, student consultancy/support for job, quality of programme, performance, skills, competence of employees (alumni of university) and recommendations. The results in the final report of the survey are used by the faculty to improve the programme.

Table 13.1 Results of survey for feedback from employers

Years / Questions	2009	2014	2015
Number of surveyed enterprises	16	20	9
1. Ability to approach, be flexible and solve problems of EEET graduates are:			
▪ *Very fast*	6.25%	37.5%	0
▪ *Fast*	43.75%	12.5%	67%
▪ *Normally*	50%	0	33%
▪ *Slowly*	0	12.5%	0
▪ *No answer*		37.5%	
2. Please provide employees abilities to solve tasks/job (HCMUTE graduates):			
▪ *Completing tasks well*	56.25%	50%	33%
▪ *Completing tasks*	43.75%	0	67%
▪ *Not completing tasks well*	0	12.50%	
▪ *No answer*		12.50%	
3. Please tell about employees strengths:			
▪ *Professional knowledge*	81.25%	69%	89%
▪ *Skill on practice*	50.00%	42%	56%
▪ *Skill on communication*	18.75%	42%	22%
▪ *Discipline awareness in task/job*	56.25%	10%	0%
▪ *Skills of foreign*	0	63%	44%
▪ *Capacity of IT*	0	*Not survey*	11%
▪ *Soft skills (pair work, group work, time management)*	25%	10%	11%

4. Please provide the rate of employees (alumni of ETU) satisfies company needs:	70%	87.3%	90%
5. Please provide the rate of employees to join training for development after recruitment:	100%	100%	78%
6. For development of company in the future, are you going to recruit graduates from HCMUTE?			
▪ *Yes*	87.50%	96%	100%
▪ *No*	6.25%	0%	0%
▪ *No answer*	6.25%	4%	0%

13.2. There is adequate structured feedback from the students and alumni

Survey for feedback from students

Academic Affairs Office and Quality Assurance Office build the survey system to collect students' evaluation of courses. The results of students' feedback of each course are sent to lecturers [Exh.13.5: Feedback of FEEE on survey results of students about lecturers' teaching methods], [Exh.13.6: Report of processing results of students' survey on lecturers' teaching methods, semester I, 2015-2016].

Table 13.2 Results of survey for feedback from students

Courses	Teaching quality index				Classification
	Criterion 1	Criterion 2	Criterion 3	Average	
Power Electronics	84.6	85.5	86.4	**85.5**	Good
Electrical Safety	83	83.6	84.5	**83.7**	Good
Electrical Safety	77.8	79.8	80.7	**79.4**	Good
Electrical Control Devices	88.7	88.6	88.5	**88.6**	Good
Automatic Electric Drive	89.8	90.5	91.6	**90.6**	Very good
Electric Drive in Practice	92.4	92.1	92.9	**92.5**	Very good
Industrial Management	88.5	88.2	89.1	**88.6**	Good
Project Management	89.2	89.5	89.6	**89.4**	Good
Electric Drive in Practice	86.5	86.6	86.9	**86.7**	Good
Electrical System Design (TN-DKC)	85.7	88.5	88.5	**87.6**	Good
CAD for Electrical Engineering	92.5	92.2	92.6	**92.4**	Very good
Power Electronics	81.8	83.2	82.6	**82.5**	Good
Electrical Safety	85.2	86.9	88.1	**86.7**	Good
ATS and Power Backup System	84.9	86.3	86.3	**85.8**	Good
CAD for Electrical Engineering	71.5	73.1	74.2	**72.9**	**Average**
Relay Protection and Automation	78	79.6	80.3	**79.3**	Good
Relay Protection and Automation	73.9	75.5	77.7	**75.7**	Good
Automatic Electric Drive	78.9	79.2	79.6	**79.2**	Good
Electric Drive in Practice	85.4	86.3	86.5	**86.1**	Good
CAD for Electrical Engineering	86.9	86.6	87	**86.8**	Good
Lighting Techniques in Residential and Industrial	80.6	80.9	81.8	**81.1**	Good
New Energy Resource and Power Saving	86.4	86.5	87.3	**86.7**	Good
Renewable Energy	82	81.4	80.8	**81.4**	Good
Electric Drive in Practice	83.6	84.4	84.2	**84.1**	Good
Graduation Thesis	81.8	81.2	82.4	**81.8**	Good
CAD for Electrical Engineering	78.7	80.3	81	**80**	Good
Power System	88.3	88.2	88.2	**88.2**	Good
Power Station and Power Plant	89.5	90.6	90.2	**90.1**	Very good
Power System Analysis and Simulation	86.4	86.8	88	**87.1**	Good
Relay Protection and Automation	84.3	86.1	86.6	**85.7**	Good
Advanced CAD for Electrical Engineering	89.6	89.7	89.7	**89.7**	Good
Power Electronics	85.1	86.6	86.7	**86.1**	Good

Three criteria for evaluating teaching activities, surveyed by students, include teaching methods, teaching content and assessment method, and pedagogical style. In case of average evaluation, lecturers and faculty exchanges to find reasons and solutions to overcome difficulties in the next semester, then send reports to the Quality Assurance Office [Exh.13.7: Feedback report of teaching activities].

Survey for feedback from graduates

The faculty and Quality Assurance Office yearly collect satisfaction feedback from Graduates:

Table 13.3 Results of survey for feedback from graduates (2015)

No	Questions	The possible answers	No. of response	Percentage (%)
1	1. After graduation how long have you found a job?	Having a job right after graduation	23	32.9
		Having a job 1 month after graduation	29	41.4
		Having a job 3 months after graduation	2	2.9
		Having a job 6 months after graduation	13	18.6
		Pursuit of higher degree/ start their own business	3	4.3
2	2. If you already have a job, current areas of your work	True to the training programs	48	88.9
		Different from training programs	6	11.1
3	5. Have the employers trained for you?	NO	13	24.1
		Training under 3 months	33	61.1
4		Training from 3 months to 6 months	7	13
		Training over 6 months	1	1.9
5	6. If you were trained, the training content more relevant to:	Professional	39	50.6
		Work skills, soft skills	35	45.5
		Other	3	3.9
6	7. Are you happy with the current job?	Yes	0	0
		Satisfaction	49	90.7
		Dissatisfaction	5	9.3
		OK	0	0
7	7. Are training programs distributed appropriately between theory and practice?	Distribution reasonably	60	85.7
		Distribution unreasonably	10	14.3
8	**8. Do you satisfy with the overall quality of education in HCMUTE and FEEE?**	YES	69	98.6
		NO	1	1.4

Survey for feedback from alumni

The university and faculty have Alumni Committee at the university and faculty level. Every November, the Alumni Committee organizes meeting to update personal information [Exh.13.8: Decision 879/QĐ-ĐHSPKT-TCCB, 10/10/2013 for completion of organization of Communication Board of Alumni Committee], [Exh.13.9: List of FEEE Alumni], [Exh.13.10: Photos of Alumni of FEEE in the Get Together].

To conduct the survey for feedback from alumni, a specific questionnaire is designed by FEEE. [Exh.13.11: Questionnaire of alumni of FEEE]. The synthesis of alumni's feedback is accumulated, synthesized by the Alumni Committee and submitted to the faculty [Exh.13.12: Integrated report on the results of survey for alumni of FEEE]. According to the report of Alumni Committee, 95% of alumni expressed their satisfaction for the quality of the programme. 76% of alumni give recommendations for improvement of foreign languages, and 86% of them show the needs for improving reasoning and analysis skills.

Table 13.4 Results of survey for feedback from alumni

LEVEL OF SATISFACTION	Bad	Average	Good	Very good	Excellent
The quality of student graduate			71%	20%	9%
Training Program			56%	32%	12%
Response of the faculty and University about alumni feed back			57%	34%	9%
Alumni Relations		29%	29%	32%	10%
Corporate Relations		19%	48%	21%	11%

13.3. There is adequate structured feedback from the staff

The university and Faculty frequently get feedbacks from lecturers and support staff in closing conferences of academic years, conferences of staff and officers [Exh.13.13: Minutes of the closing conference in summer 2015, conferences of staff and officers], [Exh.13.14: Minutes of the young staff conferences in 2014-2015]. Feedback from the lecturers and support staff play an important role to improve and enhance the quality of the programme and services of the functional units to support teaching and learning better and better.

According to the report of survey of the University for staff satisfaction about the quality of services offered by supporting units, the majority of these units meet the satisfaction with qualified services and good working attitude [Exh.13.15: Processing results of staff' survey in semester II 2013-2014].

In addition, The President Board meets with the staff every once a month on Thursday at the last week of the monthly. Officials, employees can submit comments via People's Inspection Boards, mailbox, email, etc.

14. Criteria 14 - Output

Output is the result of the teaching and training process which indicates student achievement in regards to passing rate, failure, or dropout rate, length of study programme, job offer, research capacity, as the fruit of teaching and studying strategies, and quality insurance of 150 credits offered with approved structure and content of teaching and training programs in accordance with solutions for improving the quality of teaching and studying to achieve the targeted rate.

14.1. The pass rate is satisfactory and dropout rate is of acceptable level

HCMUTE applies Regulation 43/2007 and the Academic Regulation of the university to evaluate passing, failure, dropout, and graduation rate [Appendix 6: Decision No. 43/2007/QD-BGDDT, on date 15/8/2007 about promulgation of regulations for undergraduate and college regular education in credit-based system], [Appendix 7: Regulation No. 125 about guideline for education in Credit-based Systems]. In order to complete the programme, students must complete 150 required credits and earn the accumulated GPA of 2.0 or above (4.0 grade scale) or 5.0 or above (10.0 grade scale). HCMUTE has an online database system to keep track of student academic records, passing/ failure, and dropout rate in order to have appropriate solutions in a timely manner [Exh.14.1: Regulations, policies, and announcements of the Academic Affairs Office in regards to graduation requirements].

Table 14.1. Student performance (2007-2015)

Academic year	Size cohort	% first degree			%drop out			
		4 years	4.5 years	>4.5 years	1st year	2 years	3 years	>3 years
2015-2016	365	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2014-2015	362	N/A	N/A	N/A	1.66	N/A	N/A	N/A
2013-2014	337	N/A	N/A	N/A	3.26	4.75	N/A	N/A
2012-2013	265	N/A	N/A	N/A	3.77	5.28	6.04	N/A
2011-2012	156	56.41	26.28	N/A	3.85	5.13	7.69	7.69
2010-2011	161	44.72	24.84	18.01	2.48	6.83	12.42	12.42
2009-2010	153	42.48	30.72	16.99	3.92	6.54	9.80	9.80
2008-2009	195	40.00	30.26	18.97	6.15	8.21	10.77	10.77
2007-2008	181	49.72	24.86	16.02	5.52	7.73	9.39	9.39

The dropout and dismissed rate has been decreased to less than 3% last year [Exh.14.2: Table tracking the students graduating on time, early with their cohorts, dropout, dismissed rate over the years]. In order to decrease the dropout rate, HCMUTE pays attention to the consultancy to help students choose the right field of study, and have a good input rate. Students gain the full support from the university in terms of academic life, student life, lab work, exams in addition to the support in fieldwork, and career choice [Exh.9.7: Decision No. 402/QD-DHSPKT-CTHSSV date 14/10/2014 about foundation of the consultants], [Exh.9.6:

Decision No. 389/QĐ-ĐHSPKT-CTHSSV in regards to the regulations on consultancy for students].

14.2. Average time to graduate is satisfactory

According to Decision 43/2007/QD-BGDDT, the average time for the completion of the undergraduate programme is 4 years, which can be extended to 8 years in maximum. The on-time graduation rate has been stable in the range of 40.00%-56.41% [Exh.14.3 List of students reviewed for on-time graduation]. This list shows that the on-time graduation rate is acceptable; the average time for graduation is 4 years to 4.5 years, and the graduation rate has the tendency to increase over the years.

In addition, the late graduation rate remained high, more than 40%, because there were several tough courses, many students came from rural and provincial areas with limited academic background, and many of them had to work part time to support themselves. Faculty has teaching assistants to support students, build equivalent courses to help students have the flexibility to choose the subjects to ensure on schedule or ahead of schedule.

The FEEE as well as the university has encouraged and awarded students who completed the study programme and graduate earlier than required [Exh.14.4: List of awarded students graduating earlier than required].

14.3. Employability of graduates is satisfactory

The quality of graduates meets the training needs and market demand. The employment rate of graduates who had jobs related to their fields of study has increased over the years and reached 89% [Exh.14.5: Table analyzing the employment rate of graduates who had jobs related to their field of study]

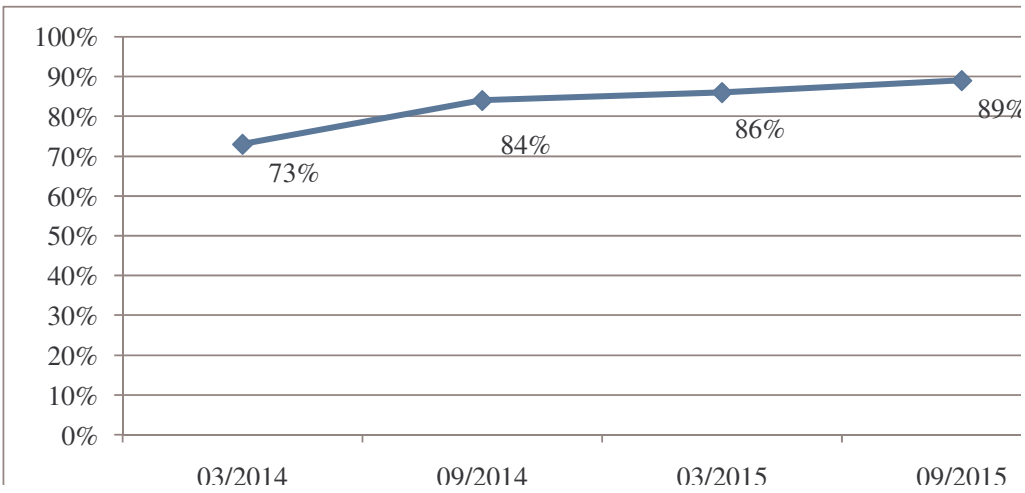


Figure 14.1 Rate of graduates employed in their field of study

The result of the analysis of employment rate shows that 54% - 77% graduates were employed in three months after graduation; only 4.3% was unemployed due to the fact that they were self-employed, ran their own business or study postgraduate degree [Exh14.6:

Results of survey for graduates employed after graduation], [Exh.14.7: Analyzing for results of survey about high need number of some fields from labor market].

The university, the faculty and the Related Offices altogether created a network to effectively offer job consultancy services to graduates [Exh.14.8: Document No. 125CV-ĐHSPKT-CTHSSV dated on 7/9/2012: Invitation to join Career Fair Day of the Student Association in celebrating the 50th anniversary of HCMUTE], [Exh.14.9: Document No. 139/CV-ĐHSPKT-CTHSSV: Invitation to join the workshop on "Networking- Recruitment- Career Fair" dated on 28/9/2013].

Table 14.2 Quantity and timeline of graduates employed per cohort

Graduation year	3/2009	9/2010	3/2010	8/2010	3/2011	9/2011	3/2012	9/2012	3/2013	9/2013
Time of survey	6/2009	1/2010	8/2010	12/2010	6/2011	1/2011	6/2012	1/2013	5/2013	1/2014
No. of graduates	1557	1659	1477	1211	1569	1230	1585	1749		1917
No. of graduates surveyed	764	691	937	663	964	1034	1074	998	548	1015
Job status	6/2009	1/2010	8/2010	12/2010	3/2011	9/2011	6/2012	1/2013	5/2013	1/2014
Employed (%)	71.18	80.45	81.28	82.3	78.02	83.28	68.9	66.33	54.87	68.9
Job hunting (%)	28.82	19.55	18.72	17.7	21.98	16.72	31.1	33.67	45.13	31.1

** Survey data in all sectors of university*

Table 14.3 Quantity and timeline of graduates employed 2014 (43 responses)

Job Status	No. of response	%	Accumulation (%)
Having a job right after graduation	9	20.9	20.9
Having a job 1 month after graduation	9	20.9	41.9
Having a job 3 months after graduation	5	11.6	53.5
Having a job 6 months after graduation	2	4.6	58.1
Pursuit of higher degree/ start their own business	18	41.9	100

Table 14.6 Quantity and timeline of graduates employed 2015 (70 responses)

Job Status	No. of response	%	Accumulation (%)
Having a job right at graduation	23	32.9	32.9
Having a job 1 month after graduation	29	41.4	74.3
Having a job 3 months after graduation	2	2.9	77.2
Having a job 6 months after graduation	13	18.6	95.7
Pursuit of higher degree/ start their own business	3	4.3	100

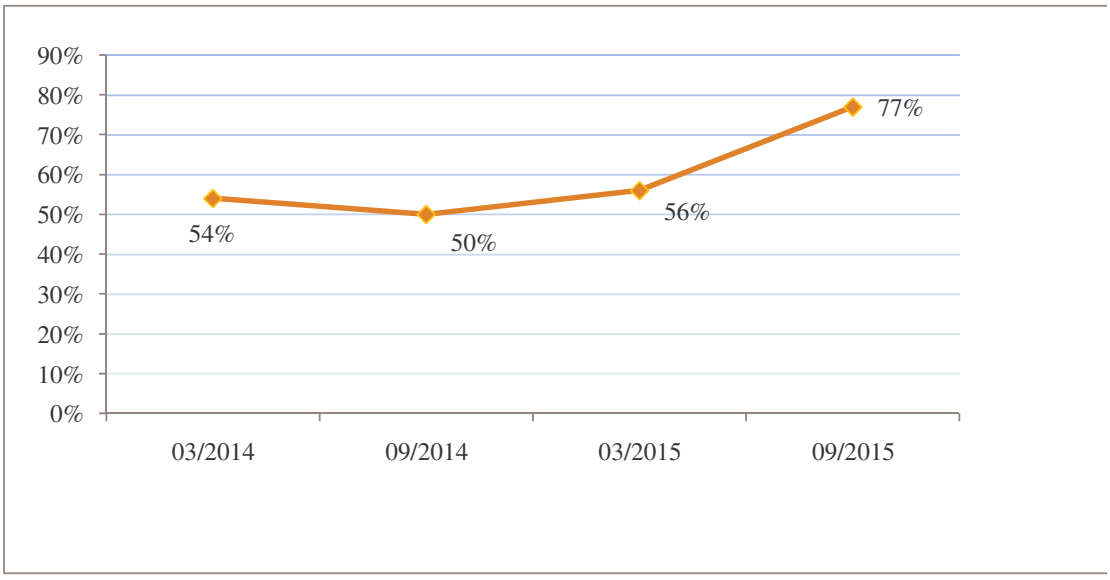


Figure 14.2 Percentage of graduates employed in 3 months after graduation over the years

In addition, Table 14.5 shows that the percentage of graduates who worked for private, foreign companies and joint venture companies is quite high (83%-91.3%) [Exh.14.10: Analysis of job categories of graduates over the years].

Table 14.5 Types of companies where graduates work

Time of survey	3/2011	9/2011	6/2012	1/2013
State companies, enterprises	7.43%	13.03%	7.53%	6.70%
Private companies	36.21%	40.04%	43.61%	43.06%
Owned business	1.41%	2.68%	1.83%	1.20%
Joint venture with foreign companies	10.79%	9.77%	7.53%	7.89%
Companies with 100% foreign investment	43.17%	33.14%	37.90%	40.43%
No answer	0.96%	1.34%	1.60%	0.72%

In comparison with other fields offered at the university, and with the same field at other universities, the analysis indicates that graduates of the FEEE of HCMUTE have a high rate of employment, always in the top 6 of the universities with the highest rate of graduates earning a job, with the higher average salary, and hold important positions in companies. [Exh.14.11: Comparison of employment status of graduates of the same university and with those from other universities].

14.4. The level of research activities by academic staff and students is satisfactory

The level of research activities by academic staff is satisfactory

Based on ISO process of performing scientific research projects the university level, the university has a systematic structure for scientific research:

- Being managed by a Vice President;
- Being in charge by the Scientific Research Management Office, and assistants;
- Applying the Science and Technology Law, and relevant regulations, policies;
- Applying internal regulations on expenses in regards to the exchange rate of number of credits from 90 to 110 credits per year to encourage faculty members conducting research;
- Instructing students to participate in scientific research.

[Exh.14.12: Decision No. 86/2010/QĐ-ĐHSPKT-QLKH dated on 30/12/2010 about promulgation of regulations for management of institutional scientific research and technology projects].

Table 14.6 Number of scientific research projects of faculty members and students of FEEE in 2010-2014

Year	2010	2011	2012	2013	2014	2015	Total
Students' research projects	20	29	10	27	13	45	**144**
Research projects - Institutional Level	40	25	30	24	31	31	**181**
Focused- Research projects -Institutional Level		05	08	10	13	18	**54**
Research projects - Ministerial level	6	1	1	1	1		**10**
Total	**66**	**60**	**49**	**62**	**58**	**94**	**389**

In addition, to encourage as well as improve scientific research activities, the university has a policy to award researchers in cash when they have papers published or subsidy their participation in scientific conferences abroad [Exh.14.13: Internal regulations on expenses standards], [Exh.14.14: Announcement No. 42/QLKH 08/04/2014 about appointing allowance level for articles published on scientific magazines]. In recent years, the FEEE has a lot of scientific articles published on specialized magazines and journals (see Table 14.7).

Table 14.7 Number of publications from 2010 to 2014 of FEEE

Year	International	Domestic	Total
2010	11	2	13
2011	11	5	16
2012	25	14	39
2013	34	24	58
2014	49	26	75
Total	**130**	**71**	**201**

Table 14.8 Top paper publication rate in VN 2015

Rank	Institution	Rate
FEEE-HCMUTE		**0.47**
1	Duy Tan University	0.43
2	Ton Duc Thang University	0.39
3	Hanoi University of Science and Technology	0.20
4	Can Tho University	0.20
5	VN National University Hanoi City	0.16
6	Hanoi National University of Education	0.13
7	VN National University HCM City	0.09

Source: Tuoi Tre Online (http://tuoitre.vn/tin/can-biet/20150925/ket-qua-va-nang-suat-nghien-cuu-khoa-hoc-quoc-te-cua-cac-dai-hoc-viet-nam-dau-2015/974884.html)

Note: Publication rate is defined as the total number of ISI paper to the total number of lecturer who holds a Ph.D. degree.

In implementing the policies of the university on scientific research, the FEEE established scientific research teams, and issued regulations and policies in order to encourage research activities of academic staff [Exh.14.15: Table of allocated funds for academic and scientific research from 2010 to 2015], [Exh.14.16 Sources of research funds from scholarships, or grants from outside that faculty members could obtain, research fund for Robocon], [Exh.14.17: List of funding sources for the LAB from foreign corporate], [Exh.14.18: Decision on the establishment of focused- research teams].

From 2006-2013, the participation of the academic staff of the FEEE in scientific research was as follows:

- Participation and chair of 12 research projects at the ministerial level, research projects and focused- research projects at the institutional level. These research projects were highly applied and have led to a positive change in people's lives [Exh.14.19: List of lecturers' scientific research projects].
- Implementation of 17 scientific transferred and teaching aids projects to training units in the field of Electronics and Electricity [Exh.14.20: List of scientific transferred and teaching aids projects].

The lecturers participating in scientific research have had 118 articles and papers published in scientific bulletins and specialized journals [Exh.14.21: List of articles and papers published in prestigious journals in Vietnam and abroad from 2012-2014]. It shows that scientific research activities at the FEEE in recent years have increased in capacity and especially in the number of published articles increased to more than 110 from 2010 to 2013 [Exh.14.22: List of published papers and articles, http://feee.hcmute.edu.vn/ArticleId/393c67fd-2567-4e1c-968d-5917723ccc83/an-pham-khoa-hoc].

The funding for scientific research activities for academic staff and students has been allocated from state fund budget, grants for research, scholarships for graduate students, as well as grants from outside funding that faculty members obtained [Exh.14.23: Funds for scientific research: Summative plan of fund allocation for science and technology mission from 2010 to 2013].

In addition, there are important sources of funding from big and prestigious companies and corporate such as General Electric, Rockwell, ABB, Panasonic, Omron, Siemens, to equip research facilities for the LAB. The total funding for the LAB has been up to 2.1 million US dollars.

The level of research activities by students is satisfactory

Students are critical thinkers and researchers after graduation. As a result, faculty members place an important role in actively encouraging and guiding them to implement 183 research projects from 2006 to 2013. By being involved in helping students doing research, faculty members also get credits for teaching hours [Exh.14.24: Regulation of internal expenses

regarding counting equivalent teaching hours for lecturers by giving instruction for students to do scientific research].

From 2006 to 2013, research activities of the faculty of the FEEE were as follows:

- Fifty percent of faculty members participated in research activities and guided students to do research [Exh.14.25: List of faculty chairing students' research projects over years].
- Students are encouraged to participate in research projects related to model establishment, or projects related to electronics and electricity, especially funded by companies such as ABB, Schneider Electric, and Holcim [Exh.14.26: List of number of students participating in research activities; pictures of acceptance and approval of research projects]. These inspire students be familiar and interested in doing research, especially help them improve skills to work independently and work in group.
- In order to encourage self-study, there are useful links to academic resources on the website of the department [Exh.14.27: List of websites providing links to specialized resources]. The department also compiled the English – Vietnamese cross-checked dictionary for each course taught in the EEE field, which serves as a tool to help students understand specialized materials [Exh.14.28: the English – Vietnamese cross-checked dictionary compiled by the FEEE].

The encouragement of doing research among student aims at helping them applying what they have learned and using scientific and research methodology in order to solve problems in science and real life. This helps improve teaching and training quality. Research activities among students are encouraged and supported with many benefits. Every year, the university and the Faculty inform students and faculty members of the registration for participating in research projects. Students obtaining the prestigious awards: Vietnam Youth Talent, Eureka Award.

[Exh.14.29: Website guiding students to participate into research project: http://rmiro.hcmute.edu.vn/ArticleId/30f5c542-9f35-4668-90c7-bca75877569a/huong-dan-thuc-hien-va-quan-ly-de-tai-nckh-sinh-vien], [Exh.14.30: Pictures and list of students obtaining the awards in scientific research].

Table 14.9 Number of students joint in scientific research from 2010 to 2014

Years	2010	2011	2012	2013	2014	2015	Total
Number of topics	20	29	10	35	3	45	**142**
Number of students	50	70	24	72	8	113	**337**
Total	**70**	**99**	**34**	**107**	**11**	**158**	**479**

Figure 14.3 Some outstanding awards at competitions and research activities

15. Criterion 15 - Stakeholders satisfaction

15.1. The feedback from stakeholders is satisfactory

Feedbacks from students (towards teaching activities) is satisfactory

Students from the FEEE are well informed about the training programmes and the output standards of each field (refer to the University website at: http://feee.hcmute.edu.vn/). Additionally, faculty members will distribute syllabus of each course to students as a basis for their evaluation of the course at the end of the semester. The online survey result (at the University website: https://online.hcmute.edu.vn/) was sent out to each faculty member for the purpose of improving teaching quality. Report on solutions to improve teaching quality was sent to the Quality Assurance Office [Exh.15.1: Report on the survey result of the second semester of the academic year of 2011-2012, FEEE], [Exh.15.2: Result of student survey on teaching activities_ Individual], [Exh.15.3: Report on the result of student survey in regards to teaching activities in semester 1, 2013-2014 academic year].

Table 15.1 Result of course evaluation of teaching activities from students

No.	Content	Option					Average
		Bad	Average	Pretty good	Good	Very good	
1	**Criteria 1: Teaching method**						
	1. I am introduced clearly about detailed course syllabus	**2%** 2 voted	**0%** 0 voted	**4.9%** 5 voted	**37.3%** 38 voted	**55.9%** 57 voted	**89.1%**
	2. Has teacher taught understandably?	**1%** 1 voted	**1%** 1 voted	**3.9%** 4 voted	**39.2%** 40 voted	**54.9%** 56 voted	**89.2%**
	3. Are activities in class diversified satisfied?	**1%** 1 voted	**1%** 1 voted	**2.9%** 3 voted	**33.3%** 34 voted	**61.8%** 63 voted	**90.8%**
	4. Is lecture ready to answer all of questions of students?	**2%** 2 voted	**0%** 0 voted	**3.9%** 4 voted	**38.2%** 39 voted	**55.9%** 57 voted	**89.2%**
	5. In learning process, I have received assessment timely in order to improve my learning a course	**1%** 1 voted	**1%** 1 voted	**4.9%** 5 voted	**35.3%** 36 voted	**57.8%** 59 voted	**89.6%**
	Total:	**1.4%** 7 voted	**0.6%** 3 voted	**4.1%** 21 voted	**36.7%** 187 voted	**57.3%** 292 voted	**89.6%**
2	**Criteria 2: Teaching content, testing content, assessment content**						
	6. Are teaching content followed detailed course syllabus ?	**2%** 2 voted	**0%** 0 voted	**4.9%** 5 voted	**36.3%** 37 voted	**56.9%** 58 voted	**89.3%**
	7. Does a lecturer usually connect a course with curriculum?	**2%** 2 voted	**0%** 0 voted	**5.9%** 6 voted	**35.3%** 36 voted	**56.9%** 58 voted	**89.1%**
	8. Does lecturer connect practical experience in teaching process?	**1%** 1 voted	**1%** 1 voted	**3.9%** 4 voted	**30.4%** 31 voted	**63.7%** 65 voted	**91%**
	9. Does a lecturer inform students about test forms,	**1%**	**1%**	**2.9%**	**38.2%**	**56.9%**	**89.8%**

No.	Content	Option					Average
		Bad	Average	Pretty good	Good	Very good	
	content text, course assessment clearly?	1 voted	1 voted	3 voted	39 voted	58 voted	
	10. Does a lecturer evaluate students fairly?	**1%** 1 voted	**1%** 1 voted	**3.9%** 4 voted	**36.3%** 37 voted	**57.8%** 59 voted	**89.8%**
	Total:	**1.4%** 7 voted	**0.6%** 3 voted	**4.3%** 22 voted	**35.3%** 180 voted	**58.4%** 298 voted	**89.7%**
3	**Criteria 3: Educational appearance**						
	11. Is lecturer punctual in class, or teaching all lectures as regulations?	**1%** 1 voted	**0%** 0 voted	**6.9%** 7 voted	**31.4%** 32 voted	**60.8%** 62 voted	**90.3%**
	12. Does a lecturer behave students with respect?	**1%** 1 voted	**0%** 0 voted	**5.9%** 6 voted	**38.2%** 39 voted	**54.9%** 56 voted	**89.2%**
	13. Is lecturer confident in class?	**1%** 1 voted	**0%** 0 voted	**5.9%** 6 voted	**38.2%** 39 voted	**54.9%** 56 voted	**89.2%**
	14. Has lecturer taken care of difficulties and aided students in teaching process?	**1%** 1 voted	**0%** 0 voted	**4.9%** 5 voted	**42.2%** 43 voted	**52%** 53 voted	**88.9%**
	15. Generally, I have satisfied with the lecturer	**1%** 1 voted	**0%** 0 voted	**3.9%** 4 voted	**34.3%** 35 voted	**60.8%** 62 voted	**90.8%**
	Total:	**1%** 5 voted	**0%** 0 voted	**5.5%** 28 voted	**36.9%** 188 voted	**56.7%** 289 voted	**89.7%**
0	**General total**	**1.2%** **19 voted**	**0.4%** **6 voted**	**4.6%** **71 voted**	**36.3%** **555 voted**	**57.5%** **879 voted**	**89.7%**

The FEEE has the record on file of the faculty members evaluated below “fair good”, sends the feedback to each individual lecturer for the purpose of improvement (see Table 13.2).

In the “Report on the survey result for the second semester, academic year 2013-2014” prepared by the Office of Quality Insurance, 78,44% of the faculty members was evaluated “Good”; 9 faculty members obtained 72 points and below, occupied 8.82%. Those staffs earned below 72 points were interne faculty members. The FEEE worked with those to find out the reasons and seek for solutions for improvement. The university and the faculty usually foster intern faculty's teaching methods, and professional ability.

The faculty also decreases practice teaching hours, increases teaching-assistant hours for intern faculty members so that they could have enough time to gain teaching experience from senior faculty members to prepare themselves for official teaching after they finish internship period.

Table 15.2 Extracurricular activity evaluation (2015)

No.	Content	Percentage of response (%)
1	**Question 1: How do you know this seminar?**	
	Friends and lecturers	61.7
	Email	23.3
	Facebook	11.1
	Website	3.9
	Others	0
2	**Question 2: Grade the seminar**	
	Very useful	35
	Useful	51.7
	Moderate	13.3
	Not useful	0
	Completely useful less	0
3	**Question 3: Seminar knowledge supports your major**	
	Very strong	26.7
	Strong	43.3
	Moderate	30
	Weak	0
	No support	0
4	**Question 4: Comments on invited presenter**	
	Excellent	56
	Good	34
	Normal	10
5	**Question5: Satisfaction in organizing seminar**	
	Yes	98.3
	No	1.7

Feedbacks from graduates (towards teaching quality of EEET Programme) is satisfactory

Graduates from the FEEE participate in survey when they receive the diploma [Exh.15.4: Plan for fostering professional ability, academic year 2014-2015], [Exh.15.5: Result of survey of graduates in 3/2014]. The report on the survey of students graduated in September 2015 indicated that 70 graduates participating in the survey. More than 77% of the graduates obtained a job within 3 months after graduation. The University has solutions to support job hunting for graduates [Exh.15.6: Announcement of job fair 2014]. Three months after graduation, the majority of graduates could find a job related to their fields of study (89%). However, 11% of the graduates got a job unrelated to their majors. The survey one year later showed that the number of graduates obtaining a job related to their major increased significantly. This justified that graduates preferred to have a job as soon as possible after graduation, or they wanted to get work experience, or they got better salary, or it would be

easier for them to get higher degree. The majority of graduates expressed their satisfaction for their current jobs (90.7%), a few graduates did not feel satisfied with their current jobs due to pressure, too many work hours (8 hours per day, 6 days a week), or their companies did not support their further study. 99% of the graduates totally agreed that the training programme equipped them with sufficient knowledge and skills for their jobs and help them effectively use the knowledge gained from school, help them meet the demand of job market.

However, the relationship between theory and practical, experimental contents have not totally satisfied students' needs. 14.3% of the graduates indicated that it was not really totally satisfied.

Table 15.3 Integrated table of marks (%) for each survey question per year

Question \ Year	06/ 2009	01/ 2010	12/ 2010	06/ 2011	01/ 2011	06/ 2012	01/ 2013	05/ 2013	01/ 2014	06/ 2015
No. of graduates surveyed	764	691	663	964	1,034	1,074	998	548	1,015	744
1. Do you currently have a job?	71.18	80.45	82.3	78.02	83.28	68.9	66.33	54.87	68.9	47.7
2. You think the training programme at UTE meets the need of labor market	78.53	81.64	59.45	72.41	71.08	76.35	73.35	78.83	80	81
3. You feel satisfied with the training program you took at HCMUTE	No survey	No survey	No survey	74.48	73.69	78.21	79.25	81.93	80	80
4. The current job is related to what you learned from HCMUTE	62.15	76.12	47.75	73.34	67.74	71.47	72.68	74.40	80.8	83
5. The allocation between theory and practice is reasonable.	No survey	No survey	No survey	No survey	No survey	No survey	No survey	No survey	63	68

Generally, graduates felt satisfied with the teaching quality at HCMUTE (83% indicated that they totally agreed and agreed).

Since 9/2014, HCMUTE established the Public Relations Office in order to help graduates look for jobs. In addition, the Office also offers soft skill courses, contacts companies that offer intern positions for students, and site visits [Exh.15.7: Report for implement of plan of semester I/ 2014-2015].

Feedback from alumni (towards teaching quality of EEET Programme) is satisfactory

The feedback from alumni is very important since the quality of alumni currently working in enterprises and companies reflect the quality of the teaching programme (see Table 13.4).

The data were collected in the alumni surveys or during the Job Fair events [Exh15.8: Survey of alumni on the satisfaction about the training programme].

A survey of companies and enterprises was conducted in Semester 2, 2013-2014 to explore the level of satisfaction of the employers about the quality of alumni from HCMUTE [Exh.15.9: Survey of enterprises and companies on the level of meeting the job demands of alumni from HCMUTE]. According to the survey, these are state owned and foreign owned companies and enterprises. Job positions are mainly related to technical work. 60.42 % of the alumni were evaluated as quickly flexible and adapted to their work. Solid professional background of the alumni is highly appreciated by employers. However, English capacity was also needed to improve (70.83%).

Feedback from employers is satisfactory

Labor market feedback is conducted every year. The feedback data was gathered by sending the "Labor Market's Feedback Form" directly to the companies employing the EEET graduates.

In 2015, there is 63% of the employers who answered the survey in which 97% of them satisfied with graduates' quality, especially with their application of professional knowledge in practice, communication skill and independence [Exh.15.10: Feedback from industry].

However, employers proposed that HCMUTE should improve students' English capacity as well as provide them with more soft skills.

PART III: ANALYSIS OF STRENGTHS AND AREAS FOR IMPROVEMENT; SELF-ASSESSMENT OF THE PROGRAMME

1. Analysis of strength and areas for improvement

1.1. Criterion 1 - Expected learning outcomes

a) Strengths

- The ELOs of EEET Programme are clearly formulated and reflect the requirements of stakeholders.
- The ELOs are communicated to all relevant stakeholders.
- The ELOs are translated into the programme, and communicate to learners via active learning methods, scientific research and life-long learning.
- The ELOs cover all cognitive aspects in accordance with Bloom Taxonomy (in terms of knowledge, skills, and attitude) with requirements at different levels of cognition.
- The ELOs are supported and highly agreed by the stakeholders, with high rates of satisfaction through the annual periodic surveys in 2013, 2014 and 2015.
- The programme is standardized with national programs and is approaching to international level.
- The university has policy for EEET Programme to continue to be reviewed annually and improve periodically.
- The school of EE has strongly support to the department and lecturers' improvement of the curriculum and courses.
- Teachers actively evaluate and improve their courses to best contribute to students' achievement of ELOs of knowledge, skills and attitudes.
- The university has 15 units with qualified staff and good conditions to serve for the diversity of student services that enable to help students to achieve ELOs of soft skills and attitudes.

b) Areas for improvement

- The number of feedback from alumni and employers is limited. Thus, in 2/2016 online tools will be developed to receive much more feedback from alumni and employers about the ELOs, curriculum and other activities related to the programme.
- The evaluation of students' achievement of ELOs in every year will be conducted in July 2016.

1.2. Criterion 2 - Programme specification

a) Strengths

- The programme specification of EEET Programme shows its ELOs and useful information about the programme.
- The programme specification is best communicated to stakeholders. The programme specification is published on website, Student Handbook, printed as a hard copy to be used at the faculty office, and posters on boards for announcement of academic affairs in the faculty. Changes in the programme are always updated quickly on website and posted on boards for announcement to relevant stakeholders.

b) Areas for improvement

- In recent years, it is still quite limited to communicate the programme specification *directly* to employers. Starting from 2015, the faculty has more chances to communicate the curriculum to employers through student internships.

1.3. Criterion 3 - Programme structure and content

a) Strength

- The programme has a long history and high prestige; it has been referred from other domestic and oversea programs.
- The programme structure and content has a good balance between blocks of knowledge. The programme is coherent and all courses have been integrated.
- The programme shows breadth and depth.
- The programme is up-to-date, to meet the requirements of the development in the world, and fit to the situation of international integration. The process of updating and revising the programme is suitable and well monitored.
- The programme is up to date with the development of science and technology in the world.

b) Areas for improvement

- The elective courses to teach students leadership and macroscopic management should be increased.

1.4. Criterion 4 - Teaching and learning strategy

a) Strength

- Toward mission and vision teaching and learning strategy of faculty and department with "learner centered teaching methods", and "*independent learning and reflective learning", in which* lecturers plays role is a "*facilitator',* is applied well by all lecturers.
- Teaching and learning strategy impacts on learning of students to acquire and to use knowledge academically. Students are motivated to transfer theory into

practice and research that stimulate students learning quality. It is the same approach of action learning and learning to learn.

- The university, faculty and department have system for quality assurance for study programme and facilities and development for teaching staff. This strategy is communicated and adjusted.
- The faculty and department continue to review and adjust some contents of strategy and to communicate to all lecturers with definition to usage for concepts in strategy.

b) Areas for improvement:

- In 2016-2017 the university, faculty and department increase are going to adjust study programme toward Internationalization more and more and to train and develop teaching staff toward sustainment.

1.5. Criterion 5 - Student assessment

a) Strength

- Lecturers are trained well about assessment criteria in activities for students' quality of learning.
- Assessment covered all learning objectives and toward improvement of quality of study programme.

b) Areas for improvement:

- In 2016-2017, the university, faculty and department are going to add into "the exam question bank"
- In 2016-2017, the university, faculty and department are going to adjust the exam question form that means to move parts of ELOs into regular testing/assessment.

1.6. Criterion 6: Academic staff quality

a) Strength

- A majority of lecturers are young and enthusiastic. Working with more experienced lecturers, they are willing to learn and improve themselves.
- A majority of doctorate lecturers graduated abroad, so they acquired more technical knowledge and new technologies from developed countries such as Japan, Australia, Korea, and Taiwan; hence, the quality of scientific research is also enhanced.
- Lecturers apply various active teaching methods, make use of online teaching, and continuously improve their lectures.

b) Areas for improvement:

- The financial budget for teaching staff to go to the international conference is limited.

1.7. Criterion 7 - Support staff quality

a) Strength

- Library staffs have experience to arrange and organize library structure neatly and scientifically, to facilitate users to find materials easily and quickly.
- Lecturers who have advanced specialized knowledge are assigned to monitor laboratories, to ensure that the labs are use reasonably and absolutely.
- Support staff for computer labs is well qualified and chosen thoroughly, so the website system, Internet, online system, and the computer labs are operating stably and satisfy the requirements of lecturers and students.
- Student support unit includes in many functional offices, which are in charge of different tasks to solve different problems and support students quickly.

b) Areas for improvement

- The number of supporting staff of the school should be increased.

1.8. Criterion 8 - Student quality

a) Strengths

- Student enrollment for the EEET Programme is implemented clearly, carefully, publically, transparently, legally and scientifically.
- HCMUTE deployed many plans and methods to attract students and ensure student input quality, such as using brochures and leaflets to provide information about the university, the programme; besides, the programme is introduced to learners and enterprises via the Student Handbook, website, Open Day, Job Fair, YouTube, Facebook, ... The announcements for student enrollment are highly effective.
- The student admission are planned and implemented thoroughly by the university and the faculty with reference to regulations.
- The quality of input is ensured because only the most excellent students, who passed the nation university entrance examination, are qualified for the programme.
- Annual enrollment results, as well as admission procedures are published on the website for reference.
- The studying load is designed reasonably and is conducted scientifically.
- The programme is implemented effectively, applicable to capacity of students and satisfying to lecturers and students.

- The academic advisors and administrative staff are able to takeover, handle and consult students and freshmen effectively.

b) Areas for improvement

- Because the students of HCMUTE come from different provinces, their English competence is various and at different level. As the results, the students with lower competence in English need more efforts to keep up with other students in the programme. Realizing that, the university has several methods to improve their English competence by regularly organizing further English courses, or through lecturing or researching activities.

1.9. Criterion 9 - Student advice and support

a) Strength

- The university has a closely monitoring system to keep track with the progress of students of EEET Programme. Academic activities and discipline are also monitored and informed sufficiently and appropriately.
- Students are always taken care and consulted sufficiently, as well as supported timely when they have difficulties in their studying and daily life.
- The learning environment is ideal to encourage students to do the best in their studying.

b) Areas for improvement

- The cooperation among offices is incoherent while giving consultancy and supports to students.

1.10. Criterion 10 - Facilities and infrastructure

a) Strength

- The university, faculty and department have the modern facilities and infrastructure system as the descriptions from 10.1 to 10.4., in inter/national standards levels and meeting with satisfaction needs for teaching, learning and research.
- In this system many things are provides by inter/national sponsors, so they are always updated or added new things.

b) Areas for improvement

- Private office for each lecturer should be provided.

1.11. Criterion 11 - Quality assurance of teaching and learning process

a) Strengths

- University, faculty and department appreciates quality of education as descriptions in criteria 3, 4, 5, 6, 12, 13, 14, and 15 has system to collect feedback from stakeholders about course and programme and specially in

criteria 11 points who participates in process of feedback and for what do feedback results use (see 3.7, 11.6 and 11.7.) to improve quality of course and training programme.

- The university, faculty and department organize periodically to get feedback from stakeholders (See 1.4, criteria 13).

b) Areas for improvement

- In 2016-2017: The university, faculty and department will increase communications in order to invite more stakeholders to volunteer to participate in providing feedback for courses and study programs.
- In 2016-2017: The university, faculty and department will review contents, processes, and quality of activities for the continuous improvements.

1.12. Criterion 12 - Staff development activities

a) Strength

- The university, faculty and department have plans to train and develop the teaching and support staffs for the long-term strategy of teaching and learning activities.
- Support staffs receive further education to enhance their professional skills.
- Teaching staffs are educated in other outstanding universities in Vietnam and from other universities in the world.

b) Areas for improvement

- In 2016-2017: the university, faculty and department will review plan for development of human resources with sustainable orientation in the future.
- In 2016-2017: the university, faculty and department will balance the workload of support staffs. Currently, support staffs are in charge of many things, because of MOET's quota for the number of support staff.

1.13. Criterion 13 - Stakeholders feedback

a) Strength

- The university, faculty and department have the system to collect feedbacks from the stakeholders; feedback from students regarding the quality of courses; feedback from graduates, alumni, labor market, and staffs for quality of study programme.
- Activities to collect feedback from stakeholders are implemented periodically and their results are used to improve.

b) Areas for improvements

- In 2017-2017: the university, faculty and department will review system for feedback collection from stakeholders.

- In 2017-2017: the university, faculty and department will increase activities for quality culture in the university to enhance stakeholders' awareness to quality assurance in university.
- In 2017-2017: the university, faculty and department will review and improve relationship between the university and other universities, the industry in Vietnam and around the world.

1.14. Criterion 14 - Output

a) Strengths

- The university, faculty and department have monitoring system for the teaching and learning process. The system especially supports the improvement of quality of students' studying process, and providing adequate rate of on time graduation, early graduation from requirements, reduction of late graduation and drop out, etc.
- The university, faculty and department have monitoring system, teaching and learning strategy, which creates an active learning environment: practice, experiment, research and development of soft-skills.
- Graduates' employment rate is more than 80%.
- Lecturers and students' works, projects, papers, articles, and journals.

b) Areas for improvement

- In 2016-2017, university's plan for adjustment of monitoring system and tools for better management.
- In 2016-2017: the university, faculty and department to start more and more training activities for improvement of soft skills.

1.15. Criterion 15 - Stakeholders satisfaction

a) Strength

- The university, faculty and department pay an important attention to stakeholders' feedback.
- More than/Over 70% of students' satisfaction for quality of courses at good/very good levels
- More than/Over 70% of graduates' satisfaction, over 60% of alumni's satisfaction for quality of study programme at good/very good levels.

b) Areas for improvement

- In 2016-2017: The university, faculty and department care about graduates' performance and competence on tasks/jobs. Students must improve English skills and other soft skills.

2. Self-assessment of Electrical and Electronic Engineering Technology Programme

Criteria	1	2	3	4	5	6	7
1. Expected Learning Outcome (ELOs).							
1.1 The expected learning outcomes have been clearly formulated and translated into the programme.						X	
1.2 The programme promotes life-long learning.						X	
1.3 The expected learning outcomes cover both generic and specialised skills and knowledge.						X	
1.4 The expected learning outcomes clearly reflect the requirements of the stakeholders.					X		
Overall Opinion	**6.0**						
2. Programme Specification							
2.1 The university uses programme specification.						X	
2.2 The programme specification shows the expected learning outcomes and how these can be achieved.						X	
2.3 The programme specification is informative, communicated, and made available to the stakeholders.					X		
Overall Opinion	**6.0**						
3. Programme Structure and Content							
3.1 The programme content shows a good balance between generic and specialised skills and knowledge.						X	
3.2 The programme reflects the vision and mission of the university.						X	
3.3 The contribution made by each course to achieving the learning outcomes is clear.					X		
3.4 The programme is coherent and all subjects and courses have been integrated					X		
3.5 The programme shows breadth and depth.					X		
3.6 The programme clearly shows the basic courses, intermediate courses, specialised courses and the final project, thesis or dissertation.						X	
3.7 The programme content is up-to-date						X	
Overall Opinion	**6.0**						

4. Teaching and Learning Strategy							
4.1 The faculty or department has a clear teaching and learning Strategy.						X	
4.2 The teaching and learning strategy enables students to acquire and use knowledge academically.						X	
4.3 The teaching and learning strategy is student oriented and stimulates quality learning.						X	
4.4 The teaching and learning strategy stimulates action learning and facilitates learning to learn.					X		
Overall Opinion	**6.0**						
5. Student Assessment							
5.1 Student assessment covers student entrance, student progress and exit tests.						X	
5.2 The assessment is criterion-referenced.						X	
5.3 Student assessment uses a variety of methods.						X	
5.4 Student assessment reflects the expected learning outcomes and the content of the programme.					X		
5.5 The criteria for assessment are explicit and well-known.						X	
5.6 The assessment methods cover the objectives of the curriculum.						X	
5.7 The standards applied in the assessment are explicit and consistent.						X	
Overall Opinion	**6.0**						
6. Academic Staff Quality							
6.1 The staff are competent for their tasks.					X		
6.2 The staff are sufficient to deliver the curriculum adequately.					X		
6.3 Recruitment and promotion are based on academic merits.						X	
6.4 The roles and relationship of staff members are well defined and understood.					X		
6.5 Duties allocated are appropriate to qualifications, experience and skills.						X	
6.6 Staff workload and incentive systems are designed to support the quality of teaching and learning.				X			
6.7 Accountability of the staff members is well regulated.					X		
6.8 There are provisions for review, consultation and redeployment.						X	

6.9 Termination and retirement are planned and well implemented.					X		
6.10 There is an efficient appraisal system.					X		
Overall Opinion	**5.0**						
7. Support Staff Quality.							
7.1 The library staff are competent and adequate in providing a satisfactory level of service.					X		
7.2 The laboratory staff are competent and adequate in providing a satisfactory level of service.						X	
7.3 The computer facility staff are competent and adequate in providing a satisfactory level of service.					X		
7.4 The student services staff are competent and adequate in providing a satisfactory level of service					X		
Overall Opinion	**5.0**						
8. Student Quality.							
8.1 There is a clear student intake policy.						X	
8.2 The student admission process is adequate.						X	
8.3 The actual study load is in line with the prescribed load.					X		
Overall Opinion	**6.0**						
9. Student Advice and Support.							
9.1 There is an adequate student progress monitoring system.					X		
9.2 Students get adequate academic advice, support and feedback on their performance.					X		
9.3 Mentoring for students is adequate.					X		
9.4 The physical, social and psychological environment for the student is satisfactory.					X		
Overall Opinion	**5.0**						
10. Facilities and Infrastructure.							
10.1 The lecture facilities (lecture halls, small course rooms) are adequate.					X		
10.2 The library is adequate and up-to-date.					X		
10.3 The laboratories are adequate and up-to-date.					X		
10.4 The computer facilities are adequate and up-to-date.					X		

10.5 Environmental health and safety standards meet requirements in all aspects					X		
Overall Opinion	**5.0**						
11. Quality Assurance of Teaching and Learning Process.							
11.1 The curriculum is developed by all teaching staff members.						X	
11.2 The curriculum development involves students.					X		
11.3 The curriculum development involves the labor market.						X	
11.4 The curriculum is regularly evaluated at reasonable time periods.					X		
11.5 Courses and curriculum are subject to structured student evaluation.					X		
11.6 Feedback from various stakeholders is used for improvement.					X		
11.7 The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement						X	
Overall Opinion	**5.0**						
12. Staff Development Activities.							
12.1 There is a clear plan on the needs for training and development of both academic and support staff.					X		
12.2 The training and development activities for both academic and support staff are adequate to the identified needs.					X		
Overall Opinion	**5.0**						
13. Stakeholders Feedback.							
13.1 There is adequate structured feedback from the labour market.						X	
13.2 There is adequate structured feedback from the students and alumni.						X	
13.3 There is adequate structured feedback from the staff.						X	
Overall Opinion	**6.0**						
14. Output.							
14.1 The pass rate is satisfactory and dropout rate is of acceptable level.					X		
14.2 Average time to graduate is satisfactory.						X	
14.3 Employability of graduates is satisfactory.						X	
14.4 The level of research activities by academic staff and students is satisfactory.					X		

Overall Opinion	**6.0**						
15. Stakeholders Satisfaction							
15.1 The feedback from stakeholders is satisfactory.					X		
Overall Opinion	**5.0**						
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248	Exh.14.24	Regulation of internal expenses regarding counting equivalent teaching hours for lecturers by giving instruction for students to do scientific research
249	Exh.14.25	List of faculty chairing students' research projects over years

250	Exh.14.26	List of number of students participating in research activities; pictures of acceptance and approval of research projects
251	Exh.14.27	List of websites providing links to specialized resources
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253	Exh.14.29	Website guiding students to participate into research project: http://rmiro.hcmute.edu.vn/ArticleId/30f5c542-9f35-4668-90c7-bca75877569a/huong-dan-thuc-hien-va-quan-ly-de-tai-nckh-sinh-vien
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