



**NONG LAM UNIVERSITY - HO CHI MINH CITY
FACULTY OF ENGINEERING AND TECHNOLOGY**

SELF-ASSESSMENT REPORT FOR AUN-QA



**BACHELOR OF ENGINEERING
IN
AGRICULTURAL PRODUCT – FOOD PROCESSING AND
PRESERVATION ENGINEERING**

NLU, October 2019



AUN-QA SELF-ASSESSMENT REPORT
of the Bachelor of Engineering in
AGRICULTURAL PRODUCT – FOOD PROCESSING AND PRESERVATION
ENGINEERING

We hereby confirm to approve this AUN-QA Self - Assessment Report of the Bachelor of Engineering in Agricultural Product – Food Processing and Preservation Engineering programme for assessment according to AUN-QA Criteria (V3.0).

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LIST OF ABBREVIATIONS

No.	ABBRs	Explanations
1	AAO	Office of Academic Affair
2	AC	Academic Counselor
3	AFPPE	Agricultural Product – Food Processing and Preservation Engineering
4	ASEAN	The Association of Southeast Asian Nations
5	AUN	ASEAN University Network
6	AUN-QA	ASEAN University Network – Quality Assurance
7	CAEM	Center for Agricultural Energy and Machinery
8	CHREE	Center for Heat Refrigeration Engineering and Equipment
9	CYU	Ho Chi Minh Communist Youth Union
10	ESC	Exam Season Supporting
11	FET	Faculty of Engineering and Technology
12	GAC	Graduation Assessment Council
13	GPA	Grade point average
14	GSVC	Green Summer Volunteer Campaign
15	HBD	Humanitarian Blood Donation
16	HCMC	Ho Chi Minh City
17	ME	Mechanical Engineering
18	MOET	Ministry of Education and Training
19	MOU	Memorandum of Understanding
20	NLU	Nong Lam University HCMC
21	PDCA	Plan-Do-Check-Act
22	PLOs	Expected Learning Outcomes
23	PMO	Property Management Office
24	POs	Programme Objectives
25	QMO	Quality Management Office
26	SA	Student’s Association
27	SAR	Self-Assessment Report

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PART I. INTRODUCTION

1.1 Executive summary

In Nong Lam University - Ho Chi Minh City (NLU), education quality assurance has been recognized as the key for development of the university. In order to strengthen the activities of the quality assurance division, the President of NLU promulgated a decision to establish the Center for Educational Testing and Quality Assessment in 2007 and then the Quality Management Office (QMO) in 2017. From there on, the quality assurance has become a formal and permanent activity in NLU.

In order to capture the picture of the quality of the Bachelor education programme of Engineering in Agricultural Product – Food Processing and Preservation Engineering (AFPPE) offered by the Faculty of Engineering and Technology (FET), the programme was selected for quality assessment according to AUN-QA standards (AUN-QA, Version 3.0). This report is prepared as the Self-Assessment Report (SAR), which provides detailed quality information of the programme. Data in this report was mostly collected by December 31, 2018; some of data was updated in 2019. The SAR team was established in September 2018 based on the decision of the President of NLU [*Exh.2.1.1: General information of NLU and FET*]. The team has been responsible for studying AUN criteria, collecting evidences, and writing the report. The data and evidences were collected from FET and related functional offices in NLU. With the team's efforts as well as the support from the QMO, the latest version of SAR was completed in October 2019.

This SAR consists of 4 major parts and closely follows a set of 11 criteria mentioned in the Guide to AUN-QA Assessment at programme level Version 3.0:

- Part 1: Brief introduction and overview of the NLU and FET.
- Part 2: Analyses of the AFPPE programme in accordance with AUN-QA criteria.
- Part 3: Review of the strengths and weaknesses of the programme and recommendations to close the gaps indentified and key action plan.
- Part 4: Appendices of glossary and related supporting documents and evidences.

From our first version of SAR, the AFPPE programme satisfactorily meets the majority of the AUN-QA requirements.

1.2 Organization and Approach of the FET Self-Assessment Report

In 2018, the AFPPE programme was selected to be assessed by AUN-QA. The SAR team was then established to complete the tasks of preparing evidences, writing SAR and other related activities regarding the assessment. The SAR team has 14 members, divided into 5 working groups. Each group is responsible for 1 to 5 criteria according to related criteria of AUN-QA. Team members did the assessment analysis, then exchanged information and discussed with other members during group meetings to form the final document. The SAR was then finalized by the SAR team leader after discussing with all groups. The SAR then was sent to faculty members and QMO for reviewing and evaluating. The SAR was modified based on the feedbacks and then was sent to external experts to review and evaluate. From comments of the experts, the final version of SAR was updated and submitted for AUN-QA assessment.

1.3 Nong Lam University - Ho Chi Minh City (NLU)

NLU is a comprehensive university established in 1955 and belongs to the MOET. The first campus is located in Bao Loc, Lam Dong province, then it moves to Ho Chi Minh city in 1963 and now is in Thu Duc district, Ho Chi Minh city with the area is around 118 ha. During more than 64 years in development, the university has been used with different names and the Nong Lam University Ho Chi Minh city has been official named from year 2000 till now [*Exh.2.1.1: General information of NLU and FET*].

At present, NLU has 15 faculties/independent departments, 9 functional offices, 15 institute and research centers, and 2 sub-campus with about 849 full-time staff members in total. NLU offers qualified technology-oriented programs at various levels of training including 12 Ph.D.'s

programs (120 students), 16 Master's programs (1,376 students) and 59 Bachelor's programs (18,040 students). The organizational structure of NLU is shown in Fig. 0.1.

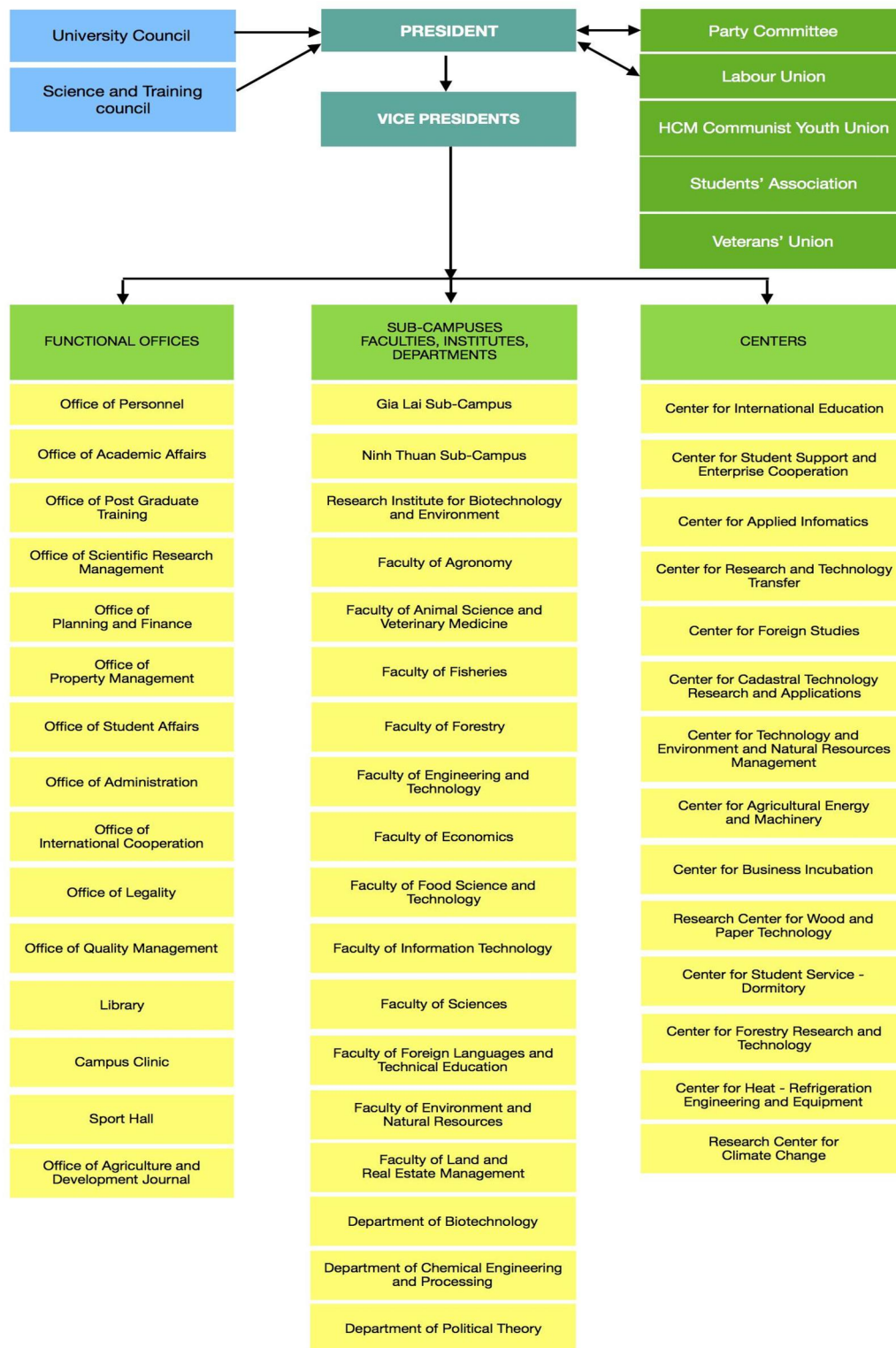


Figure 0.1. Organizational structure of NLU

NLU has close cooperation with almost all universities and institutes operating in agriculture, forestry and fisheries in Vietnam. In addition, the university has international cooperation with more than 140 universities, research institutes and non-governmental organizations to enhance research and technology transfer activities. Since its establishment, NLU is always a center for training key scientists in the South and the country, especially in the fields of agriculture, forestry, fisheries, science and technology. The vision, mission and strategic objectives of NLU in the period of 2016-2020 and orientation to the year 2030 is as follows [*Exh.2.1.1: General information of NLU and FET*]:

Vision

Nong Lam University Ho Chi Minh City will become a research university with international quality.

Mission

Nong Lam University Ho Chi Minh City is a multi-disciplinary university committed to producing creative and highly qualified professional, doing research, having extension, disseminating information, transmitting knowledge and transferring technology in order to meet the demands of sustainable socio-economic development in Vietnam and in Asia.

Strategic objectives

Nong Lam University Ho Chi Minh City is striving to become a highly qualified university in education, research, dissemination of scientific technology and international cooperation as other advanced universities in the Asian region and in the world

1.4. Faculty of Engineering and Technology (FET)

FET was established in 1965 with the initial name as the Department of Agricultural Engineering in Saigon, belongs to Agriculture, Forestry, and Animal College (1963), Vietnam National Agricultural Center (1968), National Institute of Agriculture (1972) and the University of Agriculture (1974). After the reunification day in 1975, the Department of Agricultural Engineering was reorganized to establish the Faculty of Agricultural Engineering under the Decision of Ministry of Agriculture and Rural Development on December 8, 1976. In 1993, with the development of faculty and the demand of supporting high level manpower from production, the faculty has been renamed as the Faculty of Engineering and Technology up to now. The vision, mission, strategic goal and educational philosophy of FET are stated as follows [*Exh.2.1.1: General information of NLU and FET*]:

Vision by 2025

Faculty of Engineering – Technology will be one of the leading Faculties in training, scientific research and technology transfer in the field of mechanical engineering, especially in the Agricultural and Bio-system Engineering and the Preservation Processing Engineering for Agro-food products.

Missions

Educating the young human resources to have knowlegde, skills, attitudes, and physical strength in order to integrate with the regional and world working environment in the field of mechanical engineering - technology.

Implementing scientific research, technology transfer and international cooperation in the field of mechanical engineering - technology in order to apply to production, especially in the field of agriculture and rural development.

Strategic Goal

Constantly improving the educational quality in order to educate the students have knowledge – virtue ability, skills, and physical strength that meet the required quality in the field of mechanical engineering - technology at the national, regional and world standards level. The Faculty will be a reliable, reputable and prestigious partner in educating, scientific research and technology transfer in the country and abroad in the field of engineering – technology.

Core values:

Creativity – Ethics – Respect - Integration

Based on the humanistic foundation, the Faculty always place the students at the center of our educational process, and this viewpoint has always been guiding all construction and development activities of the Faculty. The core values of the Faculty educates the young Vietnamese generation:

- 1) to learn actively, creativity and self-reliance;

- 2) to respect righteousness, honesty and have responsibility to build our society; to respect and cooperate with each other in the spirit of serving the community; and to contribute to environmental protection; and
- 3) to respect tradition and culture of Vietnam; to appreciate and be a patriot for the homeland of Vietnam; to respect other countries and to contribute to the development of the international community.

Organizational structure

The faculty comprises of 45 lecturers, engineers, and researchers including 1 professor, 2 Associate Professors, 8 Ph.D, 24 Master holders, 3 Engineers, and 7 researchers educated from prestigious universities in the different countries such as Australia, Czech Republic, South Korea, Taiwan, Thailand, Philippines, and USA....

The faculty offers 7 undergraduate programs in the field of mechanical engineering and technology. Each year, there are more than 400 undergraduate students enroll in the faculty. Currently, there are about 1700 undergraduate students are studying at the Faculty. Up to the year 2018, the number of graduated students in the faculty were more than 3000.

The organizational structure of FET is presented in figure 0.2.

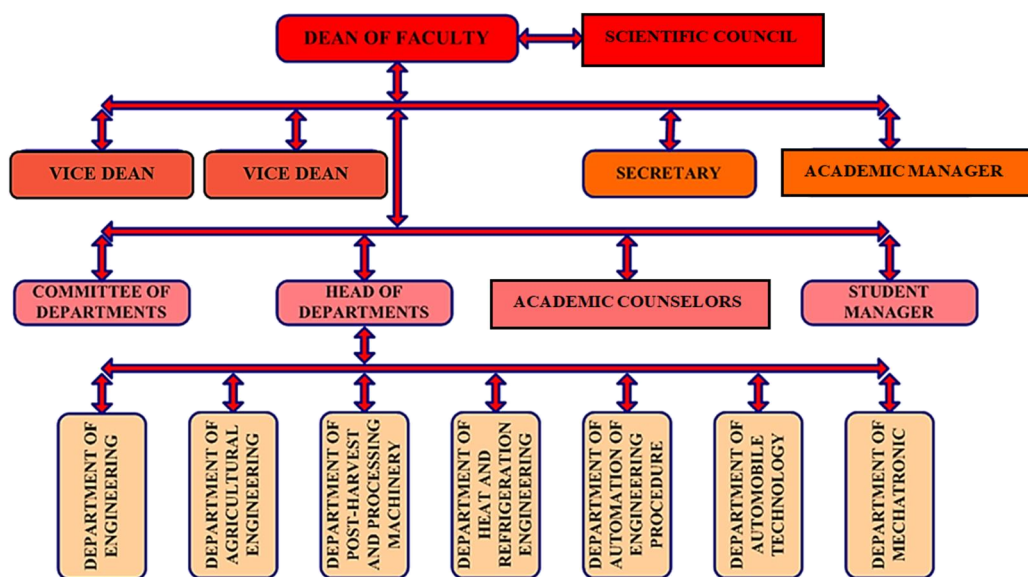


Figure 0.2. Organizational structure of the FET

The Faculty has seven departments. It offers study programs at 03 different levels of training:

- PhD. in Mechanical Engineering
- Master in Mechanical Engineering
- Bachelor of Engineering in Mechanical Engineering (high-quality training programme)
- Bachelor of Engineering in Agricultural Product – Food Processing and Preservation Engineering
- Bachelor of Engineering in Agricultural Engineering
- Bachelor of Engineering in Heat and Refrigeration Engineering – Technology
- Bachelor of Engineering in Automation Engineering – Technology
- Bachelor of Engineering in Mechatronics Engineering – Technology
- Bachelor of Engineering in Automobile Engineering – Technology

1.5. The training programme of AFPPE

The AFPPE programme was established in 2001. Up to now, there have been over 900 graduates completing the programme. The objectives of the programme are to provide students with fundamental knowledge, ability to apply basic technical principles, practical and technical skills to handle the works of mechanical engineers. In addition, the programme also emphasizes the education of personal virtue and sense of community service. The objectives of the programme are fully translated into the curriculum which includes 136 credits, of which 122 compulsory and 14

elective credits. It was divided into 3 areas of knowledge: (i) General knowledge (49 credits); (ii) Fundamental knowledge (29 compulsory credits and 2 elective credits) and (iii) Specialized knowledge (44 compulsory credits and 12 elective credits). Based on feedback from stakeholders, AFPPE programme is updated every two to four years to ensure its graduate meet the requirements of employers. Some basic information of the AFPPE programme is expressed in table 0.1.

Table 0.1 Basic information of AFPPE programme

1	Awarding institution	Nong Lam University-Ho Chi Minh City
2	Teaching faculty	Faculty of Engineering and Technology
3	Discipline	Mechanical Engineering Technology
4	Major	Agricultural Product - Food Processing and Preservation Engineering
5	Training duration	4 years
6	Degree title	Engineer
7	Course workload	Total: 136 credits (compulsory: 122 credits; elective: 14 credits) <ul style="list-style-type: none"> - General knowledge: 49 credits (compulsory) - Fundamental knowledge: 31 credits (compulsory: 29 credits; elective: 2 credits) - Specialized knowledge: 56 credits (compulsory: 44 credits; elective: 12 credits)
8	Employment opportunities	Work at companies, factories of state management agencies, university, institutes with working positions suitable for their specialties: <ul style="list-style-type: none"> - Staff of designing machines at mechanical equipment manufacturing companies; - Technical staff at Agricultural Product -Food Processing and Preservation factories; - Staff at state management agencies on agricultural engineering; - Lecturers / researchers at university, institutes of the same expertise.
9	Post-graduate study opportunities	Continue to study graduate programme and PhD programme in mechanical engineering technology, and other close branches in the country as well as foreign.

PART II. AUN-QA CRITERIA AT PROGRAMME LEVEL

2.1. Criterion 1 - Expected Learning Outcomes

2.1.1. The expected learning outcomes have been clearly formulated and aligned with the vision and mission of the university

The objectives and the expected learning outcomes of the AFPPE programme was constructed upon the higher education goals specified in the higher education law of the MOET [Exh.2.1.2 - Education Law & Regulation of MOET]. Accordingly, the objective of the programme is to improve the quality of training; to ensure the training of students to master the theory and skills of general knowledge of mechanical engineering as well as specialized knowledge on technology and equipment for processing and preserving agricultural products and foods, meeting the needs of sustainable socio-economic development of Vietnam and the South-East Asia. The POs were built to align with Vietnam law on higher education and the vision and mission of NLU and those of the FET as shown in figure 1.1.

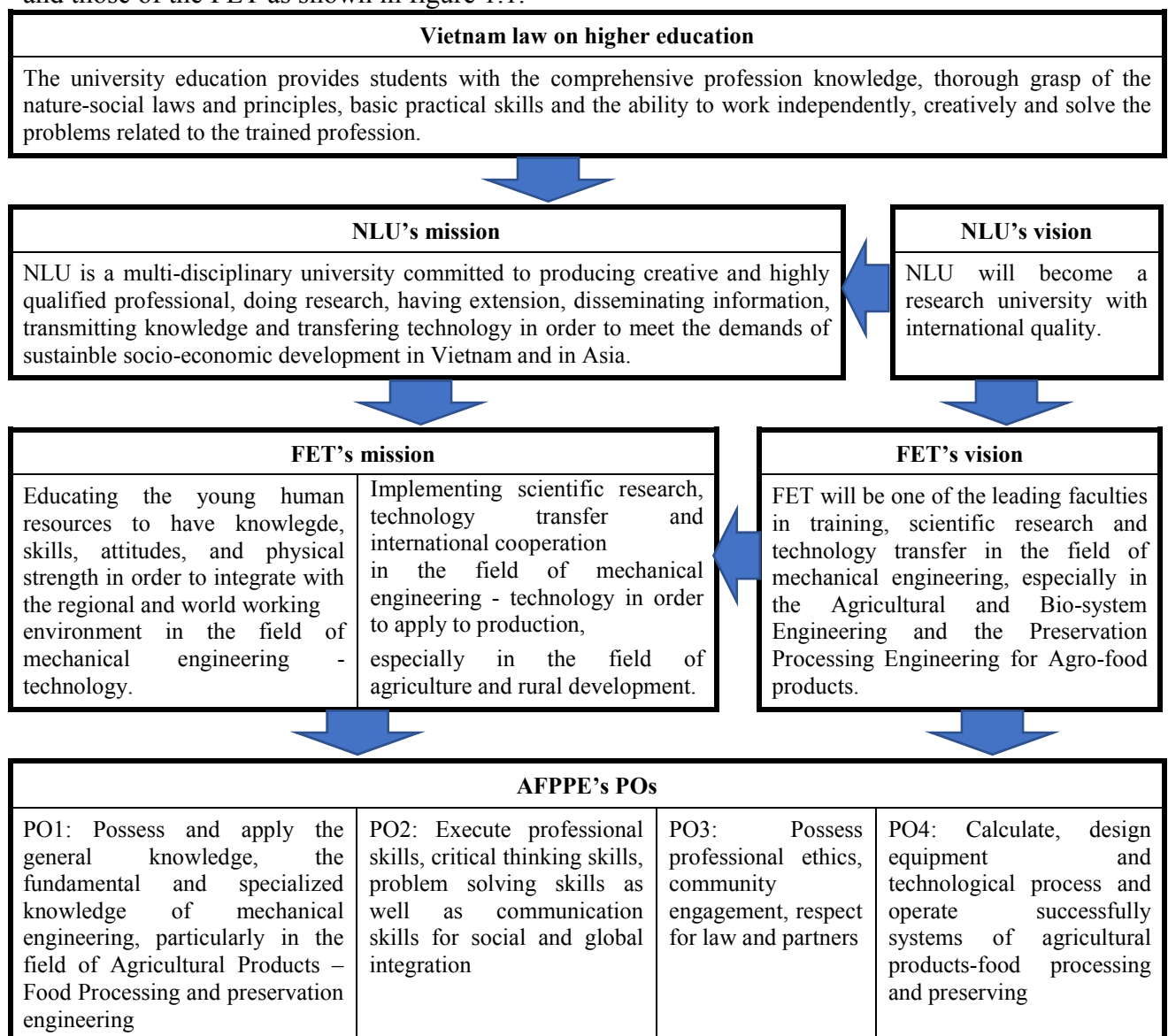


Figure 1.1. Alignment between the POs with the mission of the university and the faculty and Vietnam law on higher education

Based on the POs, the PLOs of the programme in 2018 were revised and updated from a set of 25 PLOs of the programme issued in 2010 [Exh.2.1.3: Decision on the promulgation of programme and PLOs from 2009 to 2018]. In addition, the PLOs were built upon the analysis of the standards of the National Education Law [Exh.2.1.2 - Education Law & Regulation of MOET].

Besides, the faculty has also collected feedbacks from stakeholders (i.e. lecturers, students, alumni and employers). After that, the feedbacks were discussed at the meeting of faculty's scientific council in order to select the appropriate ideas for improving the curriculum [*Exh.2.1.4: Meeting Minutes and feedbacks*]. The PLOs then were submitted to the NLU presidential board for approval and informed to stakeholders via website, email or hardcopy. The AFPPE programme includes 12 PLOs divided into three groups: knowledge, skills and attitudes. The PLOs are stated as follows:

After successful completion of the programme, students will be able to:

Group 1: Knowledge

PLO1: Apply basic knowledge of natural and social science to the field of mechanical engineering

PLO2: Apply the fundamental knowledge on mechanical engineering in specialized activities

PLO3: Analyze, appraise and solve problems in the field of agricultural products-food processing and preserving engineering.

PLO4: Apply knowledge of information technology to professional requirements

PLO5: Plan, organize and supervise production processes in the field of agricultural products-food processing and preserving engineering.

Group 2: Skills

PLO6: Use common and specialized foreign languages to exploit information in learning, research and international labor market integration.

PLO7: Work in groups, exhibit good cooperation spirit, leadership skills and promote the strengths of individuals in the group.

PLO8: Design systems and equipment of processing – preserving agricultural products

PLO9: Utilize, operate and maintain machinery in system of processing – preserving agricultural products.

PLO10: Demonstrate the ability to aggregate, analyze, evaluate and communicate professional ideals.

Group 3: Attitudes

PLO11: Possess professional ethics, environmental protection, community engagement, and uplift educational level awareness.

PLO12: Act in accordance with the law; be confident, ready to adapt to many different working environments in the profession.

Table 1.1. Alignment between POs and PLOs

POs	PLOs											
	1	2	3	4	5	6	7	8	9	10	11	12
1	x	x	x	x	x							
2						x	x					
3											x	x
4								x	x	x		

The PLOs of the AFPPE programme in 2018 however still doesn't benchmark with the Vietnamese Qualifications Framework at level 6 releasing in 2016. In 2020, the AFPPE programme will be modified and updated to align with the Vietnamese Qualifications Framework (level 6).

2.1.2. The expected learning outcomes cover both subject specific and generic (i.e. transferable) learning outcomes

The PLOs of the AFPPE programme are designed flexibly to provide students with both subject specific and generic learning outcomes. The subject specific learning outcomes focusing on training students with knowledge, skills and attitudes in the field of mechanical engineering, especially in agricultural products-food processing and preserving engineering. The specific

learning outcome are translate into the programme via specific courses and projects. The generic learning outcomes which is also known as general knowledge and soft skills can be achieved by students through teaching and leaning activitives and co-curricular activities in the programme.

The classification of PLOs according to subject specific and generic learning outcome is shown in table 1.2. The subject specific outcomes are presented through the PLO2 – PLO5 and PLO8 - PLO10. In particular, PLO2 refers to general knowledge. PLO3 - PLO5 refer to specialized knowledge. PLO8 - PLO10 mention that students will gain professional skills in the field of agricultural products-food processing and preserving engineering such as skills of design, utilize and operating mechanical machinery as well as using mechanical software The generic learning outcomes are shown through the PLO1, PLO6 – PLO7 and PLO11 - PLO12. In particular, PLO1 refers to general knowledge. PLO6 - PLO7 aim to train students with the skills of communication, teamwork, research and creativity. PLO11 to PLO12 emphasize the attitude outcome standards of students.

The PLOs are translated into programme via course learning outcome. Each course will contribute to one or more PLOs. Through the learning – teaching activities, students would be fully accumulated with the knowledge, skills and behaviors.

Table 1.2. Classification of PLOs

PLOs	1	2	3	4	5	6	7	8	9	10	11	12
Subject specific outcomes		X	X	X	X			X	X	X		
Generic learning outcomes	X					X	X				X	X

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

The PLOs of the AFPPE programme was firstly issued in 2010 then was reviewed and updated in 2018. The PLOs was updated based on requirements from labor market and was clearly reflect the requirements of the stakeholders including the regulations of MOET, regulation of NLU, and feedbacks from enterprises, alumni, lecturers and students. The PLOs was built and updated in accordance with the university's regulation [*Exh.2.1.5: Curriculum and PLOs development process*]. A building programme team was formed in order to collect information from stakeholders and participate in reviewing, adjusting and developing the PLOs as well as curriculum [*Exh.2.1.4: Meeting Minutes and feedbacks*]. The Faculty's Scientific Council is in charge of reviewing and evaluating the adjusted PLOs and the curriculum. Specific steps are as follows:

- 1) Making the plan for revising the curriculum and PLOs.
- 2) Analysis of national standards applied to university education, the requirements of MOET's educational regulations, the vision and mission of NLU.
- 3) Collecting and analyzing comments from stakeholders (enterprises, alumni, students, and lecturers) [*Exh.2.1.4: Meeting minute and feedback*].
- 4) Establishing the PLOs' draft.
- 5) Organizing the meeting based on stakeholder feedback to discus and decide the PLOs.
- 6) Submitting the PLOs to the NLU for approval [*Exh.2.1.3: Decision on the promulgation of programme and PLOs from 2009 to 2018*].

Accordingly, the faculty collects feedback from stakeholders by surveys and interview through meetings and workshops. Based on the collected information, the Faculty's Scientific Council analyzed and synthesized in order to establish the desired PLOs. For example, a feedback from stakeholders suggest that students should be trained more to improve their soft skills and English skills. The PLOs in 2018 has been revised to adapt the suggestion via PLOs 6–7. Some requirements/suggestions from the stakeholders and solutions of the faculty are shown in Table 1.3.

In order to satisfy the stakeholders' feedbacks, the curriculum of the programme has also been updated/changed to improve the training quality. For example, the course “*Freshmen Orientation to Agricultural Product –Food Processing and Preserving Engineering*” has been

added to the programme for improving soft skills of students; improving the English skills of students by requiring lectures using English textbooks and encouraging the students to join the English clubs. Some courses, such as “*Manufacturing Practice 3: Material Remove – CNC*”, “*Renewable Energy*” “*Applied Informatics in Machine Design*”, “*Internship*” has been added to the programme or has been modified/updated in order to enhance practical skills of students to meet the actual work requirements.

Table 1.3. Stakeholders’ suggestions and the changes has made in the programme

Feedback from Stakeholders	Modified/improved in the PLOs
Enhance English skills and soft skills	PLO6: Use common and specialized foreign languages to exploit information in learning, research and international labor market integration. PLO7: Work in groups, exhibit good cooperation spirit, leadership skills and promote the strengths of individuals in the group.
Training students with ability to analyze and use ME software	PLO4: Apply knowledge of information technology to professional requirements
Educating students with professional working attitude	PLO11: Possess professional ethics, environmental protection, community engagement, and uplift educational level awareness. PLO12: Act in accordance with the law; be confident, ready to adapt to many different working environments in the profession.
Enhance practical skills of students to meet the actual work requirements	PLO8: Design systems and equipment of processing – preserving agricultural products PLO9: Utilize, operate and maintain machinery in system of processing – preserving agricultural products. PLO10: Demonstrate the ability to aggregate, analyze, evaluate and communicate professional ideals.

2.2. Criterion 2 - Programme Specification

2.2.1. The information in the programme specification is comprehensive and up-to-date

The AFPPE programme was built based on the regulations of MOET and NLU and fulfill the requirements of stakeholders in order to help students achieve the declared PLOs [*Exh.2.1.2 - Education Law & Regulation of MOET; Exh.2.1.5: Curriculum and PLOs development process*]. The programme specification is clearly presented in [*Exh.2.2.1: Programme specification*] together with the necessary information about the programme such as:

General information of the programme

Name of Programme: Agricultural Product – Food Processing and Preservation Engineering

Credit based Training System: Undergraduate

Discipline: Mechanical Engineering Technology

Major: Agricultural Product – Food Processing and Preservation Engineering

Type of training: Full time

Training code: 7510201

Training duration: 4 years

Degree title: Engineer

Programme objectives: This part includes the objectives, programme learning outcomes, consistent correlation between training objectives and learning outcomes, employment opportunities and ability to study and improve the degree after graduation of the programme which

are clearly specified in the Programme specification. The programme specification shows a diagram describing the relations and the sequencing of the courses [Exh.2.2.2. *Curriculum framework - Curriculum Map*], and a Matrix PLOs-courses to describe how students achieve their PLOs by subject area [Exh.2.2.3. *Mapping CLOs to the PLOs*].

Enrollment Candidates: All candidates taking part in the national high school exam are able to use the results for admission to the university according to the regulations of the MOET. The candidates must have enough health to study according to current regulations.

Training process, Graduation conditions: The training process and graduation conditions are complied with the rules and regulations of NLU [Exh.2.2.4. *NLU Academic Regulation*].

Grade scale: Assessment of academic performance will comply with NLU's regulations [Exh.2.2.4. *NLU Academic Regulation*].

Content of training programme: The programme specification describes the structure of the curriculum including 136 credits, including 122 compulsory credits and 14 elective credits. The programme is divided into 3 knowledge blocks which is the General knowledge (49 compulsory credits); Fundamental knowledge (29 compulsory credits and 2 elective credits) and Specialized knowledge (44 compulsory credits and 12 elective credits).

Course Descriptions: The description presents the basic content of each subject in the training programme, number of credits and type of module.

Human Resources and infrastructure: This part presents teaching staff participating in the training programme as well as the training facilities and materials to meet the PLOs of the training programme.

Every 2- 4 years, the programme are evaluated and revised based on the regulation of MOET and NLU and to met the requirements from stackholders [Exh.2.2.1: *Programme specification*; Exh.2.1.3: *Decision on the promulgation of programme and PLOs from 2009 to 2018*].

2.2.2. The information in the course specification is comprehensive and up-to-date

The PLOs of the AFPPE programme are translated into the curriculum through courses. Each course has course specification and course learning outcomes (CLOs). The students are expected to achieve all the PLOs when they complete all the courses. Each course has different contribution levels to the PLOs such as supportive and highly-supportive. All syllabi are standardized in a uniform design. The syllabus contents are designed by a group of lecturer who is in charge of the course. Moreover, the course syllabus must be approved by the Department of Post-harvest and processing machinery before assessing and approving by the Faculty Scientific Council [Exh.2.2.5: *Course syllabus constructing & revision*]. Information in the course specification is represented as follows:

- General information includes course title in Vietnamese and English, code of course, number of credits, management department, time distribution of the study at class and at home, compulsory or elective course. On the other hand, this section also provides information about name of lecturers who is in charge of teaching.
- Brief description of the course summarized main contents of the course.
- The course goal and CLOs.
- Teaching and learning methods.
- Assessment methods: Depending on the typical course, the assessment methods such as oral, paper examination in-class, oral representation, homework and teamwork are applied [Exh.2.2.6. *Rubric for courses assessment*].
- Textbooks or references of the course.
- Structure and content of the course.
- Date on which the course specification was written or revised and leaders who approved it.

The courses syllabus are designed to meet the students' needs. Firstly, the objectives and CLOs of the course are determined based on the PLOs of the programme. Secondly, design the

assessment methods including formative assessment as well as summative assessment. Finally, determining the learning outcomes for each lesson and designing the teaching and learning activities for each lesson. [Exh.2.2.7. *Procedure of developing course syllabus*]. To ensure the content of the course is up-to-date, the revision of the course are performed regularly after each semester. Before beginning of each semester, the AAO sends a schedule for the faculty to assign the relevant lectures for each course in the programme. The department then hold a meeting with all lecturers to discuss the content, teaching methods and assessment of subjects in the semester [Exh.2.2.5. *Course syllabus constructing & revision*]. At the end of the term, the lecturer will collect the students feedback in order to modify the syllabus to meet the needs. All changes in content such as learning materials, assessment methods must be approved by the Head of the Department [Exh.2.2.8: *Feedback from students from 2014- 2018*].

2.2.3. The programme and course specifications are communicated and made available to the stakeholders

The programme specification and course syllabus are publicized on the Faculty's website to be widely disseminated to stakeholders [Exh.2.2.9. *Teaching plans and programme specification on websites*]. The programme specification is also in the Student Handbook and is available to freshmen at the beginning of each academic year. [Exh. 2.2.10: *Student Handbook*]. The programme and course specification are always available hard copy in the faculty office. Additionally, the programme and course specification also are communicated to employers and alumni through workshops to get feedback from them. Each year, there is a meeting between faculty and student holding at the beginning of the academic year. In the event, students are provided Student Handbooks and are answered the questions related to the curriculum, course syllabus.

Lecturers have to introduce the course specification to students on the first day of the course to help them know well about the CLOs and their contribution of the course to achieving of the PLOs, course contents, textbook, teaching and assessment method.

The programme specification is communicated to students in the freshman orientation course in the 1st semester. During training process, information of changes in the programme specification is disseminated to students via notice on the bulletin board, FET website or presented directly in the classroom.

Table 2.1. Communication channels to inform programme and course specifications to stakeholders

Stakeholders	Enterprises	Alumni	Students	Lecturers	The society
Website	X	X	X	X	X
Handbook			X	X	
Facebook			X	X	
Academic advisor			X		
Social media/events	X	X			
Class meeting			X		

2.3. Criterion 3 - Programme Structure and Content

2.3.1. The curriculum is designed based on constructive alignment with the expected learning outcomes

The curriculum for AFPPE was designed based on the PLOs and the feedbacks from stakeholder and was benchmarked against the Mechanical Engineering curriculum of national and international prestigious universities such as Can Tho University, Hue University, Vietnam National University of Agriculture, Iowa State University, and Chiang Mai University [Exh.2.3.1: *Benchmarking results of the FET and other programs*]. All the courses in the curriculum and co-curricular are designed in order to help student achieve the PLOs. Based on the PLOs and the contribution level of the course on the PLOs [Exh.2.3.2: *The response matrix of the courses to PLOs*], lecturers determined course objectives, CLOs, teaching methods, as well as proper evaluation methods for their responsible subjects. On the other hand, a group of courses was also

designed properly to satisfy one or more PLOs. Courses, for example: *Fluid Mechanics, Basis of Heat Transfer, and Strength of Materials* were designed to meet the PLOs 2. Apart from theory courses, the curriculum also included practical courses or field trips, internship. These are opportunities for student to intensify their skills in practice. The constructive alignment of the curriculum with the PLOs is expressed in Table 2.2 with the learning method and assessment of some courses.

Table 2.2. Constructive alignment of the AFPPE curriculum with the PLOs

Groups of PLOs	Courses	Learning methods	Assessments
General knowledge (PLOs 1- 2)	- Advanced mathematics A1- A2-A3 - General Physics 1&2 - Design of Machine Elements - General Laws	- Lectures - Class discussion - Assignments	- Examination - Student participations - Rubrics of assignments
Professional knowledge (PLOs 3-5)	- Design of Machine Element_ Project - Project of Farm Products and Food Processing Plant design - Graduation Thesis - Internship	- Team work - Presentation - Writing report	- Defending thesis - Rubrics for presentation
	- Drying Techniques - Separation Machinery and Equipment - Pneudraulic Machinery and Equipment	- Lectures - Class discussion - Assignments	- Rubrics of assignments - Examination - Student participations
General skills (PLOs 6-7)	- System Engineering - English for Engineering - Project Management - Graduated Thesis	- Lectures - Class discussion - Presentation - Assignments	- Rubrics for presentation - Student participations - Defending thesis
Professional skills (PLOs 8-10)	- Manufacturing Practice 1: Material benchwork & Joining - Manufacturing Practice 2: Material Remove - Manufacturing Practice 3: Material Remove - CNC - Farm Products and Food Processing machinery - Maintenance Practice	- Assignments - Hand on practice	- Rubrics for experimental and practice assessment
Attitudes (PLOs 11- 12)	- Internships - Communication Skills - All courses	- Writing report - Hand on practice - Assignments	- Rubrics of assignments - Rubrics for practice assessment

2.3.2. The contribution made by each course to achieve the expected learning outcomes is clear

PLOs were fully transferred to the curriculum through group of courses. Each group of courses will meet a certain PLOs. Details were described in a matrix annex which presents contribution level of each course for the PLOs [*Exh.2.3.2: The response matrix of the courses to PLOs*]. In the Table, the contribution of courses on PLOs was described in 2 levels: supportive, and high-supportive. The PLOs consist of specific and generic outcomes. The generic outcomes focusing on general skills such as communication, problem-solving, critical thinking, teamwork,

etc. are mainly transferred into the teaching-learning activities of courses such as *Freshmen Orientation, Communication Skills, Project Management...* and through co-curricular activities and internships. The subject specific outcomes including knowledge, skills, and attitudes in the field of mechanical engineering are translated into the curriculum through the theory courses, practice, and thesis. The attitude includes compliance with the regulation of university and association activities.

To help students achieve PLOs effectively, the course in the curriculum is arranged to be logically sequenced in the programme structure with the gradually increasing difficulty of the courses content. The generic courses provide students the general knowledge that will be necessary to them for developing their professional career path. The fundamental courses such as *Design of Machine Elements, Tolerance & Mechanical Measurement*, etc. is necessary for further professional development of student by providing them with the knowledge and skills on research methods and communication competencies. The specific courses concentrate on providing student the professional knowledge and skills. The courses are designed with logical arrangement to provide students with appropriate learning methods and working skills (*Fundamentals of Heat transfer → Heat Exchangers → Drying Technology → Maintenance Practice*, etc.). In learning courses and attending co-curricular activities, students will gain the general skills. Finally, Doing *Graduation Thesis* will give students opportunity to solve practical problems and synthesize their learning across the programme.

2.3.3. The curriculum is logically structured, sequenced, integrated and up-to-date

The AFPPE programme is designed in a logically structured, sequenced, integrated and up-to-date. The programme is 4 years, consisting 136 credits, of which 122 compulsory and 14 elective credits. It was divided into 3 block including general knowledge (49 credits), fundamental knowledge (29 compulsory credits and 2 elective credits) and specialized knowledge (44 compulsory credits and 12 elective credits). The structure of the programme is balance between general, fundamental and specialized knowledge. Accordingly, the general knowledge cluster helps students consolidating and enhancing their knowledge as the basis for accessing specialized knowledge in subsequent semesters. In addition, it also helps students achieve self-study and life-long learning capability. The fundamental and specialized knowledge provide students the basic knowledge on mechanical engineering, information technology applied in mechanical engineering, as well as application of basic knowledge on natural - social science in mechanical engineering. Finally, to meet graduation condition requirement, student will conduct a graduate thesis (10 credits) or a graduate essay (5 credits) and study 5 additional credits which belongs to specialized knowledge.

The courses in the curriculum are arranged sequentially from basic to advance knowledge. This sequence ensures that the previous courses serve as prerequisite knowledge for the following courses. For example, the courses *Engineering Mechanics: Statics and Dynamics, Technical drawing, Strength of Materials, Kinematics and Kinetics of Mechanisms* are sequentially arranged in the respective order. These courses are prerequisite courses for studying the course *Design of Machine Elements*. In addition, these courses allow students continue some specialized courses such as *Agricultural Products and Food processing machine, Technology and Equipments of Cereal Processing, etc.* After finishing all the courses, students will be able to complete the *Graduation thesis* [Exh.2.2.2: *Curriculum framework - Curriculum Map*].

The training programme is regularly reviewed and revised every 2-4 years by the scientific council of the Faculty, lecturers, and stakeholders in order to certify the quality of learning and teaching, and compliant with the given developing orientation of the NLU [Exh.2.3.3: *Minutes of curriculum modification*]. From 2009 to 2018, the curriculum has been updated many times. The AFPPE programme version 2009 had 137 credits, the 2011 version had 139 credits, the 2014 version had 134 credits, and the latest version (2018) had totally 136 credits. [Exh.2.1.3: *Decision on the promulgation of programme and PLOs from 2009 to 2018*]. Some changes in the programme in 2014 and 2018 as follows: the name and code number of 18 courses has been changed. These courses have to modify their credit or adjust the content. In addition, based on the

feedback from stakeholders, 5 courses has been remove and 10 new courses has been added to the programme for adapting with the requirement of social such as: *Industrial Environment & Safety, Renewable Energy Techniques, Preserving technique of Farm Products and Food* [Exh.2.1.4: *Meeting minute and feedback*].

2.4. Criterion 4 - Teaching and Learning Approach

2.4.1. The educational philosophy is well articulated and communicated to all stakeholders

In 2018, the core value of FET has been developed based on the NLU's development direction which is "*Quality – Integration – Development*". The core value of FET is "*Creativity – Ethics – Respect - Integration*" [Exh.2.1.1: *General information of NLU and FET*]. This ideal cover all the teaching and learning activities of the faculty as well as of the AFPPE programme. Based on the core value of FET, the curriculum is built to promote creativity, respect, integration, and moral ethics for students. Teaching and learning activities follow this core value. The AFPPE training programme not only provides students with background knowledge but also stimulates the creativity of students through teaching and learning activities such as lecture, simulation, model, discussion, aiming at students who actively receive knowledge and apply it to solve real life problems [Exh.2.4.1: *Evidence on apply active learning methods*]. In addition, students are assigned to solve group exercises, subject projects, encourage participation in scientific research projects, science and technology competitions to promote creativity and personality training [Exh.2.4.2: *List of science and technology activities*]. The morality of students is practiced by complying with university rules such as punctuality, clothing, no-smoking, profanity, etc. [Exh.2.4.3: *Regulations of sanctioning the students violating the university rules*]. Students also participate in social activities and associations such as the GSVC, HBD, ESC, etc. These activities form a better personality and attitude of students. The Faculty evaluates the morality of the students through the Students' Behavior Assessment Rubric [Exh.2.4.3: *Regulations of sanctioning the students violating the university rules*]. The FET has strategic plan with regional and international integration. The AFPPE programme is preparing for being assessed by AUN-QA shows that the Faculty is preparing their students for the role of global citizenship. Up to now, many students in the faculty have participated in exchanged programs thanks to the integration strategy [Exh.2.4.4: *List of students participated in exchanged programs*].

The NLU's development direction as well as the core value of the FET are disseminated to all stakeholders such as lecturers, students, employers and society through workshops, seminars, website, posters, and intranet [Exh.2.4.5: *photo of Vision, mission, core value on website*]. The freshmen are introduced to the core value, vision and mission in the first semester via freshmen orientation course or in the meetings between Faculty leaders and new students [Exh.2.4.6: *Photos of meeting new students*]. In 2020, the faculty will revise the core value and its translation into teaching and learning activities. It is necessary to evaluate the effect of the core value on the teaching and learning activities in order to update/modify the core value for adapting with new situation.

2.4.2. Teaching and learning activities are constructively aligned to the achievement of the expected learning outcomes

The PLOs of the AFPPE programme are the guideline for all the teaching and learning activities. Teaching and learning methods and assessment approaches of the AFPPE programme are logically designed to meet the PLOs. The programme arranges the courses to raise cognition levels of students from lower to higher. In the learning process of students, each learning stages should use proper teaching strategies to assist students to acquire and use knowledge academically and effectively from simplicity to complexity. For general courses, the faculty of Sciences is responsible for teaching Basic Sciences with basic teaching methods such as lectures, presentation and class discussion. Departments in the FET including Fundamental Engineering, Agricultural Engineering, Heat and Refrigeration Technology, Automobile Technology, Control Engineering and Automation, Mechatronics govern fundamental courses in the AFPPE programme, while department of Post-Harvest and Food Processing Machinery is in charge of teaching specialized

courses. For fundamental courses and specialized courses, various teaching methods like presentation, class discussion, group activities, workshop practice, course projects, internship, etc. is employed to assist students to gain the most effective learning. According to the regulation of MOET and NLU, lecturers in the FET have attended pedagogical training. In the training, lecturers study about the teaching methods, assessment methods as well as how to design a courses curriculum and organize learning activities in class. This is to ensure the quality of the teaching and learning activities [*Exh.2.4.14: list of lecturers attending pedagogical training*].

It is believed that active teaching methods with more interaction, discussion and sharing will engage students in learning. Lecturers use applications such as Google drive, Facebook, Email, etc. to communicate with students. They usually make a roll call, give quizzes, and separate student into groups and assign homework, making video clips for students to learning at home or discussions in class, [<http://www2.hcmuaf.edu.vn/?ur=phamducdung> ; <http://www2.hcmuaf.edu.vn/?ur=dangnh>]. Lecturers in the FET received many projects from enterprises and formed student-group to participate in the projects in order to help them to gain real-life experiences [*Exh.2.4.7: List of technology transfer projects*]. Junior students are encouraged to join research groups to confront challenges from practical problems with their peers and lecturers. The Faculty encourages students to participate in the science and technology activities [*Exh.2.4.9: Student research activities*] and attend scientific conferences [*Exh.2.4.10: List of student attending conferences*].

Learning environment is necessary to promote the learning efficiency. The university has invested to install the air conditioner, fan system, projector in class rooms to ensure the comfortable environment for students to study and do research. In computer practical room, all computers are installed professional engineering software such as MATLAB, SolidWork, and AutoCad. Students are encouraged to use these software to simulate and analyze complicated engineering prototypes and devices in theory classes before experiencing the practical systems in the laboratory. In addition, a number of practical workshops are built spacious and airy with necessary equipment and instrument that could provide supports for any group of students interested in doing researches. The university has software and internal network for managing students and their score. Each student has a private account which allows them to see their learning result that is the reason to change the learning attitude in time, [<https://pdt.hcmuaf.edu.vn/>].

In order for students to reach the social knowledge, professional behavior, ethics, and long-life study, the CYU and the SA usually organize co-curricular activities such as GSVC, Exam Season Supporting, HBD, donations for disaster victims, etc. During the participating in the volunteer activities, students will be practiced all the soft skills they have learned at the university [*Exh.2.4.2.8: Association activities*].

2.4.3. Teaching and learning activities enhance life-long learning

Life-long learning could be known as the ongoing pursuit of knowledge. Some core skills of the life-long learning include Mathematical competencies in science and technology; Digital competence; Communication in the mother tongue and foreign languages; Culture awareness and expression competence; Sense of initiative and entrepreneurship; Social and civic competences and Learning to learn. The most beneficial life-long learning skills for student are creativity, problem solving, critical thinking, leader ship, communication, collaboration, ect. Beside providing students specific knowledge and technologies, preparing them the learning methods and inspiring them the desire to learn, critical thinking and self-study skills is much more important. To equip students with lifelong learning skills, lecturers must instruct students how to find information and documents. Through research activities, students have critical thinking, willing to accept the new knowledge. In addition, students communicate well in their mother tongue or in English through the presentation of many reports during training time.

In the field of mechanical engineering, mathematics and sciences are crucial. Therefore, the AFPPE programme concentrates to both general courses in sciences – mathematics as well as specialized courses in mechanical engineering that will foster the life-long learning of the students. In the Industry 4.0, Digital competence is the most important skills of an engineer. The AFPPE programme integrates a lot of computing courses such as *Programming Techniques, Computer*

Aided Design (CAD), Numerical Methods, and Applied Informatics in Machine Design. All these courses connect students to their learning and further strengthen their digital competency.

In order to enhance students with social and civic competencies, students will be trained the basic courses related to political society such as *philosophy, the ideology of Ho Chi Minh, law*, etc. Through these courses, the student gets a view about the society, the world around them, and the socio-political situation of their country. As a result, they might have a better learning attitude.

Students are classified under foreign language skill based on an English entrance exam results. The programme includes 105 hours (7 credits) in general English aimed to ensure the communication ability of the students. In addition, the Faculty always encourages students and lecturers using English through the bilingual lesson. Many lectures and textbooks of specialised courses in the programme are written in English to help students have the ability to read and communicate in professional English [*Exh.2.4.11 Some bilingual courses*].

Through scientific research and technology transfer, technology competitions, course projects, and essay presentation, students will enhance their communication in native language, as well as lifelong learning competence [*Exh.2.4.12: Essay report*]. Most of theoretical courses have from 10 to 40% self-study score; this is an opportunity for students to show their abilities as mother tongue, teamwork, critical thinking, documentary searching, presentation, and text editing. To enhance the digital, mathematical, scientific research, and information seeking skills, in addition to proficiently using the specialized software for designing and simulating, the students are also enhanced about office informatics knowledge (Word, PowerPoint, Excel) for writing graduation project, as well as internet using skill. Students are encouraged to participate in many professional activities such as scientific seminars, participate in research with lecturers.

In addition, the programme also fascinates students in the learning process via CYU related activities and other co-curricular activities to help students in improving their communication skill, teamwork, social responsibility and leadership. Students are encouraged to participate in social activities, activities of SA and CYU or volunteer activities such as GSVC, HBD and other charitable activities. There are many clubs in NLU such as music club, dance club, etc. where students can join to enjoy or improve their personality. Sport competitions and other professional competitions are frequently organized to make them more active and self-motivated. Admissions and Student Affairs Office will grade their attendance in terms of moral score in each activity in every semester [*Exh.2.4.8: Association activities*].

Our graduates can study for master programme in national and international universities, such as Taiwan, Korea, Thailand, and then continuously do the doctoral programme [*Exh.2.4.13: List of graduates doing a Master and PhD programme at the Faculty or abroad*].

2.5. Criterion 5 - Student Assessment

2.5.1. The student assessment is constructively aligned to the achievement of the expected learning outcomes

The assessment for students learning outcomes is designed based on the PLOs of the training programme. From the PLOs, courses are designed with appropriate CLOs which are systematically mapped to the programme PLOs. To ensure the students achieved all the PLOs of the programme, all the course content, teaching method as well as student assessment must be designed constructively alignment with the PLOs and it is clearly shown in all course syllabi. The assessment is done in the long-term from admissions, during the learning time, and to the graduation thesis. For example, based on the results of National High School Graduation Examination, students can apply to the AFPPE programme using one of the two subject groups (A00, A01). After that, enrolled students have to take an English placement test organized by NLU for being arranged to study in English class that is suitable for them.

PLOs-based assessment method for theoretical and experiment/practical is under 10/10 scale. The assessment methods are used diverse, such as:

1) Final exam score (60%), which are designed under multi-choice questions, quizzes, written test, practical and experiment tests, oral examination, experiment notebook;

2) Self-study score (30%) is the self-study ability assessment of students based on group assignments, quizzes, essays, presentations;

3) Progress score (10%) is used for student's diligence assessment in term of full attendance (make a call-roll), actively contribution (such as answering the quizzes in class, participating in group discussion, etc.) [*Exh.2.5.1: Monitoring note, final exams, and rubric*].

For the experiment courses, lecturers are in charge of guiding for doing experiments and evaluate students using the rubric to assess the knowledge, skills, and attitudes of the students [*Exh.2.5.4: Rubric for experiment courses and laboratory tests*].

Co-curricular activities are meant to bring social skills, intellectual skills, moral values, personality progress and character appeal in students. Realizing the importance of learning beyond class rooms, the faculty encourages students to indulge in co-curricular courses/activities in the learning process such as athletics, cultural events, science activities, classroom activities, etc.. Assessment methods for co-curricular courses/activities includes student surveys, rubric are frequently used to gather evidence of student learning. For activities such as internships, or class projects, students are asked to give presentations. Lecturers or instructors can observe these presentations and evaluate student learning with the use of a rubric. For activities such as participation in campus organizations, cultural events, or service learning activities, faculty frequently collect data to measure achievement of co-curriculum outcomes or indicate student success as well as to evaluate programs and services by counting attendees at events or doing satisfaction surveys.

In addition, students will be considered for graduation when they complete all courses with grade point average (GPA) of 5/10 or more, completing foreign language certificates, informatics certificates, and internship in the factory, doing a thesis and presentation [*Exh.2.5.2: Internship assessment sheet, graduation project*]. The graduation assessment council must grade under the rubric: including literature review, problem-solving scheme, research's results and the presentation thesis. In addition, the adviser of the thesis will evaluate the doing process of student including skills, attitudes, results, and the content [*Exh.2.5.3: Weekly report sheets reviewed by the advisor*].

2.5.2 The student assessments including timelines, methods, regulations, weight distribution, rubrics and grading are explicit and communicated to students

All the courses in the AFPPE programme have syllabus. The syllabus provides students all the necessary information such as timeline, study plan each week, contents, teaching methods assessment methods, regulations, weight distribution and the rubrics for assessment. All the information is announced to students at the beginning of each course. Specific requirements for final exams are emphasized at least once before the end of the course. FET and the University control this implementation through activities such as class observation and online surveys for students to evaluate the teaching quality of lecturers [*Exh.2.5.5: Regulations of student evaluation, Students' Behavior Assessment Rubric*].

Assessment methods such as written tests, multi-choice question, essays, oral examination, quizzes, homework assignments, teamwork, course projects, and graduation thesis all have a clear rubric table [*Exh.2.5.6: Some rubrics*]. For experiment courses, the assessment methods for the diligence score of student, self-study score and the final exam score are also diverse such as oral examination, hand-on practical examination [*Exh.2.5.4: Rubric for experiment courses and laboratory tests*]. For theoretical courses, the assessment way of the 10%, 30%, and 60% is also diverse. Specifically, the diligence score (10%) is based on student attitudes through attending classes, participation in group work, active participation in class activities; self-study score (30%), including teamwork assessment, presenting the report in front of the class, presenting the essay, etc.; and the final exam score (60%) is the final exam, [*Exh.2.5.7: Some of exams and Detail solution*].

Timelines of study and assessment are communicated to the students in the university's calendar; timetables are published on the internal network, and student handbook. These allow students to know how long the course taken, therefore, they make a better studying plan [<https://pdt.hcmuaf.edu.vn/pdt-8984-1/vn/ke-hoach-dao-tao.html>].

For graduation thesis, the Faculty provides for students information about the regulations of graduation defense, the graduation assessment council, the list of advisors, reviewers, and the presentation format of the dissertation [*Exh.2.5.8: Minutes of forming the graduation assessment council*]. The dissertation score will be published immediately after the Council has reached a consensus, on the day of dissertation defense.

2.5.3. Methods including assessment rubrics and marking schemes are used to ensure validity, reliability and fairness of student assessment.

To ensure the PLOs achieved by students, rubrics and marking schemes are used to help lecturers assess students correctly, validly, reliably, and consistently. There are many approaches for assessing students such as written tests, homework, essay, oral examination, quizzes, teamwork assignment, etc. The final exam may be in the form of written test, oral test, multi-choice question, etc., which is approved by the head of the department before coming into use [*Exh.2.5.9: Minutes of exam evaluation*]. For the same course, all the lecturers in charge of teaching the course will discuss the structure as well as the grading of the exam to assure validity. To ensure the reliability, a grading scale of 0.5 to 1.0 point in the marking scheme of the exam paper solution is used.

To make sure that the test will be fair to all students, NLU requires at least two invigilators in each examination room in the final exams and an inspector outside the room who will observe the examination process. After that, the lecturer will grade and send the transcript to the faculty. The score is then public on the internal network. If students do not satisfy with the result, they can apply a re-grading form to the faculty. The faculty then will transfer the form to the AAO and assign the lecturer to re-grade [*Exh.2.5.10: Regulations of the re-grading and Complaining procedure*].

For ensuring the validity, reliability, and fairness of the examination assessment, the test-taking process is rigorous: 10 to 20 sets of the test of each course are directly prepared by the lecturers in charge of the course. The test questions then will be approved by the Department and the Faculty to ensure compliance with the CLOs and PLOs. The answers with a small scale (0.5 to 1 points) will help minimize distortion. Students are provided to know the assessment criteria, grading way. The answer key was published on the Faculty website to timely reflect, and ensure fairness. The test is annually updated.

For assessing morality and attitude of students, Students' Behavior Assessment Rubric is used, student will firstly be evaluated by himself and by other students in his/her class. Then, the AC will evaluate each student to ensure the validity, reliability, transparency, and fairness.

For the graduation thesis, the university has specific requirements such as the format of the thesis [<http://www.pdt.hcmuaf.edu.vn/pdt-1385-1/vn/-quy-dinh-ve-dinh-dang-khoa-luan-tot-nghiep-new.html>]. The thesis has clear criteria for working attitude, theoretical frameworks, tools, practical results, etc. These criteria ensure validity in the evaluation of the thesis. The total score of the dissertation is drawn from the adviser's score, the reviewer's score, and the GAC's score (at least three members). If the score between the adviser and reviewer has a difference of up to 2.0/10 points, the GAC will meet to reconsider the grading process to ensure the reliability and fairness for students.

2.5.4 Feedback of student assessment is timely and helps to improve learning

The purpose of student assessment is to help students adjust properly their learning attitudes and to help lecturers modify the delivery of course contents. Therefore, all evaluation activities of students need to be timely feedback to the students to improve learning.

Students can use many channels such as Email, Facebook, Google drive, etc. to share information and comments about the courses. By doing this, they can receive answer or comment from other students or from lecturer. In class, the lecturer often gives the quizzes for students to know how the students understand the lesson, and then adjusts the teaching methods as well as the content for students to easily understand. For the specialized courses, the lecturer usually exchange with each student about the results of the assessment and solve the problem in each chapter, and to orientate students to more effectively study. For the experiment courses, the students are assessed by paper test, the experiment tests, oral test, etc. For theoretical courses, the self-study score (30%)

is usually done by essays, assignments, and report presentation. Evaluating presentation and teamwork must be based on the rubric [*Exh.2.5.11: Teamwork evaluation rubric*]. For the projects course and graduation thesis, students make a notebook to record what has been done and submit to lecturers to grade. Each two weeks, students have to have a meeting with their advisors to report what they have done. Therefore the advisors can monitor the work assigned to students and remove the obstacles for students.

At the end of each course, the Faculty organizes a survey to collect the feedback of the course during the study from students, to timely adjust the content of the course as well as the teaching methods [*Exh.2.2.8: Feedback from students from 2014- 2018*].

2.5.5. Students have ready access to appeal procedure

Appeal procedure about learning outcomes has been clearly guided by NLU and has been informed to students via different channel such as website, student handbook. Students have the right to request re-grading the test results. An application letter must be sent to the Faculty within 3 days after the day publishes the exam results [*Exh.2.5.10: Regulations of the re-grading and complaining procedure*]. The time for reconsidering must not exceed 7 days from the date of submitting document. If the score is higher or lower than 1 point or more, the Dean must assign the other lecturer to re-grade. The final result must be approved by head of department or by dean of the faculty [*Exh.2.5.12: List of students applying re-grading the exam*].

2.6. Criterion 6 - Academic Staff Quality

2.6.1. Academic staff planning (considering succession, promotion, re-deployment, termination, and retirement) is carried out to fulfil the needs for education, research and service

Based on the academic staff situation such as number of current lecturers, the number of lecturers being retired, the FET will plan to support successors to be trained in Vietnam or abroad. In addition, FET also rearranges the duties and work of the personnel to suit new situation. If the number of lecturers is not sufficient, FET will develop a new recruitment plan. Academic staff planning is an ongoing regular process in each the five-year period based on the specific human resources plan and target of NLU to ensure smooth continuity on the operation of our academic programme. [*Exh.2.6.1: Human resources development plans for 5 years of Faculty: 2014-2018, and 2018-2022*]. Regulation on new staff procurement governed by the FET covers both capacity and competency. In particular, capacity is reviewed to determine the numbers and positions of required academic staffs to work and support our programme; competency is the qualifications and experience needed to provide instruction and support students. The planning is affected directly by training programmes, current and future workload, and staff to student ratio. The requirements of new staff are handled by the Dean of the Faculty and then sent to Personnel Office. Finally, the approval of new human resources hiring is carried out by NLU [*Exh.2.6.2: Recruitment plans*].

In 2015, a new regulation of MOET requiring head of a department must hold a Ph.D. degree. FET has planned reorganization, re-assigning personnel, especially to help potential lecturers join the Ph.D. programme. At the same time, the priority for recruiting people with Ph.D. degree is always interested. So far, FET has ensured that all leaders of department have Ph.D. degree.

Based on the developing scale of FET, the Board of leadership's structure have one Dean, who must have a Ph.D. degree; One vice Dean in responsible of training, scientific-research and international-relationship who must also have a PhD degree; and one Vice Dean in responsible for other domains such as Unions, Properties and Student Management, who must have a master's degree or higher degree. According to that requirement, every year FET has built personnel's planning. There are always two candidates for the Dean position, and four candidates for the vice Dean.

Following the NLU long-term policy in development of human resource, the FET always encourage lecturers to develop their career by applying new teaching method, studying Ph.D. locally or abroad, participating in doing research, and applying for Associate Professor title. [*Exh.2.6.3: Strategy and results in development of academic staff*].

According to the Government's education policies, all FET members are national officials. Therefore, all lecturers will have all benefits from government retirement system. As in

regulations, the female employees would retire at age 55 and the male employees would retire at age 60. If they have worked more than 20 years and had social insurance, their pensions will be paid in accordance with the government standards. If not, they will be receiving a large lump sum of money known as social insurance.

Table 6.1. Human resource of FET from 2014 to 2019

Academic year	Engineer		Master		Ph.D.		Total
	Total number	Percentage (%)	Total number	Percentage (%)	Total number	Percentage (%)	
2014-2015	3	6,8	32	72,7	9	20,5	44
2015-2016	5	11,1	32	71,1	8	17,8	45
2016-2017	4	8,9	32	71,1	9	20,0	45
2017-2018	4	10,3	26	66,7	9	23,1	39
2018-2019	3	7,9	24	63,2	11	28,9	38

2.6.2. Staff-to-student ratio and workload are measured and monitored to improve the quality of education, research and service

The numbers and qualification of academic staff in the FET is shown in Table 6.2. It is shown that, most of the lecturers in FET have postgraduate degrees from both national and international universities [*Exh.2.6.4: Postgraduate degrees of academic staff*]. The calculation of full-time equivalent (FTE) is based on the investment of time. Since all the lecturers in the FET are full-time employment working 40 hours per week.

Table 6.2. Number of Academic Staff and FTE of academic staff in the academic year 2018-2019

Title	Male	Female	Total	
			Headcounts (1)	FTEs (2)
Full Professors	1	0	1	5
Associate Professors	2	0	2	6
Lecturers with PhDs degrees	8	0	8	16
Lecturers with Master degrees	20	4	24	24
Lecturers with Bachelor degrees	3	0	3	1,5
Visiting lecturers	0	0	0	0
Total	34	4	38	52,5

Note: (1) The number of lecturers, (2) The number of lecturers converted into Full-time Equivalent (FTEs): Full Professors = 5 FTE; Associate Professors = 3 FTE; Full-time lecturer with PhDs degrees = 2 FTE; Full-time lecturer with master degrees = 1 FTE; Full-time lecturer with BA degree = 0.5 FTE; Part-time lecturer = 0.5 FTE;

Table 6.2 shows that there are 38 academic staffs in the FET. These numbers ensure that workload is distributed in reasonable manners to implement the full programme of the FET effectively. [*Exh.2.6.5 List of FET members and workloads*].

Table 6.3. The benchmarks of teaching, research and service load per year for academic staff

No	Category	Lecturers	Assoc. professors, major lecturers	Professors and Senior lectures
1	Teaching load	900 working hours	900 working hours	900 working hours
2	Research load	500 working hours	600 working hours	700 working hours
3	Service load	360 working hours	260 working hours	160 working hours

By logging in website: <https://pdt.hcmuaf.edu.vn/>, academic staffs can access their teaching schedule, work calendar, courses each semesters, and the benchmarks of teaching, research and service load for academic staff (Table 6.3).

The quality of teaching and learning is affected directly by the ratio between number of students and lecturers. According to regulation of the MOET [*Exh.2.6.6: MOET and NLU regulations for academic staff recruitment*], the maximum ratio of students to lecturers in the field of engineering and technology is 20 students per lecturers. Staff to student ratio and workloads is constantly observed by related parties such as Admission Office, QMO, and the FET to ensure optimum quality of education training [*Exh.2.6.5: List of FET members and workloads*]. The staff to student ratio of FET in the recent 5 near years is shown in Table 6.4. It is shown that the staff to student ratio of FET meets the condition for university education.

Table 6.4. The staff to student ratio of FET

Academic Years	Total FTEs of Academic Staff	Total FTEs of Students	Staff to student Ratio
2014 - 2015	54,5	1031	1/18,9
2015 - 2016	53,5	1217	1/22,7
2016 - 2017	56,0	1055	1/18,8
2017 - 2018	49,0	943	1/19,3
2018 - 2019	52,5	915	1/17,4

2.6.3. Recruitment and selection criteria including ethics and academic freedom for appointment, deployment and promotion are determined and communicated

In NLU and FET, recruitment is based on an academic merit system. These recruitment policies and procedures are very important to ensure that there are sufficient personnel with necessary skills, experience and knowledge to provide high quality teaching and learning. This relies on the following major criteria:

- Professional capability: qualification, major, experience; research expertise and publications.
- English and Informatics certificates.
- Interview results including ethic quality, communication skill, personality and commitment of long-term working at the FET.
- Other criteria such as age, health and physical appearance are also considered [*Exh.2.6.7: Regulations for academic and supporting staff recruitment*].

The employment information is annually performed following the approved procedure and published widely through NLU website. In cases where there is an urgent need for additional workforce, the University will consider signing a labor contract before recruitment period. To be able to recruit qualified lecturers, the recruitment process of NLU is diligently designed, which includes six steps [*Exh.2.6.8: The recruitment process of NLU*]:

- Step 1: based on the requirements, tasks, and teaching workload, the Faculty plans to recruit the teaching staff and sends it to Personnel Office.
- Step 2: recruiting agencies consider the recruitment target of all departments and allocate recruitment target for each department.
- Step 3: the Personnel Office does the planning, publishes the employment information, and takes the candidates' document.
- Step 4: the Personnel Office classifies the applications and sends them to the Faculty for interviews.
- Step 5: the candidates are invited for in-person interviews if his/her qualification is met with Faculty's criteria. The decision to recruit is made by the Faculty where the candidates will work beyond being admitted. This decision will be sent to the Personnel Office.
- Step 6: the final consideration is sent to NLU's president to approve and issue the employment decision.

After successful recruitment, new staff will be oriented by Personnel Office about welfare, evaluation, and promotion; and will sign the periodic contract with the University with terms and conditions regulated by the Regulation of the Government and the Labor Law. The University has an allowance of 2,000,000 VND/month for lecturers with PhD degrees. For completing teaching tasks, staffs are considered for rewarding and awarding emulation titles. The freshly recruited staffs will undergo a period of probation of one year. During this period, the staff is in the planning of training, improvement for establishment of successive staff for key positions in teaching and research. After the probation year, if the staff is proved to be qualified, contracts will be renewed on an annual basis. [*Exh.2.6.9: Decisions on doctoral allowance*].

To become a full-time lecturer, in addition to the requirements for diplomas/certificates such as the Master's degree, English language certificate, the certificate of information technology, the philosophy, and the educational skills, the teaching staff must have a written report from the Faculty for acceptance of lecturers and satisfactory teaching evaluation. [*Exh.2.6.10: The process of lecturers' titles recognition*]. Based on the position and mission of the academic staffs, their professional knowledge, experience and abilities, at every early academic term, Heads of departments assign tasks to every one for satisfying the university teaching plan. Accordingly, the roles, mission and their relation of all academic staffs of FET are well defined.

For the key position in FET, candidate for Head of Department is voted by all staffs of that Department, then approved by the President. Voting is based on the candidates's qualification, attitude and professional ethics, and well defined in the regulations of the University.

Lecturers can improve their ranking by being promoted from Teaching Assistant, Lecturer, and Senior Lecturer.

Basically, lecturers' salary is raised after every three-year period. However, this period could be shortened thanks to following achievements:

- Obtaining an excellent research achievement and proposed by agreement of Faculty.
- Obtaining an excellent achievement on academic activities, and/or outstanding publication on their research works.
- Obtaining a higher education degree.

Lecturers are always given good conditions to improve their professional skills: study PhD locally or abroad, participate in doing research, apply for Associate Professor academic title.

The Regulations on mission of academic staff are clearly indicated in the NLU's Regulations. The lecturers seriously implemented allocated tasks such as giving lecture, preparation of lecture, writing and editing textbook, guidance of doing experimental, research, attending lecture, supervision of thesis, being a proctor, being an examiner, study consultant, study or self-study for improvement of knowledge, participation in different unions, associations, etc.

2.6.4. Competences of academic staff are identified and evaluated

There are some different ways to determine and evaluate the competences of FET academic staffs. For evaluating criteria, all of lecturers are evaluated based on their teaching performance, research work, and community service.

For the freshly recruited staff, teaching and research competencies are identified during the selection process before joining the department [*Exh.2.6.11: Minutes on evaluation of freshly recruited staff after probation*]. During their probation period, trainees have to participate in different training activities, such as attending lectures given by experienced lecturers to learn teaching methods, preparation of lecture aligned with the syllabus for that course under the supervision of Dean of Faculty, joining scientific seminar, etc.

The permanent lecturers have to ensure that the lecture is conformed to the syllabus of the course followed by PLOs of the programme, and give the advantaged conditions for students to access the lecture. A competent academic staff will be able to develop and use a variety of instructional media, such as using PowerPoint software with video or animation for visual effects, using projectors/LCD displays, and uploading learning materials on website. The professional groups including lecturers who are teaching the same subject and the head of subject participate in

the design, evaluation and readjustment the training programme to achieve consistency in the contents, the method of teaching, assessment types, and grading policy. Most lecturers have ability in self-supervision and self-assessment for their teaching process and evaluation of the effectiveness of the course that they are responsible for. By this way, they can participate in the planning and development of the discipline and curriculum; update course content, active education methods like presentation, group based learning, problem based learning, or experimental learning method like doing practical experiment, simulation, case study for each course. The academic staffs always strictly follow the teaching plan as described in the syllabus of the course. *[Exh.2.6.12: Activities of curriculum and teaching methods improvement]*

Besides, lecturers have to do scientific research and technology transfer according to the regulations of the University. All academic lecturers are responsible not only for conducting researches on science and technology, on curriculum development, innovation of teaching methods, and assessment methods; but also for carrying out contracts for scientific research, transfer of technologies in service of economic and social development. In two years, lecturers are required to have a country/international publication. *[Exh.2.6.13: Report on scientific and technological activities of FET]*.

Teaching competence of academic staffs is evaluated every semester via students' feedback. Students are asked to do assessment through online survey. Questions in the survey questionnaire cover all the activities of the lecturer in the class. The Faculty and the Department then discuss with lecturers for particular improvement if it's needed. Research competency is simply monitored by publication outputs for each staff.

All staffs have to fill in their own self-evaluation performance form according to their course assigned (workload, academic services, research performance, and student affairs, etc.). All the members of Department vote for the good lecturer. The vote is done in a democratic manner and finalized for promotion by the University. The voted lecturers will receive awards from higher management level. *[Exh.2.6.14: Evaluation mode on the promotion of lecturer level]*.

2.6.5. Training and development needs of academic staff are identified and activities are implemented to fulfil them

Yearly, the Dean of FET surveys the training and developmental demands of lecturers and researchers in order to determine and plan with specific activities to fulfill their academic competences. This is done based on strategy in development of FET academic staff *[Exh.2.6.15: Strategy in development of FET staff]*, statistic data on qualification, teaching ability, and research and working experiences of staff, desire of staffs in training and professional development, as well as on analysis of the strengths and weakness of academic staff, their professional skills. After attending the training whether held by the Department, the Faculty, the University, or outside organizations, the academic staff have to present what they have gained from each training course to the Department members. *[Exh.2.6.16: Report on the achievements of academic staff]*.

For academic staff, who have not received Ph.D. degree yet, they are encouraged and created good conditions to take part in long training period to improve their professional knowledge, especially study at high reputation universities in Vietnam, Taiwan, Korea, etc... After graduation, most of young lecturers have come back and actively participated in teaching and research activities of the University. The numbers of studying lectures are reported in Table 6.1 in recent five years. *[Exh.2.6.17: Training courses and activities for development needs of academic staff]*.

For the lecturers training in Vietnam, the University has a policy of financial supporting for their study. They are also assisted with information about national and international training programs for getting more opportunities to improve their knowledge.

Our entire academic staffs actively conduct research and teaching in the professional fields. Similar to any academic programme in science around the world, learning new knowledge and strengthening research competencies of academic staffs can be achieved by allowing staffs to faculty attend scientific conference, especially the international conferences. The NLU offer financial support to allow all academic staffs to attend national conferences. For international conferences, the FET offer partial grant for the academic staffs to attend. The amount of money for

attending international conference is determined each year in the staff meeting depending on the available budget. [*Exh.2.6.17: Training courses and activities for development needs of academic staff*].

2.6.6. Performance management including rewards and recognition is implemented to motivate and support education, research and service

The NLU realizes that rewards and recognition play a key role in motivating academic staffs. Every year, NLU announces many awards in recognition of academic staffs who devote themselves to the best of their duties, primarily teaching and research. [*Exh.2.6.18: Regulation of the emulation and commendation work*].

The ranking awards are mainly based on the research and academic achievement, and is divided into four titles as follows:

- Progressive laborer – including preparation of lecture, hours of teaching, study or self-study for improvement of knowledge, mentoring students, and other administrative responsibilities
- Emulative soldier at the grassroots level – having “Progressive laborer” title, and number of research published, textbook writing or technical innovations or work solutions for active teaching methods approved by competent appraisal councils of the NLU
- Emulative soldier at the ministry level - having “Emulative soldier at the grassroots level” three times in continuous, and technical innovations or work solutions for active teaching methods approved by national competent appraisal councils
- National emulative soldier - having “Emulative soldier at the ministry level” two times in continuous.

At the beginning of each academic year, faculty members register for the title of emulation, with three levels shown above. Academic staff then conduct a self-assessment on individual work at the end of last year, depending on three criteria according to the teaching workload, the quality and quantity of research, and the university services. The Dean of FET organizes a faculty meeting to comment and evaluate the workload of each staff. The results of the evaluation are achieved by the vote among faculty members and used to classify the title for each staff. [*Exh.2.6.19: The process of emulation for academic staff*]

Many incentives are provided by both of NLU and the FET to encourage academic staff. In order to support the use of facilities and convenience for work, each instructor can ask for leave if he or she needs time for doing their paper. The University also makes fund available to help pay a page-charge for staffs who could publish their research output in the high-quality journal. It usually costs 10,000,000 VND for a post in a SCOPUS journal. In addition, one of the authors will be supported by the University for fund to participate in the report at the conference [*Exh.2.6.20: Decisions for rewards and honors*].

2.6.7. The types and quantity of research activities by academic staff are established, monitored and benchmarked for improvement

In parallel with teaching, research is an obligatory activity for academic staff and stated in the NLU Regulations of working regimes [*Exh.2.6.21: Decision on working regulations for academic staff*]. The types and quantity of research activities done by academic staff are recorded, evaluated and compared for further improvement.

According to the University policy, academic staff has to conduct research based on the process of an implementation research project, which is instructed and considered by the University Scientific-Board. The quantity of the research activities is established, monitored and benchmarked for improvement. Summary of the number of national and international publications by academic staffs for each year is presented in Table 6.5.

In additions, the scientific research topics of the faculty adhere to the mission and the objectives of the University through technology transfer projects, which are many topics of high application [*Exh.2.6.22: List of scientific papers from 2014-2018*]. Summary of the number of projects by academic staffs for each year is presented in Table 6.6.

Table 6.5. Types and number of research publications (2014-2019)

Academic Years	Types of Publications				Total	No. of Publications per academic staff
	National Conference	International Conference	National Journal	International Journal		
2014-2015	0	3	4	4	11	0,25
2015-2016	5	3	8	4	20	0,44
2016-2017	4	7	6	9	26	0,58
2017-2018	0	0	3	9	12	0,31
2018-2019	1	4	11	15	31	0,82

Table 6.6. Types and number of research-projects (2014-2019)

Academic Year	Number of Research-Projects by Management Level				Total
	University	Ministry	Province	International	
2014-2015	0	0	2	0	2
2015-2016	5	0	1	0	6
2016-2017	14	3	1	0	18
2017-2018	10	2	0	1	13
2018-2019	7	0	2	0	9

Research activities of academic staff are yearly evaluated. Based on the completion of teaching and research loads, the NLU regulations and for ensuring of the University's mission and vision, high appreciation is given to the academic staffs who published their research results on reputed international journal with high impact factors. Other factors such as ethics in teaching and research are assessed as well, through the sharing knowledge with students and young colleagues.

Changes in quantity and quality of research activities are annually reported with a comparison made between academic years to see the improvement in doing research. This motivates competition among staffs for a better development of the University.

2.7. Criterion 7 - Support Staff Quality

2.7.1. Support staff planning (at the library, laboratory, IT facility and student services) is carried out to fulfill the needs for education, research and service

In order to response to the objectives and scale of training, NLU always have guidelines and plans to build the support staff in charge of libraries, laboratories, computer centers, foreign languages centers, etc., who are willing to support students. In addition, NLU regularly conducts inspections and supervises the activities of support staff by the satisfaction of stakeholders to provide effectively develop solutions, thereby controlling and improving service quality.

Similar to the academic staff, supporting staff planning policy in NLU is based on the developing strategy every five-year period, that focuses recruiting staff with the following criteria: having at least a bachelor's degree or higher, suitable for the work to be taken, having foreign language skills, having communication skills... [*Exh.2.7.1: Decisions on developing supporting staff*]. Each operating unit is managed by a leader board. When an imbalance between workforce and workload occurs, the leader board requests the recruitment of new staffs to the university. Once the request is approved, the operating unit sets up a recruitment and selection process.

The workshop technicians are all equipped with qualified skills and are met the requirements of the training programme as well as supporting teaching and researching activities. Most of them hold a profession degree suitably. Therefore, they also participate in supporting/advising students/ students do the final undergraduate project [*Exh.2.7.2: Qualifications and certificates of FET staff*]. Furthermore, they have also received opportunities to be trained to advance their knowledge in order to meet the training programme [*Exh.2.7.3: Training activities for supporting staff*]. Information technology staff assists in installing software and solving

computer problems. Librarians support in finding and loaning books or journal, accessing electronic databases, and training of reference management software. Sport facility officers are in charge of introducing and demonstrating how to use the service or equipment.

Support staff consists of two groups: the support staff at university level provides general supporting for all students in all training programs, including: library, center for applied informatics, office of student affairs, and different functional departments; the staff at faculty level includes: workshop manager, training assistant and student academic advisor. Number of academic support staffs is described in Table 7.1 and 7.2 below:

Table 7.1. Number of support staff of NLU's group (July, 2019)

No.	Office/Center	Total	No.	Office/Center	Total
1	Center for Sports	1	11	Legality Office	3
2	Student Affairs Office	6	12	Personnel Office	5
3	Academic Affairs Office	15	13	Library	14
4	Administrative Office	9	14	Healthcare Center	4
5	International Cooperation Office	3	15	Center for International Education	2
6	Planning and Finance Office	10	16	Center for Student Services and Dormitory	37
7	Quality Management Office	4	17	Center for Student Support and Business Relations	6
8	Scientific Research Management Office	5	18	Center for Foreign Studies	2
9	Property Management Office	57	19	Center for Applied Informatics	4
10	Postgraduate Office	8	20	Youth Union Office	3
Total			198		

Table 7.2. Number of support staff of FET's group (July, 2019)

No.	Units	Quantity	Note
1	Workshop	7	
2	Training assistant	2	
3	Student academic advisor	25	Concurrently – Lecturer
4	Library	1	Concurrently – Lecturer
	Total	35	

2.7.2. Recruitment and selection criteria for appointment, deployment and promotion are determined and communicated

To begin the recruitment of new supporting staff, job description and qualification of the available position is defined by the corresponding unit. This piece of information is important for the proper deployment of the missions; and was specifically issued in the decision of the NLU. Announcement of the recruit position is always made available on the web site of the NLU. In the announcement, information on the position, job description, qualification, application process, selection method(s) are clearly presented. [*Exh.2.7.4: Procedure for recruitment, Exh.2.7.6: Competences of FET support staff*].

After successful recruitment, new support staff will be oriented about welfares, evaluation, and promotion. They are officially signed the long-term contracts after the probationary period. The promotion of support staff is based on their number of service years, working performance, as well as the support and the relationship offered toward students and colleagues. For example, candidates for key positions are chosen based on their moral or political character, having a degree being suitable to the branch or specialized training field of the faculty, having management capacity. Under the labor law, after a three-year period of employment, the employee's salary will

increase at a fixed rate. In the special case, if any employee makes an outstanding contribution, their wages will be increased as approved by the University [Exh.2.7.5: *Promotion policies and decisions*]. The recruitment process is shown in figure 7.1.

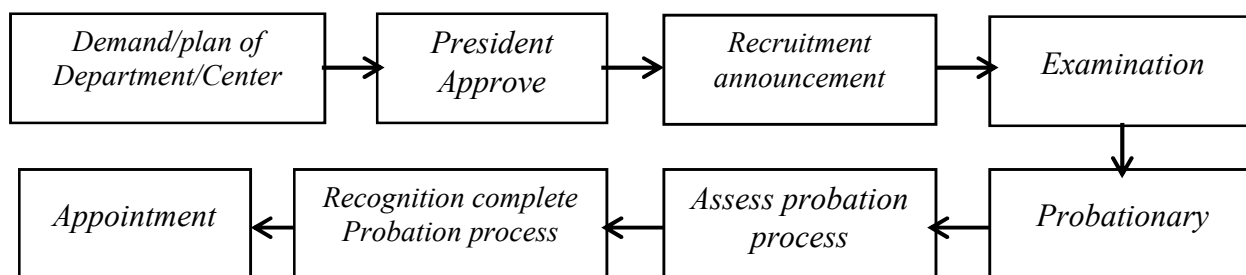


Figure 7.1. Support staff recruitment process

2.7.3. Competences of support staff are identified and evaluated

Competencies of supporting staffs have been identified since the recruitment process as indicated in the qualification of applicants, such as: Holding a Bachelor degree or a higher degree in a field closely related to the administrative work; Having adequate command of English; Having experiences in administrative work. In FET, the laboratory and practice workshop technicians are all equipped with qualified skills, meeting the requirements of the training programme as well as conducting research activities. Most of all of them hold an engineering degree or higher, therefore, they also participate in supporting/ advising students/ students do the graduation thesis. Furthermore, they have also received opportunities to be trained to advance their specific knowledge in order to meet changes in the training programme. The FET also has specifically skilled staffs, who are responsible for financial issues, student affairs, scientific research, training field orientation meeting the requirements relevant to self-hierarchy and other general activities of FET [Exh.2.7.6: *Competences of FET support staff*]. The competencies of support staff are shown in Table 7.3.

Table 7.3 Sample of key requirements of some positions

No.	Supporting Units	Service
1	Center for Student Services and Dormitory	Caring for the needs of accommodation, living and studying for students; Training students to have nice and neat living style, moral and ethical behavior.
2	Student affairs office	Carrying out the tasks of organizing the administration, organization and management of the students' learning and training activities, sports; Solving questions of students on academic issues, team work, and problems in daily life; University psychology counseling for students.
3	Academic affairs office	Carrying out the administrative and educational tasks; Developing a comprehensive teaching plan for each semester; Developing internship programme for students at enterprises; Holding graduation examinations for students.
4	International cooperation office	Managing international cooperation activities; Formulating orientations, plans and strategies for international cooperation, aid exploitation and cooperation in the field of education and training with foreign colleges and universities.
5	Personnel office	Implementing regimes and policies toward officials, lecturers, and employees; protect the political security of the university; administrative work, clerical, archives, receptionist.
6	Planning and finance office	Managing of financial issues, assets, taxes of the university, and tuition fees of students; Assisting students in the problems of tuition, loan support.
7	Property management office	Guiding how to use, maintain, repair facilities, assets, equipment, and facilities for the whole university; Ensure fire safety.

8	Student support and enterprise cooperation center	Organizing periodical visits, seminars, exchange experience between enterprises with students, lecturers; Seeking research and applied research in the production of business to support scientific research; Receiving other support from agencies such as scholarship, equipment and machinery.
9	Library	Organizing course on searching and using library materials, how to log in to use online library for students; Updating books, documents, and journals as requested by the faculty.
10	Center for Applied Informatics	Managing network, the university's official website, developing software for the university; Managing and using of information and technology resources to provide scientific and technological information, technology products and services to students and the university; Managing and maintaining computer system for teaching.
11	Youth Union Office	Giving comments, proposing issues related to students, propaganda and organizing for members, members, students to carry out activities of the university; Maintaining relationships with unions, political organizations inside and outside the university to implement programs involving union members and students; Encouraging students to study and practice, reflecting the needs and aspirations of students.
12	Scientific research management office	Formulating strategies and plans for scientific and technological development and cooperation in the field of science and technology with domestic and international universities and institutes; Reporting on the scientific research activities of the university; Monitoring managing and supporting the research activities of staff, faculty, and students, in the ways of guiding the process of scientific research, procedures related to scientific research, financial support, payment, progress monitoring, and acceptance; Monitoring the operation of facilities and equipment at laboratories.

At the beginning of each academic year, each supporting staff must sign an Emulation titles form with the head of the unit. Their performance is evaluated at the end of the academic year by votes from the head of the unit and colleagues in the unit meeting. Evaluation of working capability is carried out annually based on the emulation title, including four titles listed in the Criteria 6.6 according to the university's regulations. In addition, every year, there are dialogues between university leaders and students, at the University level, Faculty level. The comments of students are received by the Faculty and University leaders about quality of teaching, quality of services, and facilities; then the improvements are proposed to ensure students are satisfied with the university's services.

2.7.4. Training and developmental needs of support staff are identified and activities are implemented to fulfil them

The NLU is responsible for the management of support staff training activities, involving finance, supplies, and educational services. Needs for training and development of support staffs can arise anytime due to changes in requirements or responsibilities. The University has a strategy to improve the level of faculty members based on staff development plans sent from Faculties and Departments, so that there is a policy to encourage individuals to improve their qualifications. Once a year, faculty leaders survey the need to improve the level of the staff; then they will balance the staffing situation and send the expected list of support staff who want to learn to improve the level to University. After being approved by the University, support staff are allowed to go for studying and receiving all university support policies. [*Exh.2.7.7: Financial report for training and retraining of staff*].

Following the NLU regulations, all the units directly have plans to improve the staff qualification through self-training at the unit, pursuing higher level or short-term internship/training course. Under the direction of the NLU and the support from the Faculty of Foreign Language and Pedagogy, the FET encourages the support staffs in term of language competences

by attending English training course. The objective was to improve their language capabilities in work place.

2.7.5. Performance management including rewards and recognition is implemented to motivate and support education, research and service

Following the same approaches to prompt academic staffs, supporting staffs at NLU are also in job, especially a shift up in employment status, which leads to increase the salary. Individuals with excellent performance, for example archiving national or international achievement, will be considered for award of merit and rising salary. Moreover, at the beginning of the academic year, all staff members will be registered for the title of emulation. By the end of the year, support staff working for all departments, along with those working for the FET, must fill in the form of self-assessment, then the head of department will review and evaluate staff performance based on the form and plan at the beginning of the university year. The assessment results are then used as a tool to receive a year-end bonus according to the University regulations. There are four aspects of evaluation such as general standards, professional work, corporate work, and innovations. The criteria for these aspects are quality, quantity, timelines, productivity, achievement motivation, responsibility, team work, and systematic job planning [*Exh.2.7.8: Rewards of NLU president, MOET, other organization*]. Both NLU and FET announce Experience Idea Awards every year for excellent supporting staffs who have the great initiatives to improve the work process. All support staff from the departments have the same chance to participate in scientific research, technology transfer and other activities at Faculty, depending on personal aspiration and specific qualification.

2.8. Criterion 8 - Student Quality and Support

2.8.1. The student intake policy and admission criteria are defined, communicated, published, and up-to-date.

Policies and regulations on enrollment for AFPPE programme are built clearly, fully and in detail in accordance with the enrollment regulations of NLU and the MOET. [*Exh.2.8.1. NLU student intake policy and admission criteria*]. Accordingly, the field of enrolling students in the form of admission exam results from the national high school graduation examinations according to the combination of 3 subjects is presented as table 8.1. In addition, students who have won high prizes in national and international exams in Mathematics, Physics, Chemistry and English will be directly recruited to study. Besides, students who are ethnic minorities or live in areas with difficult conditions will be given priority points for admission. [<https://ts.hcmuaf.edu.vn/ts-32154-1/vn/thong-bao-xet-tuyen-thang-va-uu-tien-xet-tuyen-va-o-dai-hoc-chinh-quy-nam-2018.html>].

Table 8.1 Group of subjects for admission of the AFPPE programme

Group	Subject 1	Subject 2	Subject 3
A00	Mathematics	Physics	Chemistry
A01	Mathematics	Physics	English

NLU has enrollment policies that attract students such as offering scholarships to students with high entry scores in the top 3 of a faculty; Priority accommodation dormitory for students in remote, disadvantaged, war martyrs; poor student scholarships overcoming difficulties; Scholarship funds of businesses awarded. The above policies are intended to increase the quantity and quality of students' inputs.

Annually, NLU and FET use a variety of information channels such as local enrollment counseling, online counseling (broadcast on YouTube, Facebook), counseling via university website, university leaders interview on mass media to publish information on annual enrollment [<https://ts.hcmuaf.edu.vn>] [*Exh.2.8.3. Admission channels*]. In addition, the University and the Faculty also have delegations to participate in the Admissions Day of the MOET in collaboration with the newspapers (Tuoi Tre, Thanh Nien, Giao Duc Thoi Dai ...). This is also an opportunity for students to be counseled by vocational counselors, answering questions related to the industry that students care about. [<https://ts.hcmuaf.edu.vn>] [*Exh.2.8.4. NLU's enrollment scheme is published annually in the enrollment seasons*].

2.8.2. The methods and criteria for the selection of students are determined and evaluated

Criteria and methods for recruiting students are determined by the department and clearly stated in the training programme curriculum, as well as in the enrollment policies widely announced every year. [Exh.2.8.4. *NLU's enrollment scheme is published annually in the enrollment seasons*]. Currently, NLU and FET have only 1 enrollment method: admission according to national high schoolexam results; Accordingly, all candidates who want to be eligible to study at the Faculty must pass the national high school exams. Based on the aggregate results on the scores of the subjects in each block of the candidates, the Faculty and University choose the qualified candidates according to the scores taken from the top down according to the initial and minimum expected targets. more than or equal to the floor score set by the MOET for each examination block. Finally, the list of qualified candidates will be published on the university website, newspapers and sent the summons to the candidates' addresses [Exh.2.8.2: *FET student intake and quality*].

Table 8.2. Freshman admissions statistics from 2014 to 2018

Academic year	Targets	Number of successful candidates	Total number of students enrolled	Male students	Female students
2018-2019	50	51	51	49	2
2017-2018	50	51	51	51	0
2016-2017	50	46	46	45	1
2015-2016	50	43	43	43	0
2014-2015	80	71	71	70	1

Table 8.2 shows that the number of AFPPE students is guaranteed over the years. Besides, Table 8.4 shows that the annual enrollment score is not much difference. This demonstrates the quality of the freshmen input always maintained over the years. Along with the stability of students over the years, the number of lecturers recruited into the Faculty every year is sufficient to meet the teaching workload.

Table 8.3. Statistics of AFPPE students from 2014 to 2018

Cohortes	Number of students			
	1st year	2nd year	3rd year	4th year
2018-2022	51	51	-	-
2017-2021	51	51	51	-
2016-2020	46	46	44	44
2015-2019	43	38	38	31
2014-2018	71	71	63	60

Table 8.4 Benchmarking of admission between NLU and some other universities

University	Academic year				
	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
NLU	16	20	20	21	17.5
Can Tho University	22	19.75	19	20.5	17.5
Academy of Agriculture	14	15	15	16.25	14
Hue University	13	18.75	18	15.5	13

According to the regulations of the MOET to ensure transparency and create conditions for new students to familiarize themselves with the new learning environment at the university. The university is responsible for informing eligible students no later than the beginning of September every year so that new students can complete the admission process at the beginning of the month so that the new semester can take place promptly. The necessary documents for students in the first year will be distributed when students complete the admission procedures, which usually include: first semester schedule, political course schedule and student handbook.

2.8.3. There is an adequate monitoring system for student progress, academic performance, and workload.

In the process of studying at the Faculty, students are always closely monitored throughout the process and receive advice and support from learning issues to personal issues through representatives of AC. [Exh.2.8.5: *List of academic counselors*]. The AC are always facilitated by the Faculty to meet their class in charge for the first time during the reception of students [Exh.2.8.6: *FET student meeting minutes*]. Later, during the learning process, the AC will actively meet with the class in charge to share questions and support the class.

The University has developed software to perform monitoring, responding to students' progress on achievement and learning process. On the page <https://pdt.hcmuaf.edu.vn/>, lecturers can access data about student lists and manage their own classes. At the same time, students can register courses, monitor schedules, exam schedules and other notices of the university, and can monitor the learning situation through the statistics of average scores of students over the semester. Faculty and University have separate attendance records for each class [Exh.2.8.7: *Regulations on class attendance*]. If the student is absent from university many times, the lecturer in charge of the course will inform the AC and the AC will work directly with the student/contact with parents of the student to find the reason and help students come to university regularly.

Each semester students are notified of each grade point through the online scoring system. For students with an average score from 4.0 to 2.5, they will be rewarded with excellent, very good and good scholarship (Table 8.5). The number of scholarship for student in each semester is depended on the scholarship fund of the class. In addition, the students must also achieve good or higher grades in conduct point. The conduct point of student is assessed each semester to assess attitudes as well as the enthusiasm to participate in students' extra-curricular activities (Table 8.5).

On the third week of each semester, the AAO will provide a list of students subjected to academic warning and send to the faculty. Based on the list, the AC directly works with the students and contacts with the family so that the family can get information and combine with the faculty to take measures to support students to improve learning results. [Exh.2.8.8. *List of academic alerts*]. Students who receive "academic warnings" twice in a row and the next main semester with a final grade point average of less than 1.0 will be forced to drop out of university. This regulation is informed to students from the beginning of the university year through the Student Handbook [Exh.2.8.9. *Student Handbook*].

Table 8.5 Classification for student assessment

No.	Classification of academic points			Classification of conduct points	
	Range of points	Classification	Note	Range of points	Classification
1	<1,00	Weak	Academic warning	Under 35	Weak
2	1,00 – 1,99	Below average	Academic warning	35 - 50	Below average
3	2,00 – 2,49	Average	-	50 - 65	Average
4	2,5 – 3,19	Good	-	65 - 80	Good
5	3,20 – 3,59	Very good	Scholarship	80 - 90	Very good
6	3,60 – 4,00	Excellent	Scholarship	90 - 100	Excellent

According to the university rules, after completing 136 credits, with 122 compulsory credits and 14 elective credits, the computer system of AAO will automatically notify the list of eligible students to graduate. This list is exported after each semester. After that, the list will be sent to the faculty so that the faculty will set up a committee to inspection and consider graduation. The committee is responsible for inspecting students to follow the training and completion programs of students according to the university's regulations. After that, students are granted decision and

certificate of completion of the study programme. In addition, the graduate students need to have English and informatics certificates [Exh.2.8.10. *Conditions of graduation for students*]. Graduation rates for the 2014, 2013, 2012 and 2011 cohortes are 32%, 18%, 15% and 76%. In order to reduce the rate of graduates who fail to meet the deadline, the faculty has conducted a review of the reason of late graduation due to subject debt and policy making that is appropriate for each case with a quick support goal. Help students complete the programme. Specifically as follows: For groups of subjects covered by the Basic Faculty such as Informatics, English,... Faculty gathers information on the subjects, the organization supports revision and instructions for registering exams are held monthly. For the subject group that the faculty is in charge of studying every year, after gathering the minimum number of students (> 30 students), they will organize learning, review and evaluation each semester. For subject groups that are in charge of the Faculty, but because the training programme changes, so that the students can not repay the debt, they will be assigned the equivalent subject and guide the students to evaluate the debt repayment. [Exh.2.8.11. *Announcement of subject registration, list of special classes: opening, switching*].

2.8.4. Academic advice, co-curricular activities, student competition, and other student support services are available to improve learning and employ ability

Students are consulted, supported promptly and effectively throughout the process of learning, scientific research, co-curricular activities directly through a team of advisors and manage students of the faculty and secretary, CYU, office of student affairs and other units or through the university's online website tool [<https://pdt.hcmuaf.edu.vn/>].

On the day of welcoming new students [Exh.2.8.12. *Annual new student welcome plan*], the faculty prepares documents such as overview sheet of the faculty for students to know the faculty address, organizational structure of the faculty, teaching staff, introduce academic advisors, training programs, development history, training programs, methods training, learning methods in university and some notes in the learning process [Exh.2.8.13. *FET Brochure*]. In the new student meeting, there is always a representative of the faculty board, lecturer, faculty secretary to answer and advise students [Exh.2.4.6. *Photos of meeting new students*]. Besides, during the process of studying and studying at the university, students receive the following support:

Academic counselor: Each class has an AC who is responsible for advising students on learning issues, helping them to develop learning plans for the whole course, selecting suitable subjects match each semester [Exh.2.8.5. *List of academic counselor*]. In addition, the AC will contact and guide students who have difficulty in choosing study methods, pause their study, reserve academic results or drop out of university [Exh.2.8.14. *Sample record of suspension of study, reservation of study results or withdrawal*]. In the process of studying, Faculty provide students a complete information on practice report forms, how to draft scientific research report forms, graduation thesis forms [Exh.2.8.15. *Sample reports for internships, scientific research, graduation thesis*], When students attend internship course, the course's lecturer will contact the enterprise directly and take students to practice at the facility [Exh.2.8.16. *Demonstration of internship records for students*]. Internship content assigned to lecturers in the faculty to guide students.

In the implementation of the course project, scientific research, graduation projects, after students register the topic, the Faculty leaders assigns a counselor to guide students to implement the research topic. [Exh.2.8.17. *List of lecturer assigned as counselor for internship, project, scientific research*].

Employability: Annually, the university organizes a job festival day to help students finding job positions and job opportunities [Exh.2.8.18 *Plan to organize the job festival day, Images of the job festival day*]. Opportunities/career prospects are informed to students through recruitment counseling programs, factories visit, graduation internships, job festival days. Faculty leaders have a meeting to introduce the programme, job opportunities for new students. In addition, the faculty also designed recruitment notice boards and regularly updated recruitment information on the website as well as faculty's page when businesses need to inform students who want to find jobs.

Psychological counseling and health: The university has a psychological counseling team that is always ready to listen and help students to relieve unsafe mental conditions or stress in learning and emotion on the page <http://nls.hcmuaf.edu.vn/nls-3787-2/vn/tu-van-tam-ly-hoc-duong.html>. The university has a Campus clinic with 01 Doctor who handles emergencies or mild illness. All freshmen are given a general medical examination at the beginning of the university year. The test is to provide information about the health status of students and to advise students to take care of themselves to stay in the best condition when studying at the university. All students are required to purchase health insurance to ensure their out-of-pocket expenses in the circumstances [*Exh.2.8.19: Health care*].

Financial support and scholarships: on the page <http://nls.hcmuaf.edu.vn/nls-3790-2/vn/hoc-bong-tai-tro.html>, NLU facilitates scholarships for excellent students in the semester [*Exh.2.8.20: Student scholarships and awards*]. In 2017-2018, an average of one semester of the faculty of engineering and technology will receive 30 scholarships, accounting for 2.45% of the total of 1343 students of the faculty. In addition to the incentive scholarships stipulated by the MOET, the university also has scholarship programs from other donors to support and create incentives for students with many difficulties but have consciousness rising in learning [*Exh.2.8.20: Student scholarships and awards*]. In addition to the university's scholarships, the Faculty units also have their own scholarships to encourage students of each Faculty. Moreover, the Faculty Board also regularly calls for financial support of enterprises in the field of Engineering and Technology to provide additional scholarships for outstanding students and difficult family circumstances.

Student services: In addition to the support from the university and academic advisors on academic issues, students also receive support from the Office of Student Affairs for their academic life. The office with 06 officials and employees with a spirit of youthful enthusiasm, this is the support unit to propose recommendations to the Principal to implement student policies on issues. Social topics, scholarships and tuition, commendation, discipline, advice on study, life, accommodation, employment, health, and student management in and out of the dormitory.

Housing support: The university dormitory provides accommodation for about 3887 students with 413 rooms [*Exh.2.8.21: List of students in the dormitory*]. To ensure students have a healthy living and operating environment, the dormitory also has specific rules about travel and living time [*Exh.2.8.22: Dormitory rules*].

Co-curricular activities, student competition: In addition to professional activities, to create a comfortable academic environment, the university has created playgrounds and a positive learning environment. Faculty leaders instruct staff in charge of student affairs, lecturers and interdisciplinary executive committee, student association to organize co-curricular activities [*Exh.2.4.8. Association activities*]. Co-curricular activities have gathered a large number of students to participate. Technical playground robocon, energy-saving racing playground, provincial and national science and technology innovation contest [*Exh.2.4.2. List of science and technology activities*].

In addition, the university has a physical education area and a place for cultural activities, meeting the needs of sports and cultural practice of students. Students are protected safely in the university campus with security forces. 24/24, and coordinate with local police, promptly solve issues related to security and order in the campus.

2.8.5. The physical, social and psychological environment is conducive for education and research as well as personal well-being

The campus is over 118 hectares wide and airy, with many green trees creating a beautiful and clean green landscape to help students study better. Counseling support, encouragement, guidance, help in case students have difficulties, obstacles in studying, life or personal issues to help students stabilize psychology and keep up with the progress of learning.

Physical environment: The Workshop system is arranged in a cluster to create maximum conditions for students. Table system - stone chair with spacious and airy space with many green

trees separate from the outside with a green, clean, beautiful, smoke-free environment... serving students to stay and study.

Room system of functional rooms - culture - sports: The university has a full system of playgrounds to cater to the needs of culture and sports for students: Sports Center of the University, Gym, Yoga, Library system. The bathroom system is cleaned and cleaned regularly.

Social and psychological environment: The university has set up a University Psychological Counseling Department to start operating from 2016 university year. Besides, the university also regularly organizes cultural and sports activities for students: Students' sports competitions, cultural and arts competitions, seminar, exchange music, film show at the Hall, Camp for students ... In addition, clubs / teams / groups are also diversified to serve the needs of culture and sports for students: English, martial arts, arts (guitar, bamboo flute), social work team [*Exh 2.8.23: List of clubs of NLU*].

Welfare issues: at the beginning of the academic year, students will be able to purchase health insurance and comprehensive insurance. First-year students are allowed to organize an initial health examination in the first month of university after enrollment. The university also has a Campus clinic with professional manpower and medicine cabinet for first aid.

2.9. Criterion 9 - Facilities and Infrastructure

2.9.1. The teaching and learning facilities and equipment (lecture halls, classrooms, project rooms, etc.) are adequate and updated to support education and research

The number of classrooms of the university is currently 126 rooms with a total floor area of 22,783 m² to meet the training demand of more than 5000 students/year. Including 03 lecture halls with a capacity of 200 seats/room and 18 large classrooms with capacity from 100 to 200 seats/room. On average, the total area of the total number of students reaches 1.182 m²/student, meeting the standard TCVN 3981-1985 (from 0.9 to 1.5 m²) [*Exh.2.9.1: Staff office, hall, classroom and laboratory NLU*]. The lecture halls and laboratories are equipped with modern equipment for training. Besides, the equipment is updated every year. The distribution and use of classrooms is carried out through coordination between the PMO and AAO. At the beginning of each semester, the AAO will arrange classrooms for each subject based on the number of students enrolled in the course and data on classroom space through Edusoft software [*Exh.2.9.2: Classroom arrangement*].

Currently, the number of FET's students accounts for about 1/10 of the total number of NLU's students. Due to the specific characteristics of the programme, apart from the general lecture hall of the University for theoretical lessons and basic practical modules, the Faculty has a system of working rooms for faculty's officials, and workshops for basic and specialized courses. [*Exh.2.9.3: Staff office and workshop of FET*]. The Faculty has 2 offices for leaders, 1 faculty office, 1 union office, 1 meeting room, 7 department offices and 6 working rooms for lecturers. All working rooms are equipped with internet-connected computers and printers. In addition, the department also manages 17 workshops and combines with the workshops of CAEM and CHREE to create a strong practice for FET students [*Exh.2.9.3: Staff office and workshop of FET*]. The use of the workshops are always closely monitored and recorded in Workshop diary. [*Exh.2.9.4: Workshop diary*].

For the sustainable development, the FET has developed the Development Strategy for the period 2017-2022, orientated to 2030, [*Exh.2.9.5: Development strategy of the Faculty and University*]. In addition, the FET cooperates with the university to conduct statistics, evaluation and inspection short, medium and long-term planning to upgrade facilities to meet the needs of creation, research and technology transfer every year. [*Exh.2.9.6: Workshop and equipment statistics report; Exh.2.9.7: Plan to upgrade property*]. Besides, the university conducts survey on employee, lecturers and students on the level of response of the system of classrooms, lecture halls, practice rooms and experiments of the university. The annual survey results show that the satisfaction level of related parties on facilities for teaching and learning activities reaches from 53,33% to 73,33%. After obtaining the survey results, the university considers and requests the

units to make recovery and improvement [*Exh.2.9.8: Survey results on property*]. These are the basis for the annual investment of the university on the construction of classrooms, workshops and equipment. [*Exh.2.9.7: Plan to upgrade property*]

2.9.2. The library and its resources are adequate and updated to support education and research

The library has full of books, textbooks and reference materials in Vietnamese and foreign languages to meet the requirements of staff and students. There is an electronic library with network connection that is available for teaching, learning and scientific research. The library system of NLU has an area of 6,236 m², with the number of books and textbooks stored of 19,929 (6,880 book titles). The number of book in the field of mechanical engineering is 1,714 (419 book titles) [*Exh.2.9.9: List of book titles; List of Journal*]. The library has internet, air conditioner system. The library includes a borrowing room, two reading rooms, two group study rooms and 13 computers for readers to study, search, and access the internet. To help readers use the library resources effectively, the library has regulations on borrowing and returning document. Notices and regulations of the library are widely announced to all readers through the Library website <http://elib.hcmuaf.edu.vn/> and the rules table [*Exh.2.9.11: Library regulation*].

Annually, the library collects the feedback from users to investigate the user needs and provides solution to meet this need [*Exh.2.9.11: Statistics on library use in 5 years*]. Besides, annually, the library has supplemented the number of professional and reference books according to the specific requirements of the faculties/departments based on the organization and operation regulations of the library [*Exh.2.9.12: Decision to establish organizational and operational regulations of NLU's library; Exh.2.9.13: Statistics of books ordered at the library for the period of 2014-2018*]. In addition to the number of existing books and journals, the library has focused on building electronic resources. The thesis and dissertations could be read and printed easily. Some thesis and dissertations have been digitized. The library has equipped electronic database management software Libol 5.5 since 2007 to manage the borrowings, statistics, searching documents, managing readers, cataloging documents ... The library has assigned permanent staff to assist readers in searching and exploiting documents effectively. In addition, the library regularly opens classes for readers and grant library cards. [*Exh.2.9.14: Statistics of the number of people participating in training and granting new library cards (2014-2018)*]

The library also actively registers free access to AGORA, HINARI, and OARE databases containing thousands of foreign journals and grants access accounts for readers. Besides, the library is also equipped with Proquest Central database and electronic database of Vietnamese Library Association, which are interested by many readers [*Exh.2.9.15: Statistics table and library database linkage contracts (2014-2018)*]

With the goal of continuous improvement, NLU conducts surveys on the feedback of staff, lecturers and students about the level of response of the library every year. The survey results show that most of the surveyed subjects rated the satisfaction of the library's satisfaction level. [*Exh.2.9.16: Results of survey on satisfaction of user about the library*]

Since 2018, the total number of books, textbooks and references in the field of mechanical engineering has been 1,714 [*Exh.2.9.17: Total number of references for Mechanical Engineering*]. In addition, the FET has its own library with specialized books and magazines, lectures, eBooks, videos ... in order to create the convenient conditions for lecturers and students to borrow and look up for teaching and learning and research [*Exh.2.9.18: Total number of reference at the FET library*]. Basically, the number of books, textbooks and reference materials meets the demand of staff, lecturers and students.

2.9.3. The laboratories and equipment are adequate and updated to support education and research

The university currently has 86 specialized laboratories, with a total floor area of 5,577.78 m², specializing in experiment-practice activities during training and scientific research [*Exh.2.9.1: Staff office, hall, classroom and laboratory of NLU*]. In particular, according to the characteristics

of each training programme, the University has allocated facilities and resources to FET with 17 workshops (Table 9.1) with an area of 2,146 m² and vacant areas to serve agricultural-related subjects. Besides, the FET is also supported by using the workshops of the CAEM and the CHREE with proper infrastructure and many equipment to support internships for faculty [Exh.2.9.19: Workshop statistics of CAEM and CHREE]

Table 9.1. List of workshops managed by FET

No	Name	Function
1	Electric practical room PV321	Practice
2	Mechatronics practical room	Practice /Research
3	Automobile Technology practical room	Practice /Research
4	Control Engineering and Automation practical laboratory	Practice /Research
5	Machining machinery practical laboratory	Practice
6	Cold welding practical laboratory	Practice
7	Heat Refrigeration practical laboratory	Practice
8	Mechatronics practical laboratory	Practice
9	Automobile Technology practical laboratory	Practice
10	Refrigeration practical room	Practice /Research
11	The Post-Harvest Machinery practical laboratory	Practice /Research
12	Tractor practical laboratory	Practice
13	Agricultural Machinery practical laboratory	Practice
14	Power transmission practical laboratory	Practice
15	Agricultural Machinery 2 practical laboratory	Practice /Research
16	CNC Machinery practical laboratory	Practice /Research
17	Computer room PV323	Practice

Every year, the FET and the university plan to periodically check, repair and purchase new equipment to meet the increasing demand in teaching, learning and research [Exh.2.9.20: Plan of purchasing, maintenance and checking of the facilities and equipment]. The Faculty is in conjunction with the PMO, which is responsible for managing and maintaining the quality of teaching and learning equipment. During the operating time, the laboratories, workshops and practical rooms have staff on duty to open and close doors, manage equipment, monitor the lending of teaching aids and report when incidents occur. [Exh.2.9.20: Plan of purchasing, maintenance and checking of the facilities and equipment]. Moreover, in order to use the equipment effectively, the devices have a user manual and a book to monitor the frequency of equipment usage [Exh.2.9.21: User manual and monitoring book device]. In the process of using, if there are any damaged equipment, the workshop manager may request repairs according to the university's maintenance and repair process [Exh.2.9.22: Procedures to solve the work at the PMO]. PMO is responsible for purchasing of equipment for training and scientific research in accordance with procedures, ensuring to meet the requirements proposed by the units. After completing the procedure, the PMO handed over the equipment to the unit responsible for management, ensuring efficient and proper use. Practicing workshops and internships of FET are always updated. From 2014-2019, the Faculty has updated the equipment of 7 existing workshops and has built some new workshops (CNC, Agricultural Engineering, Automobile Technology).

The University conducts the survey for staff, lecturers and students on the level of response of the university's practical and experimental rooms. After obtaining the survey results, the

University considers and requests the units to make recovery and improvement [*Exh.2.9.23: Student and lecturers results on the level of response of the equipment taught and learned*].

2.9.4. The IT facilities including e-learning infrastructure are adequate and updated to support education and research

The university has 1,428 sets of computers. In particular, computers equipped for students are 765 sets, computers equipped for officials and lecturers are 663 sets, meeting the requirements of the study, teaching and management of the university [*Exh.2.9. 24: IT facilities*]. In order to encourage learning activities, in addition to wired network, the university also has a wireless network covering all facilities, dormitories, laboratories, classrooms, lecture halls, libraries [*Exh.2.9.24: IT facilities*]. The website system of the university includes 01 main domain is www.hcmuaf.edu.vn and 55 subdomains which are electronic information pages of the units (<http://ns.hcmuaf.edu.vn/thongke/quanly.php>). All is constantly updated, ensuring the update and posting of the right information.

In 2017, the university used open source E-learning system which was customized for the university. Initially, the system has been piloted for 2 programs (Veterinary Medicine and Advanced programme of Food Technology). In 2018, this system has been upgraded and continues to be applied to the next four programs: Biotechnology, AFPPE, Agricultural Economics and Agronomy (<https://el.hcmuaf.edu.vn>). All the servers are connected to the Internet with 300Mbps bandwidth for domestic and 10Mbps for international transmission lines, currently being upgraded to higher speeds. The e-learning system is developed on Moodle open source framework, running on Centos 7.4 operating system server. This server has the following configuration: CPU: Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz Ram: 64GB HDD: 1TB. Lecturers in the faculty have updated lecture notes, videos, textbooks and exercises on the E-learning system to meet the students' self-study needs.

The university regularly upgrades infrastructure and computer systems to meet the needs of management, teaching, learning and research. At the beginning of each semester, the support staffs check the system to make sure that the software and computer are ready for use when the semester begins. Technical support staffs are available to assist in case of problems in place. In addition, the university also equipped computer room with network connection located at the library to serve free for staff and students. In order to meet the increasing demand for internet use, the University upgraded the network infrastructure in 2010 and 2011, bringing the total transmission capacity to 518 Mbps. In 2016, the University continued to upgrade the maximum bandwidth of 600 Mbps [*Exh.2.9.24: IT facilities Fiber optic internet lease contract*]. The university continuously invests in upgrading network equipment system, fully meeting the requirements of network connection LAN, WAN, and WIFI. Other informatics devices such as printers, photocopiers... are equipped by the university according to the needs and purposes of each unit [*Exh.2.9.24: IT facilities List of copyrighted software*].

Every year, NLU conducts the surveys for staffs, lecturers and students about the quality as well as the level of response of computer equipment. According to the survey, most of the surveyed subjects rated the satisfaction of informatics devices in service of teaching and learning, scientific research and management of the university [*Exh.2.9.23: Result of the surveys to the students and lecturers about the level of response of teaching and learning equipment*].

2.9.5. The standards for environment, health and safety; and access for people with special needs are defined and implemented

NLU currently manages and uses 03 lecture halls, which regularly organize cultural activities of units in the University. The Phuong Vy hall can accommodate up to 544 seats, with an area of 450m². The FET can borrow the halls to organize collective activities [*Exh.2.9.1: Staff office, hall, classroom and laboratory of NLU*]. On the other hand, with the wide and secured campus, the practice of sports, the arts of students are also organized and takes place at the campus of the lecture hall (outside of class hours). The university currently has 06 dormitories with a total

floor area of 19,700 m². The dormitory has 411 rooms with a capacity of 3518 seats [*Exh.2.9.27: Student dormitory*]. The dormitory of the University has met the standards of TCVN 3981-1985 on the area (dormitory construction land area for students is 1.2 ha/1,000SV).

Multidisciplinary sports and gym houses are invested in modern construction with a total area of 3320 m², the largest scale in universities, creating conditions for students to participate in training and competing in many kind of sport [*Exh.2.9.25: Sport facilities and activities*]. The facilities at the Arena are relatively rich (indoor soccer field, Volley ball, Badminton, table tennis ...). In addition, the University spends an area of about 18,732 m² to accommodate the outdoor sports ground for the sport events. In order to create the best environment for students to participate in physical training and, the University cooperated to invest in 06 artificial grass courts, 03 sports ground areas located within the dormitory campus (multi-field, volleyball court ...). Sports activities of students are also organized and take place in front of the lecture halls (outside university hours). With the existing field system, the university has met the living and entertained needs for the students [*Exh.2.9.25: Sport facilities and activities*].

For health care, students can participate in national health insurance according to university regulations. At the beginning of the corhortes, students are given a physical examination before enrolling. At the university, students can use medical services without charge from the Campus clinic. In addition, students can examine and treat according to the health insurance regime in Thu Duc regional hospital which is 2 km far from the university, very convenient for emergency cases when necessary. The university organizes periodic health examinations for lecturers and staff once a year by a reputable medical facility [*Exh.2.8.19: Health care*].

There is a security team to protect property, order and safety for managers, lecturers, staff and students. The university's security team consists of 19 people, is assigned a specific schedule every week according to the layout of the location and shift, ensuring 24h/24h [*Exh.2.9.26: Security and safety regulations*]. The job of planning, reporting and evaluating property protection and order safety are carried out regularly. In order to ensure the security and order of the unit, the University issued an internal regulation.

A Fire protection system team with the task of checking the implementation of compulsory fire and explosion at the units [*Exh.2.9.26: Security and safety regulations*]. In 2014, the university adjusted the functions and tasks of the Fire protection system team in accordance with the provisions of Decree 79/ND-CP dated July 31, 2014. In addition, the Fire protection system team has always informed the units in the university about the work of ensuring fire safety during peak periods. Each laboratory and lecture hall is equipped with fire protection, internal rules and troubleshooting procedures. In order to ensure safety and firefighting, the university regularly checks, replaces and repairs firefighting equipment for work, ensuring safety and promoting maximum efficiency when using. The members of the security team and the Fire protection system team have participated in professional training. In addition to ensuring safety for people in NLU, the university also established a Technical Safety Committee - labor protection with functions and duties implemented in accordance with Circular 25/TT-KHKT dated 01/12/1992 [*Exh.2.9.26: Security and safety regulations*].

2.10. Criterion 10 - Quality Enhancement

2.10.1 Stakeholders' needs and feedback serve as input to curriculum design and development

In NLU and FET, the quality improvement work is done regularly, closely and systematically to meet the needs of the stakeholders. The FET always focuses on completing and supplementing the training programme to suit the development trend in the field of mechanical engineering and the demand of the society. Based on the feedback of stakeholder, the regulations of MOET and NLU the training programs are updated/modified regularly [*Exh. 2.10.1: Feedback from stakeholders*].

The orientation of the training programme is associated with the reality production and according to social demand. Thus, the FET attaches great importance to the needs of students and the requirements of the labor market. This is an important step for the Faculty to develop and

adjust the programme according to the PDCA process. To obtain the feedback from employers and alumni, the Faculty periodically conducts surveys and organizes meetings to get the opinions from employers and alumni [Exh. 2.1.4: *Meeting minute and feedback*]. Over the years, the comments of stakeholders have been reflected in the improvement of the programme. For example, before 2014, students were not trained in the drawing skill with Solidworks software. Through the enterprise surveys, the Faculty recognizes that students must know how to draw by the software, so that, in 2014 academic years, Solidworks has been included in the programme. In addition, the programme has increased the amount of practice and practical internship at the factories in order to help students better forging the practical skills and prepare well for the job after graduation.

The soft skills are also enhanced through teaching and practicing such as doing report, presentation, professional work that are integrated into courses, and change in teaching method i.e. assessment-based rubrics, reporting, essay writing, doing projects, etc. In order to ensure the close relationship between teaching and the practical industrial, the Faculty has signed contracts and cooperated with enterprises and frequently invites employers to communicate and exchange information with the lecturers and students [Exh.2.10.2: *Minutes of cooperation agreement, photos*].

The design and development/modification of the curriculum always involve the full participation of the lecturers. After receiving feedback from students, alumni and employers, the Faculty conduct meeting to analyze, evaluate the requirements and feedbacks. Based on the requirements of the labor market, the opinions of lecturers, and the regulations of the MOET to develop the manuscript of the curriculum, the revised programme manuscript was sent to the enterprise to get the feedback opinion. After the training programme has been revised then the professional council will meet, revise and modify the programme for evaluation [Exh. 2.1.4: *Meeting minute and feedback*].

For students who are studying, the Faculty regularly meets or receives feedback through the channel of the AC. Students are surveyed about the course content, teaching and evaluating methods, facilities for teaching and learning, quality student service [Exh.2.2.8: *Feedback from students from 2014-2018*]. After one year since the student has graduated, the faculty also conduct a survey with the alumni to catch up the situation of job information and difficulties that students encountered when coming into the real work to find out how to draw experience for the next courses.

2.10.2. The curriculum design and development process is established and subjected to evaluation and enhancement

According to the rules regulated by NLU, the programme specification must be periodically revised every 2 to 4 years of operation. From 2008 to 2018, the programme has experienced several revisions. The programme version 2009 had totally 137 credits, the 2011 version of 139 credits, the 2014 version of 135 credits, and the latest 2018 version is 136 credits. The AFPPE programme is periodically reviewed and adjusted in a 4-step rule-based (PDCA)-based process and as required by the university [Exh.2.10.3: *Materials for training workshop on Curriculum Development Process according to Circular 07*]. The first step is to develop a plan to adjust and update the training programme based on the needs of stakeholders and the output plan of the programme [Plan]. The second step is to collect information, analyze and evaluate the training programs. This step includes: developing survey forms for collecting feedback from stakeholders (students, lecturers, alumni, enterprises) [Exh. 2.10.4: *Materials for updating programme*]; conducting surveys, analyzing and evaluating the feedback [Exh. 2.10.4: *Materials for updating programme*] [Do]. The third step is to evaluate the effectiveness of the training programme, compare the curriculum with that of other training programs. Evaluating whether or not the training programme meets the PLOs, training objectives and labors needs, etc, as well as predicting the impact of the programme changing [Exh.2.10.4: *Materials for updating programme*] [Check]. The final step is to write a draft version of the updated programme, then complete the training programme i.e. PLOs, contents of the programme and curriculum of all courses based on feedback from stakeholders. Organizing a meeting to discuss and decide the curriculum. Finally, the

university will approve and publish the updated training programme [*Exh.2.1.3. Decision on the promulgation of programme and PLOs from 2009 to 2018 in 2010, 2014 & 2018*] [Act].

In the process of developing, evaluating and improving the programme, the scientific council and the Faculty's leader board (Dean, vice-Dean and Head of the department) play a key role in planning, directing, evaluating, and conclusions as to suit the objectives and development orientation of university. The feedback from stakeholders is used as an input source to provide a scientific council to discuss or propose to develop or change the contents of the programme. It then forms the manuscript for the design and development of the programme. The manuscript is sent to the lecturers for comments, peer reviews. After receiving a peer review, the scientific council will continue to evaluate, adopt comments, and modify the manuscript. Finally, the manuscript was evaluated and issued by the University.

2.10.3. The teaching and learning processes and student assessment are continuously reviewed and evaluated to ensure their relevance and alignment

In order to ensure the teaching process and help students to best acquire knowledge, the evaluation of teaching quality is conducted through two main channels. First is the channel of the lecturer themselves, each lecturer in charge of the course will clearly announce the objectives, CLOs, contents, teaching and assessment methods of the course to students. After the first 2-3 weeks of study, the lecturer will conduct a test of the acquiring knowledge level. From the results, the lecturer can adjust the teaching methods to suit students' needs to meet the CLOs. The second assessment channel conducted by the Faculty through activities includes: collecting students' comments through the AC; the opinions of the students send directly to the Faculty; and the questionnaire survey to evaluate the teaching quality of the lecturer after each course at the end of the semester. As a result, the teaching and learning process is regularly evaluated throughout the process and contributes to the improvement of the content of the lesson as well as the teaching method and the way of organizing the class.

The assessment work of students' learning outcomes and ethics is publicly in the syllabus at the beginning of each semester with assessment method, weighting, and timeline. From the years 2018, the implementation of the student assessment rubric and inform the assessment rubric to students that have been implemented in many theoretical courses and all practical courses so that helps to avoid emotion in the assessment and ensure fairness and publicity. Forms of assessment and weighting are diversified according to the needs and activeness of the lecturer, meeting the objective and the CLOs of each course, including: attend classes (present and active involvement in activities required by the lecturer), individual and group assignments (in class and at home), presentations, essays, written tests, multi-choice question, projects etc. midterm exams and final exams. Examinations and evaluation are carried out in accordance with university's test rules and the MOET's regulations [*Exh.2.10.5: Regulation of NLU on exam*].

In order to ensure regular improvements in the examination and evaluation, the Faculty regularly incorporates with the QMO. To enhance the teamwork skills, presentations and writing report skills to students, the university has guided for students how to use Word and PPT to write the thesis [<https://pdt.hcmuaf.edu.vn/pdt-1385-1/vn/-quy-dinh-ve-dinh-dang-khoa-luan-tot-nghiep-new.html>]. Fully disclose the methods of testing, assessments, and criteria to help students easily and actively in learning. Survey the opinions of students with the evaluation methods, from which to timely feedback to the lecturer. The department also meets regularly, so that lecturers can exchange experiences; learn the appropriate of assessment method.

Thanks to continuous improvement and quality assurance, the teaching and learning is increasingly improved. For example, before 2016, teaching and assessment focused on hard skills, so far, the assessment has been diversified and systematized, the student not only trained the professional knowledge, but also need to have skills such as teamwork, presentation, reporting, communication, etc. All courses are published the student assessment method and CLOs to help students keep understand and meet the CLOs. Lecturers use a variety of positive teaching methods such as project, teamwork, discussion, brainstorm, etc. For practical courses, the courses are organized by the sequence of the theoretical in the previous semester and the practice in the next

semester; so far, theories and practices have been done in parallel, helping students quickly master the knowledge and easily practice the practical skills.

2.10.4 Research output is used to enhance teaching and learning

The FET is one of the faculties that have the strongest research and technology transfer in NLU. Scientific research activities have been developed with the number of research works published in national and international prestigious scientific journals and magazines. Over the past five years, the Faculty has over 100 publications in national and international scientific journals and conferences. Particularly, prominent are the 41 works published in the prestigious ISI journals (Table 6.5) [*Exh.2.10.6: List of scientific works published in journals, scientific conferences*]. The scientific research activities of the students are oriented very early. Beginning with the 3rd year of the programme, students will be encouraged and guided to participate in research activities such as doing scientific research project [*Exh.2.10.7: List of scientific research topics of the students*]. Most of the students' scientific research projects are closely linked to the tasks of training or serving industrial production or serving the community. As a result, scientific research results are applied in the teaching of practical modules or applied directly in the factories.

Moreover, in order to enhance the link between theoretical research and practical application, the Faculty continuously enhances and promotes the relationship between scientific research activities and production reality in factories. From that orientation, the research movements and transfer technology has been developed strongly both width and depth that contribute to the industrialization and modernization [*Exh.2.10.8: List of technology transfer in the recent 5 years*]. It is precisely thanks to these scientific research and technology transfer movements that have enhanced their understanding and training of professional skills for not only students but also lecturers.

The above results have proved that the Faculty has done well the combination of scientific research with real life and contributed to improving the quality of teaching and learning. Through scientific research, students are trained in skills such as analytical, critical thinking, logical thinking, and practical experience. This makes it easy for students to integrate into the work environment after graduation. Scientific research also helps lecturers improve their qualifications; also will serve the teaching activities and the premise for career advancement.

2.10.5 Quality of support services and facilities (at the library, laboratory, IT facility and student services) is subjected to evaluation and enhancement

The Faculty and University always attach importance to the role and quality of student services and the contribution of facilities to the teaching and learning process. Therefore, the quality of student services and facilities are continuously evaluated and improved. At the beginning of each academic year, Dean of Faculty always hold meetings with students to grasp students' thoughts and aspirations; timely answer questions; orient study and career opportunities for students [*Exh.2.10.9: Photos of meeting student annually*]. At the end of each semester, the Faculty collects feedback from students on the quality of teaching activities of the lecturers and assesses the facilities and quality student services.

The Faculty and University always play an important role in applying information technology in teaching, learning, and research. NLU has long been one of the pioneering universities in Vietnam that providing wireless internet infrastructure for lecturers and students (2010). The internet system is regularly upgraded to meet the increasing demands of lecturers and students. The University is also a pioneer in the use of internet systems for handling administrative work and library (2010). The system is continuously updated and completed.

Based on the survey results, the Faculty will continue to coordinate with the relevant units to find out the weaknesses, propose improvements to upgrade equipment and services for teaching and learning activities. In 2016, the faculty has built a CNC workshop which helps students to improve professional skills in accordance with the practical orientation of university. The Faculty continues to add advanced laboratories in accordance with the set schedule to update, improve the experiments and practice system [*Exh.2.9.7: Plan to upgrade property*].

The Faculty also promotes the counseling, mentoring of the AC. University has a financial support policy for lecturers and regularly adjusts to suit each stage of development. AC activity is

also standardized in accordance with the process [*Exh.2.10.10: Regulation of the academic counselor activity*], and periodically announces and disseminates the core activities.

Faculty and departments always listen to feedback from students about the quality of student services. Continually improve the performance and student service to bring the best service. For example, to serve the needs of students in the midterm and final exams, the library is open 12 hours a day, in addition, university has always implemented to expand space, supplement seats to help students have the appropriate space for study [*Exh.2.10.11: Announcement of the Library opening calendar in the examination season*]. The library will also pay special attention to the supplemental textbook, especially e-Book reference materials to meet the academic and teaching needs of lecturers and students [*Exh.2.9.13: Statistics of books ordered at the library for the period of 2014-2018*].

Along with equipping and upgrading facilities at university, the Faculty is very interested in sending students to sightseeing, practice, internship in factories. The Faculty regularly organizes visits to factories for students to get acquainted with machines and production lines [*Exh.2.10.12: Plans for sightseeing, internship, photos*]. The Faculty always seeks to increase the internship time in the factory according to the professional training programme. At present, all students have to undergo an internship with 4 months of training at the factories. The Faculty has signed contracts with enterprises to cooperate in training and practicing for students in accordance with the training and paid internship. Increasing the actual or practical work experience at the factory is the best way for students to gain practical experience, practice their knowledge, and learn machinery systems, regulations, and procedures that there is no university that can be fully equipped as it is.

In addition to gathering comments from students, Faculty and university also periodically organize the evaluation of lecturers on the facilities for teaching and working environment. The results indicate that the facilities are now basically responsive to teaching and learning, but the facilities available for research are limited; IT systems should also be enhanced in terms of quality.

10.6 The stakeholder's feedback mechanisms are systematic and subjected to evaluation and enhancement

In order to ensure and improve the quality of training, feedback from stakeholders has been systematically and periodically reviewed, continuously evaluated, and improved in terms of quality. The stakeholder feedback survey diversified conducted to maximize the convenient and conformable of each stakeholder from the online survey, direct questionnaire survey and direct dialogue organization. Based on that, the feedback from stakeholders is systematically, regularly and continuously collected; ensure that the assessment and improvement are carried out throughout. The implementation of feedback collection, evaluation and improvement are implemented in accordance with the PDCA process and focuses on improvement activities to improve the quality of training and services.

Thanks to the orientation of training attached to the production practice of the enterprise, the Faculty and university pay special attention to labor demand and labor market trends. In order to ensure that the programme is continually updated to meet the changing demands of new technologies and the society, each two years the programme is allowed to change up to 10%. With the employers, the Faculty actively organizes seminars, meetings, surveys and grasping their needs. The Faculty has signed cooperation agreements and trained students in the factories [*Exh.2.10.2: Minutes of cooperation agreement, photos; Exh.2.10.12: Plans for sightseeing, internship, and photos*]. After finishing the internship, the employers were surveyed on the quality of training, the ability to meet the workload of the students, the skills and knowledge students needed to add [*Exh.2.10.13: Internship assessment rubric*]. The internship manager is responsible for synthesizing the results, analyzing the current situation and trends, and on that basis, the Faculty's Scientific Council has a plan to develop, supplement and adjust for the next course.

In order to ensure the best service for students, the Faculty and university periodically conduct surveys students for the quality of teaching and service in each semester or each year. At the end of each semester, students are evaluated teaching quality; the survey was conducted online [*Exh.2.10.14: Survey link*]. Based on the results of the survey, the Faculty's Scientific Council will analyze and evaluate the quality of teaching in each course. The courses with many students whose

opinions are not satisfactory, the Faculty will meet with lecturers, find out the difficulties and find solutions to the problem. To keep up to date with the opinions of the students, the AC have a meeting with students frequently to grasp the situation and promptly report to the Faculty, then the Faculty give measures to handle the arising problems both in teaching and service. In addition, every academic year, Department leaders meet with students to grasp their aspirations and promptly answer their questions and requests.

Survey of graduates and alumni is also an important channel in the Faculty's quality improvement process. Every year, the Faculty organizes alumni meetings, exchanges between alumni and students [*Exh.2.10.15: Plans to meet alumni, photos*] to capture the actual needs of students, get the feedback from alumni about the training programme and help students more realistic views of work after graduation. Students who have just graduated after 12 months will be surveyed on their ability to meet work and additional skills and knowledge in the programme. In order to ensure that the links between Faculty and alumni are throughout and sustainable, the Faculty assigns personnel who are in charge of liaison alumni. Alumni contact liaison staff incorporate with the former AC to get contact information such as email, phone number, etc., frequently contact for getting the job information and promotion of the graduates, and announce of alumni meeting schedules or alumni surveys as needed.

To get information from the teaching staff, the Faculty holds monthly professional meetings. As lecturers are the direct transfer of knowledge and skills for students, lecturers are always facilitated to maximize conditions for the best teaching conditions. Lecturers are also enhanced with updated technology and are also responsible for the design of the programme and the laboratory to suit the actual requirements. Every year, university leaders also meet lecturers in the Labor Conferences to grasp the aspirations of lecturers, develop supportive policies for lecturers to do the teaching work [*Exh.2.10.16: Photos, plan, and minutes in the Labor Conferences*]. In addition, the survey of service quality, income and quality of facilities for teaching are also conducted periodically to better serve the improvement and quality assurance.

For ensuring the quality of the feedback system, every year the faculty has a meeting to update/modify the survey or feedback method to meet the requirements of stakeholders. From 2016 the feedback method has been added a new method for surveying that is the online survey system. In addition, some new content has been added to the survey such as survey on satisfaction for infrastructure, service quality.

2.11. Criterion 11 - Output

2.11.1. The pass rates and dropout rates are established, monitored and benchmarked for improvement

The pass rates and dropout rates are closely related to training quality and decided all of FET's activities. Therefore, the pass rates and dropout rates are always monitored. Annual, AAO statistics the graduating student data, the dropout/expelled student data at end of the year and reports to Board of President, the Faculty Board to monitor this data and to give timely solution. Actually, at the end of each semester or each academic year, the Dean, the vice-Dean and the head of department are provided the data of pass and dropout rates to give necessary solutions for improvement this rate at the next semester or at the next academic year. [*Exh.2.11.1: Data of pass rates, dropout rates in every year; Exh.2.11.2: FET meeting about deploying duties at the beginning of the year*].

Tables 11.1-11.2 list the pass rate and dropout rate of students for some cohorts from 2011 to 2014. It is shown that, the rate of on-time graduation is about 15% - 76%, while the dropout rate is from 8% -36%. The rate of dropout student or expelled student is decreasing. This thing demonstrates that the AFPPE programme is reasonably distributed to students. [*Exh.2.11.3: Pass rate and dropout rate*]. The reason of second year students drop out could be not adapted to the new environment and the new studying method in the first year study, which may be lead to the disappointment, the dissatisfaction. The reasons cause to dropout of university for last year student are often related to poor study result.

Table 11.1. Pass rates for 4 cohortes from 2011 to 2014

Academic year	Cohortes	Number of new students	Graduation year	Graduation rate (%)		
				3 years	4 years	>4 years
2015-2016	2011-2015	17	2015	0	76	24
2016-2017	2012-2016	33	2016	0	15	48
2017-2018	2013-2017	115	2017	0	18	23
2018-2019	2014-2018	63	2018	0	32	-

Table 11.2. Dropout rates of cohortes from 2013 to 2016

Cohortes	Class code	Number of student	Dropout rate (%)			
			2nd year	3rd year	4th year	>4th year
2013 - 2017	DH13CC	115	21	3	5	5
2014 - 2018	DH14CC	63	17	16	3	-
2015 - 2019	DH15CC	45	26	5	-	-
2016 - 2020	DH16CC	49	8	-	-	-

In the first meeting of new students, the students will be notified about the pass rates and dropout rates of previous year students. Faculty will announce the aim of pass and dropout rates applied to the new university year. By this way, the first year students will have the effort and will clearly discern the aims of Faculty.

The graduation rates and dropout rates of students studying AFPPE programme is benchmarked to those of others programs in FET including Automotive Engineering Technology (AET), Mechatronic Engineering Technology (MET) which is shown in table 11.3. It is shown that, the pass rate and dropout rate for AFPPE programme are equivalent to those of other programs.

Table 11.3. Benchmarking of pass rates and dropout rates among different programs in FET

Cohortes	On-time graduation rates (%)			Dropout rates in four years (%)		
	2012 - 2016	2013 - 2017	2014 - 2018	2013 - 2017	2014 - 2018	2015 - 2019
AFPPE	15	18	32	34	36	28
AET	45	24	8	39	35	14
MET	16	23	12	38	25	23

In order to improve the pass rates and reduce the dropout rates, the Faculty has collected feedbacks from students to identify defects, to analyze and to propose the possible solutions to improve this thing (table 11.4).

Table 11.4. Solutions to improve the graduation rates and reduce the dropout rates.

Reasons	Solutions
Students cannot register the subjects that they must study again	Open the courses in all semesters of year.
Students cannot pay tuition fee	Find the scholarship to help the poor students, the difficult students ...
Students don't know that they can be expelled from university.	Notify their academic warnings
Students don't get the necessary certifications such as: English, Informatics, etc.	Establish some professional clubs for tutoring students

2.11.2. The average time to graduate is established, monitored and benchmarked for improvement

From 2015 to 2018, the number of student spending average 4 years for graduation has increased. This proves that the training time of student is appropriate to the time of published training programme. Moreover, students can reduce learning time or extend no more than 8 years.

Table 11.5 Graduation rate for cohortes from 2011 to 2014

Cohortes	Total number of students	Graduation rate (%)		
		3 - 3,5 years	4 years	> 4 years
2011 - 2015	17	0	76	24
2012 - 2016	33	0	15	48
2013 - 2017	115	0	18	23
2014 - 2018	63	0	32	-

The data in table 11.5 shows that the rate of graduation student which is equal to 4 years is increased. The average rate is about 35%. The average graduation rate for students who study more than 4 years is around 32% which is due to some reasons such as unreasonable studying plan and studying method, doing part-time job. To resolve this problem, Faculty increase the role of academic counselors in order to consult students making a reasonable study plan, having a reasonable study method. In addition, the faculty also created many equivalent subjects for student's selection [*Exh.2.11.4: List of equivalent subjects; Exh.2.8.11: Announcement of subject registration, list of special classes: opening, switching*]. Besides, the university and the faculty also have implemented many activities to support students in difficult circumstances such as offering scholarship, tuition fee, dormitory fee, counseling psychologist. [*Exh.2.11.5: Admission requirement for Co May Dormitory; Exh.2.8.20: Student scholarships and awards*].

2.11.3. Employability of graduates is established, monitored and benchmarked for improvement

The statistical data of the survey on the employability of graduates from FET is important to assess the effectiveness of the training programme. Therefore, every year, the FET will conduct surveys for alumni. Sample surveys are compiled online and sent to them through websites, social networks or email. The results of the survey are then used to statistically show the rate of students employed within 12 months and after 12 months. From the results of the survey, the FET conducts the analysis and develops innovative methods to increase the employability rate of graduates.

Table 11.6 Employability rate of graduates

Cohortes	Within 12 months (%)	After 1 year (%)
2011-2015	75	25
2012-2017	82	18
2013-2018	87	13

The results of the survey show that in recent years the employment rate within one year has gradually increased as shown in table 11.6 [*Exh. 2.11.6: Alumni survey results*]. The table 11.6 shows that the AFPPE training programme response the great needs of society and labor market.

In order to support the job introduction for graduating students, University and Faculty regularly upload the recruitment information to website and Facebook [https://htsv.hcmuaf.edu.vn/htsv-4369-2/vn/thong_tin.html; <http://fme.hcmuaf.edu.vn/>]. Besides, by conjunction with University, Faculty organizes annual job fair, alumni meetings... to facilitate exchange between students and business to find job opportunities.

Although the graduating students employed rate is high, University and Faculty regularly try to increase this rate and that shows in the table 11.7.

Table 11.7 Solutions for improving employment rates

No	Improvement reasons	Solutions
1	There is no connection between enterprises and students.	Organize annual job fair to connect between enterprises and students.
2	Students don't have the necessary skills for a job interview and they are hesitant to connect with enterprises.	
3	Students don't have full information as well as operational areas of enterprises in their profession.	Faculty invites companies, enterprises to present at conferences, seminars...
4	Students do not clearly understand the positions that they can apply for a job.	Faculty invites the alumni to share their experiences in the same field.
5	Students are not confident enough to communicate and to demonstrate their competencies.	To expand and develop their favorite clubs.
6	Students do not have the ability to communicate in foreign languages and to use professional software	To expand and develop the foreign language clubs, to train the software manuals...

2.11.4. The types and quantity of research activities by students are established, monitored and benchmarked for improvement

The purpose of scientific research by students is to support themselves to apply scientific research methods to solve scientific and practical problems and to improve the training quality. Scientific research activities of students are encouraged and supported by University with a lot of benefits. Every year, University and Faculty have announced the registration of scientific research to all students and lectures. In recent years, the quantity and quality research increased rapidly, this thing demonstrates the research activities attract numerous students.

Students can research with lecturers on basic research topics, on ministerial research topics, or respond to scientific research topics for student. In addition, the implementation of thesis and graduate essay is also a type of research. Research aims to improve the engineering, to find managing solutions, new products and to meet the practical. The scientific research results are evaluated, accepted by the Scientific Council and published in the form of reports, seminars and professional conferences or on scientific journals [*Exh.2.4.9: Student research activities*]. At the same time, University and Faculty facilitate and encourage students to participate actively in scientific research, conferences and scientific awards ... Faculty's students have won research awards as well as scientific conference awards [*Exh.2.11.7: Scientific awards and other Scientific conference awards*]. Number of scientific research topics at University depends on learning results, targets, novelty as well as applicability of research topics.

Table 11.8 List of scientific research topics for students from 2015 to 2018

Levels	Number of scientific research topics			
	2015	2016	2017	2018
University level	12	9	6	2
at other levels	0	0	0	0

Table 11.8 shows that throughout the years, number of scientific research topics for student is decreased. In comparison with other Faculties, this number is not much different and the trend is increasing (shown in table 11.9).

Table 11.9. Number of scientific research topics for students among NLU's Faculties

Faculties	Number of research topics				Average
	2015	2016	2017	2018	
FET	12	9	6	2	7.25
Faculty of Agronomy	7	5	5	5	5.5
Faculty of Animal Science and Veterinary Medicine	1	5	1	9	4

In addition to research topics, students are also encouraged to participate in seminars, conferences which are periodically organized with the participation of enterprises, companies...

The goal is for students to update the new knowledge and technology. From that, students will begin new ideas to realize the science research. [*Exh.2.11.8: List of conference, seminar*].

2.11.5. The satisfaction levels of stakeholders are established, monitored and benchmarked for improvement

The stakeholders' level of satisfaction directly affects the quality of the university education. In order to improve satisfaction level, the NLU regularly receives feedback from stakeholders through various forms of seminars and surveys.

For staff: the university usually has employee conferences once a year. At this conference, the feedback from staff is collected and responded by the University Management Board [*Exh.2.10.16: Photos, plan, and minutes in the Labor Conferences*]. In addition, the university will conduct quarterly surveys of lecturers' and staff's opinions on the working regime, teaching hours as well as treatment levels and then send the results to all unit leaders. Typically, according to the survey, there will be less than 7% of employees are not satisfied about workload and compensation [*Exh.2.11.9: Staff survey results*].

For students: FET receives feedback by direct form through dialogues between students and faculty leaders. Moreover, the form AC receives students' feedback through class meetings, and student questions will be discussed at the faculty meetings and answered via email, social networking and follow-up class meetings to ensure the information is available to students. In addition, NLU regularly survey the level of student satisfaction with the quality of their services such as the facilities, the library, and the student affairs [*Exh.2.9.23: Result of the surveys to the students and lecturers about the level of response of teaching and learning equipment*]. Specifically, the library conducts a student satisfaction survey of library services and activities through the website and reviews the final year students for improving the quality to meet the needs of students [*Exh.2.9.16: Results of survey on satisfaction of user about the library*].

For alumni: the FET yearly runs all-day seminars for alumni to contribute to the training programme. In the seminars, all feedbacks are welcomed and seriously considered to make improvement of the FET training programme. Furthermore, the faculty conducts an online survey of the quality of university services as well as the employment situation of students after graduation.

For employers: FET are close in touch with the employers through meetings, seminars, conferences to share and discuss the training quality, satisfaction level of the labor market for graduates from FET. During the workshops, meetings, employer's suggestions will be collected by the Faculty and adjusted to improve service quality as well as training programs [*Exh.2.1.4: Meeting minute and feedback*].

PART 3. STRENGTHS AND WEAKNESSES ANALYSIS

3.1. Criterion 1: Expected learning outcomes

Strengths:

- The PLOs of the AFPPE programme is designed following the Mission and Vision of NLU.
- The PLOs of the programme are clearly formulated and reflect the needs of stakeholders
- PLOs are transferred into the curriculum and are developed through the courses, practical, internships and co-curricular activities, which assures the graduates to meet all of the PLOs.

Weaknesses:

- Survey from stakeholders were not done annually.
- The feedback of enterprises is diversified and specified, therefore the FET cannot satisfy all of them and the Faculty just chooses some common opinions for modifying.

Improvement plan:

- The feedback from stakeholders should be collected every year.
- There should be a more diverse mechanism for collecting feedback from stakeholders to reflect all stakeholders' need.

3.2 Criterion 2: Programme specification

Strengths:

- The AFPPE programme specification transfers fully the contents of the POs and PLOs and is divided into clusters to be convenient for the appreciation and management.
- The programme specification provides useful information for students and stakeholders through websites, student handbook, seminar materials, etc.
- Courses in the programme are reasonably divided into semesters to increase students' learning effectiveness, in which core courses create the solid and common background while elective courses provide deeper knowledge, but also create flexibility and specificity.

Weaknesses:

- Some students did not pay attention to the programme specification and the course specification, therefore they have a problem to fulfil the requirement of the programme.
- Due to the constant change in science and technology, the programme requires updating of advanced technologies and new discoveries to meet the labor market.

Improvement plan:

- Evaluation is performed to ensure that students attend an orientation week and well equipped themselves with the programme specification.
- Stay in touch with alumni and enterprise to keep up with advanced technology and new discoveries. Besides, we hold seminars for stakeholders to share the development of advanced technologies.

Criterion 3: Programme structure and content

Strengths:

- The programme combines the knowledge, skills, and attitudes associated with enterprises' needs.
- The programme has a variety of science and technology activities throughout the courses, from which students increase their soft skills and career skills.
- The curriculum is revised each 2-4 years through surveys and comments from stakeholders. The curriculum is structured in the direction of increasing practical for students.

Weaknesses:

- The number of social sciences credits are high and some of those courses have not attracted the attention of students.

Improvement plan:

- Improve the teaching method and content of the social science courses to attract the attention of students.

3.3 Criterion 4: Teaching and learning approach

Strengths:

- Applying modern tools in teaching.
- Lecturers enhance the group activities in the classroom and project-based learning.
- Most academic lecturers participate in both teaching and research activities with many experience years.
- Feedback on teaching and learning is did each semester to improve and upgrade teaching quality

Weaknesses:

- Some subjects in the first year are still theoretical, do not clearly show the connection with the major.
- Although many master lecturers with many teaching and research years have contributions, the programme is still lack of academic lecturers with high qualifications for high quality education and research.
- In some crowded classes without teaching assistant, some lecturers have not caught up with the teaching tools and facing the difficulty in the organization of the group.

Improvement plan:

- Time for some courses of general/basic knowledge in the first year should be reduced. In addition, the content of those courses need to be revised to show the connection with the major.
- Nominate lecturers to attend classes on the application of modern teaching tools. For the crowded classes need to have teaching assistants.

3.4 Criterion 5: Student assessment

Strengths:

- The assessment methods are diversified, exactly and fairly to all students. The assessment methods are described clearly in the course syllabus and introduced to students by lecturer in the first lecture and before the exam.
- There has been a close cooperation between lecturers and the Faculty management board in conducting student assessment.
- There have been student assessment rubrics for the experiment course, project course, and internship reports.
- There is a set of questionnaires with small grading scale.

Weaknesses:

- The examination question bank is not yet completed.
- The questions for assessment have not yet classified into the different hardness of the questions.

Improvement plan:

- Building the exam question bank to ensure the quality, unity and reliability of the exam.

3.5 Criterion 6: Academic staff quality

Strengths:

- A majority of lecturers are young and enthusiastic and graduated from developed countries such as Thailand, Australia, Korea, and Taiwan. They are passion in scientific research and have published publications on national and international journals.
- Lecturers have practical experience through technology transfer contracts.
- The NLU's policy encourages lecturers to improve their education in advanced education countries.

Weaknesses:

- Teaching staffs are master and doctor with practical experience, but the number of doctoral degrees is relatively low, so the programme lacks the academic teaching staff at a high level.
- English skills of some lectures have not meet the needs of the Faculty
- Funding for scientific research from the university and MOET are limited, not fulfil the requirement of lecturers.

Improvement plan:

- Encourage younger lecturers to improve their English, study overseas and attend international conferences.
- Encourage lecturers to find grants for scientific research from other sources such as companies or from international sources.

3.6 Criterion 7: Support staff quality

Strengths:

- The supporting staffs have appropriate qualifications, expertise, and professionalism to meet the needs of the students.
- The relationship between department members is solid and offer mutual help to solve administrative issues.
- Support activities are improved periodically through the feedback of current students and graduates.

Weaknesses:

- The number of support staff are still limited.
- The language skills of the support staff have not met the expectations.

Improvement plan:

- Increase the recruitment of qualified support staff to meet training and scientific research needs.
- Encourage the support staff to improve their English proficiency

3.7 Criterion 8: Student quality and support

Strengths:

- Student enrollment for the AFPPE programme is implemented clearly, carefully and legally. The input quality is ensured because only the most excellent students, who pass the nation examination, are qualified for the AFPPE programme.
- The consultancy activities are effective to help students understand the curriculum and achieve best study results. The academic advisors and administrative staff are able to takeover, handle and consult students and freshmen effectively.
- Active students participate in a co-curricular of social, science and technology activities, from which to improve their soft skills and professional skills. .

Weaknesses:

- ❖ Students attending the NLU come from many provinces in the country, thus they need time to adapt to the new environment.
- ❖ The difference in level in foreign language between the students in the class is relatively high.

Improvement plan:

- Enhance the organization of social and science activities for new student in order to help them quickly adapt to the new environment.
- The faculty has several methods to improve English ability of students by regularly organizing further English courses, organizing foreign language clubs

3.8 Criterion 9: Facilities and infrastructures

Strengths:

- The system of classrooms, laboratories, and libraries are appropriately equipped and are updated periodically
- The facilities and infrastructure of the university and faculty meet for teaching, learning and research.
- NLU has spacious, clean and green environment.
- The bus system provides the convenience for travelling to and from the university.

Weaknesses:

- There is no separated office for each lecturer.
- Some teaching equipment does not respond to the development of science and technology.
- The Internet is not as expected.

Improvement plan:

- The faculty has a plan to get funding from government, companies and alumni to build the new building for staff office, modern-equipped practical room and laboratory.
- Access to the Internet is not always as good as expected.

3.9 Criterion 10: Quality enhancement

Strengths:

- The programme is designed based on feedback from alumni and other stakeholders. The programme has a long history of inheritance and receiving multiple feedbacks from alumni.
- The quality assurance system at the levels of university and faculty level is well-built and operated effectively, serves the monitoring, evaluation and improvement of the programme.
- The department periodically collects feedbacks from stakeholders for enhancement of the training programme.
- The assessment rubrics are applied for enhancement of reliability and fairness.

Weaknesses:

- The number of people in the quality assurance system is limited.
- The figure of feedback from stakeholders, especially from enterprises is small.

Improvement plan:

- Improving the quality assurance system at faculty level by sending people to be trained in the field of quality assurance.
- Increasing collaboration with enterprises in order to invite them to send feedbacks for timely improving the programme.

3.10 Criterion 11: Output

Strengths:

- The number of graduates who have jobs is 100% after one year of graduation.
- Many alumni have succeeded and held important positions in private and national businesses.

Weaknesses:

- ❖ International student exchange is still limited in the programme, there have a few international students enrolled at the NLU.
- ❖ The programme has not been accredited by the international accreditation organization.

Improvement plan:

- ❖ Participate in the AUN-QA and progress to ABET
- ❖ Cooperating with international affair to exchange students with international universities.

PART 4: APPENDICES

Appendix 1: Checklist for AUN-QA Assessment at Programme Level

Criteria	1	2	3	4	5	6	7
1. Expected Learning Outcomes							
1.1. The expected learning outcomes have been clearly formulated and aligned with the vision and mission of the university.					X		
1.2. The expected learning outcomes cover both subject specific and generic (i.e. transferable) learning outcomes.					X		
1.3. The expected learning outcomes clearly reflect the requirements of the stakeholders.					X		
Overall opinion					X		
2. Programme Specification							
2.1. The information in the programme specification is comprehensive and up-to-date.					X		
2.2. The information in the course specification is comprehensive and up-to-date.					X		
2.3. The programme and course specifications are communicated and made available to the stakeholders.					X		
Overall opinion					X		
3. Programme Structure and Content							
3.1. The curriculum is designed based on constructive alignment with the expected learning outcomes.					X		
3.2. The contribution made by each course to achieve the expected learning outcomes is clear.					X		
3.3. The curriculum is logically structured, sequenced, integrated and up-to-date.					X		
Overall opinion					X		
4. Teaching and Learning Approach							
4.1. The educational philosophy is well articulated and communicated to all stakeholders.				X			
4.2. Teaching and learning activities are constructively aligned to the achievement of the expected learning outcomes				X			
4.3. Teaching and learning activities enhance life-long learning				X			
Overall opinion				X			
5. Student Assessment							
5.1. The student assessment is constructively aligned to the achievement of the expected learning outcomes.					X		
5.2. The student assessments including timelines, methods, regulations, weight distribution, rubrics and grading are explicit and communicated to students.					X		
5.3. Methods including assessment rubrics and marking schemes are used to ensure validity, reliability and fairness of student assessment.				X			
5.4. Feedback of student assessment is timely and helps to improve learning.					X		
5.5. Students have ready access to appeal procedure.					X		
Overall opinion					X		
6. Academic Staff Quality							
6.1. Academic staff planning (considering succession, promotion, re-deployment, termination, and retirement) is carried out to fulfil the needs for education, research and service.					X		
6.2. Staff-to-student ratio and workload are measured and monitored				X			

to improve the quality of education, research and service.							
6.3. Recruitment and selection criteria including ethics and academic freedom for appointment, deployment and promotion are determined and communicated.					X		
6.4. Competences of academic staff are identified and evaluated					X		
6.5. Training and developmental needs of academic staff are identified and activities are implemented to fulfil them					X		
6.6. Performance management including rewards and recognition is implemented to motivate and support education, research and service.					X		
6.7. The types and quantity of research activities by academic staff are established, monitored and benchmarked for improvement.				X			
Overall opinion					X		
7. Support Staff Quality							
7.1. Support staff planning (at the library, laboratory, IT facility and student services) is carried out to fulfil the needs for education, research and service.					X		
7.2. Recruitment and selection criteria for appointment, deployment and promotion are determined and communicated					X		
7.3. Competences of support staff are identified and evaluated					X		
7.4. Training and developmental needs of support staff are identified and activities are implemented to fulfil them.					X		
7.5. Performance management including rewards and recognition is implemented to motivate and support education, research and service.					X		
Overall opinion					X		
8. Student Quality and Support							
8.1. The student intake policy and admission criteria are defined, communicated, published, and up-to-date.						X	
8.2. The methods and criteria for the selection of students are determined and evaluated.						X	
8.3. There is an adequate monitoring system for student progress, academic performance, and workload.					X		
8.4. Academic advice, co-curricular activities, student competition, and other student support services are available to improve learning and employability.					X		
8.5. The physical, social and psychological environment is conducive for education and research as well as personal well-being.					X		
Overall opinion					X		
9. Facilities and Infrastructure							
9.1. The teaching and learning facilities and equipment (lecture halls, classrooms, project rooms, etc.) are adequate and updated to support education and research.				X			
9.2. The library and its resources are adequate and updated to support education and research.				X			
9.3. The laboratories and equipment are adequate and updated to support education and research.				X			
9.4. The IT facilities including e-learning infrastructure are adequate and updated to support education and research.				X			
9.5. The standards for environment, health and safety; and access for people with special needs are defined and implemented.					X		
Overall opinion				X			
10. Quality Enhancement							
10.1. Stakeholders' needs and feedback serve as input to curriculum					X		

design and development.							
10.2. The curriculum design and development process is established and subjected to evaluation and enhancement					X		
10.3. The teaching and learning processes and student assessment are continuously reviewed and evaluated to ensure their relevance and alignment.					X		
10.4. Research output is used to enhance teaching and learning					X		
10.5. Quality of support services and facilities (at the library, laboratory, IT facility and student services) is subjected to evaluation and enhancement.					X		
10.6. The stakeholder's feedback mechanisms are systematic and subjected to evaluation and enhancement.					X		
Overall opinion					X		
11. Output							
11.1. The pass rates and dropout rates are established, monitored and benchmarked for improvement.					X		
11.2. The average time to graduate is established, monitored and benchmarked for improvement.					X		
11.3. Employability of graduates is established, monitored and benchmarked for improvement.					X		
11.4. The types and quantity of research activities by students are established, monitored and benchmarked for improvement.					X		
11.5. The satisfaction levels of stakeholders are established, monitored and benchmarked for improvement.					X		
Overall opinion					X		
OVERALL VERDICT					X		

Appendix 2: Matrix of courses vs. Expected learning outcomes (Skills matrix)

Semester	Module	Subjects	Programme Learning outcomes (PLOs)											
			1	2	3	4	5	6	7	8	9	10	11	12
1	200101	Philosophy of Marxism and Leninism	H										S	S
	202201	General Physics 1	H	S									S	
	202202	Physics Experiments 1	H	S										S
	202501	Physical education 1*	H											S
	213603	English 1						H					S	H
	202620	Communication Skills							S			H	S	H
	207140	Engineering Mechanics: Statics and Dynamics		H				S					S	
	207240	Freshmen Orientation to Processing and Preserving Engineering											H	S
2	200201	Military training (theory)*												S
	200202	Military training (practice)*												S
	202109	Advanced Mathematics A2	H	S									S	
	202206	General Physics 2	H	S										
	202502	Physical education 2*	H											
	202622	General law	S										H	H
	213604	English 2						H					S	S
	207138	Designs in Mechanical Engineering 1		H						H				
	207141	Kinematics and Kinetics of Mechanisms		H									S	
	200102	Marxist and Leninist Political economy	H											
207113	Strength of Materials		H									S		
3	200103	Scientific socialism	H										S	
	202110	Advanced Mathematics A3	H										S	
	214103	General Informatics				H							S	
	207146	Design of Machine Elements		H						H				
	207107	Tolerance & Mechanical Measurement		H										
	207109	Electric Technique		H										
	207605	Programming Techniques				H								
	207117	AutoCAD		S		H				H				
	207615	Numerical Methods		H		S								

4	202121	Probability & Statistics	H											
	207142	Materials and Manufacturing Technology		H						H				
	207202	Fluid Mechanics		H										
	207239	Fundamentals of Heat transfer		H										
	207120	Non-Metal Materials		H						S				
	207125	Applied Informatics in Machine Design				H				H				
	207139	Designs in Mechanical Engineering 2				H				H				
	207416	Refrigeration Equipments				H					S			
	207701	Industrial Environment & Safety									S			H
	207110	Basic Electronics		H										
	200105	History of the Communist's Party of Vietnam	H											
5	207101	Design of Machine Element_ Project		H			H		S			S	S	
	207535	Fundamental of Pneumatic & Hydraulic Systems		H							S			
	207143	Manufacturing Practice 1: Material benchwork & Joining		S							H		S	
	207144	Manufacturing Practice 2: Material Remove		S							H		S	
	207145	Manufacturing Practice 3: Material Remove - CNC		S							H		S	
	207242	Farm Products and Food Processing machinery				H					S	S		
	207221	Experimental Design & Data Processing						S					H	
	207229	Heat Exchangers				H					S			
6	207251	Preserving technique of Farm Products and Food				H					S			
	207244	Project of Farm Products and Food Processing Plant design						H		H			S	
	207222	Drying Techniques				H					S			S
	207233	Fundamental of Food Engineering		S		H								

	207247	Technology and Equipments of animal Feed Producing			H					S	S	S		
	207245	Separation Machinery and Equipments			H					S				
	207246	Pneudraulic Machinery and Equipments			H					S				
	207403	Renewable Energy Techniques			H						S			
7	200107	Ho Chi Minh Ideology	H											
	208438	Project Management					H		H			H		
	207243	Maintenance Practice			S						H			
	207241	Technology and equipments for processing grains			H					S	S			
	207217	Lifting machinery			H				S	S			S	S
	207223	Internship			S		S				H	S	S	H
	207300	English for Engineering						H					S	
	207547	System Engineering				S	H		H					
8	207226	Graduation Thesis					H		H			H	H	H
	207248	Graduation Subject 1			H									
	207249	Graduation Subject 2			H									
	207231	Graduation Research Project					H		S			H	S	S

Total credits of required subjects: 122; Total credits of elective subjects: 14

S: Supportive H: Highly Supportive

Appendix 3: Curriculum flow chart

1 st Semester (17 Credits)	2 nd Semester (20 Credits)	3 rd Semester (16 Credits)	4 th Semester (19 Credits)	5 th Semester (16 Credits)	6 th Semester (16 Credits)	7 th Semester (16 Credits)	8 th Semester (10 Credits)
202201 2 General Physics 1	202206 2 General Physics 2	207109 2 Elect. Technique	207202 2 Fluid Mechanics	207535 3 Fun. of Pn. & Hy. Systems	207222 3 Drying Technology	207243 1 Maintenance Practice	***
202202 1 Physics Experiments 1*	202109 3 Adv. Mathematics A2	202110 3 Adv. Mathematics A3	207239 3 Fund. of Heat transfer	207229 3 Heat Exchangers	207233 3 Fund. of Food Eng.	207223 2 Internship	207226 (04) 10 Graduation Thesis
213603 4 English 1	213604 3 English 2	214103 3 General Informatics	202121 3 Probability & Statistics	207221 2 Exp. De. & Data Proc.	207251 3 A. Pro.&Food.Pres. tech.	207241 3 T&E for pro. grain	*
200106 3 Phil. of Marx & Leninism	207138 3 Tech. drawing 1	200103 2 Scientific socialism	207142 3 Mate. & Manu. Tech.	207101 1 De. of Ma. Ele. Project	207244 1 Project of A. Pro.& Food Processing Plant design	207217 2 Lifting machinery	207248 (04) 3 Graduation Subject 1
207104 3 Eng. Me.: Stat. and Dy.	207141 2 Kin. & Kin. of Mech.	207146 2 D. of Machine Elements	200104 2 His. of the C.P. of VN	207242 3 A. Pro.&Food pres. Mac.	207245 (03) 3 Sep. Mach. & Equip.	208438 2 Project Management	*
202504 1 Physical education 1	207113 2 Strength of Materials	207107 2 Toler. & Mech. Meas.	207139 (02) 2 Technical drawing 2	207143 2 M.Prac.1: Mater. B&W	207247 (03) 3 Tech. & Equip. of AFP	200107 2 Ho Chi Minh Ideology	207249 (04) 2 Graduation Subject 2
207204 1 Freshmen Orientation	202502 1 Physical education 2*	207605 (01) 2 Programming Techniques	207128 (02) 2 Ap. Inf. in Mach. Design	207144 1 M.Prac.2: Mater. Re.	207403 (03) 3 Renewable Energy	207547 2 System Engineering	*
202620 2 Communication Skills	202622 2 General law	207117 (01) 2 AUTOCAD	207120 (02) 2 Non-Metal Materials	207145 1 M.Prac.3: Mater. CNC.	207246 (03) 3 Pneu. Mach. & Equip.	207300 2 English for Engineering	207231 (04) 5 Grad. Research Project
	200102 2 Marx & Lenin Poli. Eco	207615 (01) 2 Numerical Methods	207416 (02) 2 Refrigeration Equipments				
	200201/201202 3/3 Military training 1&2* (summer semester)		207701 (02) 2 Industrial Envi. & Safety				
			207110 (02) 2 Basic Electronics				
					---> prerequisite Italic: elective course *: mentioned in program specification	Total number of credit: 136 Compulsory: 122 Elective: 14	Code Credit □ □ Course name

Appendix 4: Supporting documents and evidences

Criterion 1			
No	Evidence code	Exhibition title	Category
1	Exh.2.1.1	General information of NLU and FET	Document and Decision
2	Exh.2.1.2	Education Law & Regulation of MOET	Document and Decision
3	Exh.2.1.3	Decision on the promulgation of programme and PLOs from 2009 to 2018	Decision
4	Exh.2.1.4	Meeting minute and feedback	Document and Photo
5	Exh.2.1.5	Curriculum and PLOs development process	Document
Criterion 2			
No	Evidence code	Exhibition title	
6	Exh.2.2.1	Programme specification	Document
7	Exh.2.2.2	Curriculum framework - Curriculum Map	Document
8	Exh.2.2.3	Mapping CLOs to the PLOs	Document
9	Exh.2.2.4	NLU Academic Regulation	Decision
10	Exh.2.2.5	Course syllabus constructing & revision	Document
11	Exh.2.2.6	Rubric for courses assessment	Document
12	Exh.2.2.7	Procedure of developing course syllabus	Document
13	Exh.2.2.8	Feedback from students from 2014-2018	Document
14	Exh.2.2.9	Teaching plans and programme specification on websites	Document and Photo
15	Exh.2.2.10	Student Handbook	Document
Criterion 3			
No	Evidence code	Exhibition title	
16	Exh.2.3.1	Benchmarking results of the FET and other programs	Document
17	Exh.2.3.2	The response matrix of the courses to PLOs	Document
18	Exh.2.3.3	Minutes of curriculum modification	Document
Criterion 4			
No	Evidence code	Exhibition title	
19	Exh.2.4.1	Evidence on apply active learning methods	Document and Photo
20	Exh.2.4.2	List of science and technology activities	Document and Photo
21	Exh.2.4.3	Regulations of sanctioning the students violating the school rules	Document and Decision
22	Exh.2.4.4	List of students participated in exchanged programs	Document
23	Exh.2.4.5	Photo of Vision, mission, core value on website	Photo
24	Exh.2.4.6	Photos of meeting new students	Photo
25	Exh.2.4.7	List of technology transfer projects	Document
26	Exh.2.4.8	Association activities	Photo
27	Exh.2.4.9	Student research activities	Document and

			Photo
28	Exh.2.4.10	List of Student attending conferences	Document and Photo
29	Exh.2.4.11	Some bilingual courses	Document
30	Exh.2.4.12	Essay report	Document
31	Exh.2.4.13	List of graduates doing a Master and PhD programme at the Faculty or abroad	Document
32	Exh.2.4.14	List of lecturers attending pedagogical training	Document
Criterion 5			
No	Evidence code	Exhibition title	
33	Exh.2.5.1	Monitoring note, final exams and rubric	Document
34	Exh.2.5.2	Internship assessment sheet, graduation project	Document
35	Exh.2.5.3	Weekly report sheets and the Word file reviewed by the advisor	Document
36	Exh.2.5.4	Rubric for experiment courses and laboratory tests	Document
37	Exh.2.5.5	Regulations of student evaluation, Students' Behavior Assessment Rubric	Document and decision
38	Exh.2.5.6	Some rubrics	Document
39	Exh.2.5.7	Some of exams and Detail solution	Document
40	Exh.2.5.8	Minutes of forming the graduation assessment council	Document
41	Exh.2.5.9	Minutes of exam evaluation	Document
42	Exh.2.5.10	Regulations of the re-grading and Complaining procedure	Document
43	Exh.2.5.11	Teamwork evaluation rubric	Document
44	Exh.2.5.12	List of students applying re-grading the exam	Document
Criterion 6			
No	Evidence code	Exhibition title	
45	Exh.2.6.1	Human resources development plans for 5 years of Faculty: 2014-2018, and 2018-2022	Document
46	Exh.2.6.2	Recruitment plans	Document
47	Exh.2.6.3	Strategy and results in development of academic staff	Document
48	Exh.2.6.4	Postgraduate degrees of academic staff	Document and Photo
49	Exh.2.6.5	List of FET members and workloads	Document
50	Exh.2.6.6	MOET and NLU regulations for academic staff recruitment	Document and decision
51	Exh.2.6.7	Regulations for academic and supporting staff recruitment	Decision
52	Exh.2.6.8	The recruitment process of NLU	Document and decision
53	Exh.2.6.9	Decisions on doctoral allowance	Decision
54	Exh.2.6.10	The process of lecturers' titles recognition	Decision
55	Exh.2.6.11	Minutes on evaluation of freshly recruited staff after probation	Document
56	Exh.2.6.12	Activities of curriculum and teaching methods improvement	Document and Photo

57	Exh.2.6.13	Report on scientific and technological activities of FET	Document
58	Exh.2.6.14	Evaluation mode on the promotion of lecturer level	Decision
59	Exh.2.6.15	Strategy in development of FET staff	Decision
60	Exh.2.6.16	Report on the achievements of academic staff	Document
61	Exh.2.6.17	Training courses and activities for development needs of academic staff	Document
62	Exh.2.6.18	Regulation of the emulation and commendation work	Decision
63	Exh.2.6.19	The process of emulation for academic staff	Document
64	Exh.2.6.20	Decisions for rewards and honors	Decision
65	Exh.2.6.21	Decision on working regulations for academic staff	Decision
66	Exh.2.6.22	List of scientific papers from 2014-2018	Document
Criterion 7			
No	Evidence code	Exhibition title	
67	Exh.2.7.1	Decisions on developing supporting staff	Decision
68	Exh.2.7.2	Qualifications and certificates of FET staff	Photo
69	Exh.2.7.3	Training activities for supporting staff	Document
70	Exh.2.7.4	Procedure for recruitment	Document and decision
71	Exh.2.7.5	Promotion policies and decisions	Document and decision
72	Exh.2.7.6	Competences of FET support staff	Document
73	Exh.2.7.7	Financial report for training and retraining of staff	Document
74	Exh.2.7.8	Rewards of NLU president, MOET, and other organization	Document and decision
Criterion 8			
No	Evidence code	Exhibition title	
75	Exh.2.8.1	NLU student intake policy and admission criteria	Document and decision
76	Exh.2.8.2	FET student intake and quality	Document and decision
77	Exh.2.8.3	Admission channels	Document and photo
78	Exh.2.8.4	NLU's enrollment scheme is published annually in the enrollment seasons	Document
79	Exh.2.8.5	List of academic counselors	Document
80	Exh.2.8.6	FET student meeting minutes	Document
81	Exh.2.8.7	Regulations on class attendance	Document and decision
82	Exh.2.8.8	List of academic alerts	Document and decision
83	Exh.2.8.9	Student Handbook	Document
84	Exh.2.8.10	Conditions of graduation for students	Decision
85	Exh.2.8.11	Announcement of subject registration, list of special classes: opening, switching	Document
86	Exh.2.8.12	Annual new student welcome plan	Document
87	Exh.2.8.13	FET Brochure	Document

88	Exh.2.8.14	Sample record of suspension of study, reservation of study results or withdrawal	Document and decision
89	Exh.2.8.15	Sample reports for internships, scientific research, graduation thesis	Document and decision
90	Exh.2.8.16	Demonstration of internship records for students	Document and decision
91	Exh.2.8.17	List of teacher assigned as counselor for internship, project, scientific research	Document and decision
92	Exh.2.8.18	Plan to organize the job festival day, Images of the job festival day	Document and photo
93	Exh.2.8.19	Health care	Document
94	Exh.2.8.20	Student scholarships and awards	Document
95	Exh.2.8.21	List of students in the dormitory	Document
96	Exh.2.8.22	Dormitory rules	Document
97	Exh.2.8.23	List of clubs of NLU	Document
Criterion 9			
No	Evidence code	Exhibition title	
98	Exh.2.9.1	Staff office, hall, classroom and laboratory NLU	Document and photo
99	Exh.2.9.2	Classroom arrangement	Document
100	Exh.2.9.3	Staff office and workshop of FET	Document and photo
101	Exh.2.9.4	Workshop diary	Document
102	Exh.2.9.5	Development strategy of the Faculty and School	Document and photo
103	Exh.2.9.6	Workshop and equipment statistics report	Document
104	Exh.2.9.7	Plan to upgrade property	Document
105	Exh.2.9.8	Survey results on property	Document
106	Exh.2.9.9	List of book titles; List of Journal	Document
107	Exh.2.9.10	Library regulation	Document
108	Exh.2.9.11	Statistics on library use in 5 years	Document
109	Exh.2.9.12	Decision to establish organizational and operational regulations of NLU's library	Decision
110	Exh.2.9.13	Statistics of books ordered at the library for the period of 2014-2018	Document
111	Exh.2.9.14	Statistics of the number of people participating in training and granting new library cards (2014-2018)	Document
112	Exh.2.9.15	Statistics table and library database linkage contracts (2014-2018)	Document
113	Exh.2.9.16	Results of survey on satisfaction of user about the library	Document
114	Exh.2.9.17	Total number of references for Mechanical Engineering	Document
115	Exh.2.9.18	Total number of reference at the FET library	Document
116	Exh.2.9.19	Workshop statistics of CAEM and CHREE	Document
117	Exh.2.9.20	Plan of purchasing, maintenance and checking of the facilities and equipments	Document
118	Exh.2.9.21	User manual and monitoring device book	Document

119	Exh.2.9.22	Procedures to solve the work at the PMO	Document
120	Exh.2.9.23	Result of the surveys to the students and lecturers about the level of response of teaching and learning equipment	Document
121	Exh.2.9.24	IT facilities	Document
122	Exh.2.9.25	Sport facilities and activities	Document
123	Exh.2.9.26	Security and safety regulations	Document and decision
124	Exh.2.9.27	Student dormitory	Document and photo
Criterion 10			
No	Evidence code	Exhibition title	
125	Exh.2.10.1	Feedback from stakeholders	Document
126	Exh.2.10.2	Minutes of cooperation agreement, photos	Document and photo
127	Exh.2.10.3	Materials for training workshop on Curriculum Development Process according to Circular 07	Document
128	Exh.2.10.4	Materials for updating programme	Document
129	Exh.2.10.5	Regulation of NLU on exam	Document
130	Exh.2.10.6	List of scientific works published in journals, scientific conferences	Document
131	Exh.2.10.7	List of scientific research topics of the students	Document
132	Exh.2.10.8	List of technology transfer in the recent 5 years	Document
133	Exh.2.10.9	Photos of meeting student annually	Photo
134	Exh.2.10.10	Regulation of the academic counselor activity	Decision
135	Exh.2.10.11	Announcement of the Library opening calendar in the examination season	Document
136	Exh.2.10.12	Plans for sightseeing, internship, and photos	Document
137	Exh.2.10.13	Internship assessment rubric	Document
138	Exh.2.10.14	Survey link	Document
139	Exh.2.10.15	Plans to meet alumni and photos	Document and Photo
140	Exh.2.10.16	Photos, plan, and minutes in the Labor Conferences	Document and Photo
Criterion 11			
No	Evidence code	Exhibition title	
141	Exh.2.11.1	Data of pass rates, dropout rates in every year	Document
142	Exh.2.11.2	FET meeting about deploying duties at the beginning of the year	Document
143	Exh.2.11.3	Pass rate and dropout rate	Document
144	Exh.2.11.4	List of equivalent subjects	Document
145	Exh.2.11.5	Admission requirement for Co May Dormitory	Document
146	Exh.2.11.6	Alumni survey results	Document
147	Exh.2.11.7	Scientific awards and other Scientific conference awards	Document
148	Exh.2.11.8	List of conference and seminar	Document and Photo
149	Exh.2.11.9	Staff survey result	Document

