ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Nuclear Engineering
Medical Physics
Electronic Physics Technology and Informatics

Provided by
Vietnam National University Ho Chi Minh City
University of Science

Version: 26 September 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Cử nhân Kỹ thuật hạt nhân	B.Sc. in Nuclear Engineering	ASIIN		05, 13
Cử nhân Vật lý y khoa	B.Sc. in Medical Physics	ASIIN		05, 13
Cử nhân Công nghệ vật lý điện tử và tin học	B.Sc. in Electronic Physics Technology and Informatics	ASIIN		02, 05, 13
Date of the contract: 15.11.2024 **Submission of the final version of the self-assessment report:** 03.01.2025 **Date of the onsite visit:** 28.-29.05.2025 **at:** VNUHCM University of Science Campus District 5				
Expert panel: Prof. Dr. Gerhard Lindner, Coburg University of Applied Sciences and Arts Prof. Dr. Walter Neu, University of Applied Sciences Emden/Leer, University of Oldenburg Prof. Dr. Stefan Roth, RWTH Aachen University Prof. Dr. Kirsten Weide-Zaage, Leibniz University Hannover Cong Tran Huu, Industrial representative Hoang Nhut Huynh, Student at Ho Chi Minh City University of Technology				

[1] ASIIN Seal for degree programmes.

[2] TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Materials Science, Physical Technologies; TC 06 - Engineering and Management, Economics; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Forestry, Food Sciences, and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 - Physics; TC 14 - Medicine.

Representative of the ASIIN headquarter: Dr. Natalia Vega	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023 Subject-Specific Criteria of Technical Committee 02 – Electrical Engineering/Information Technology as of December 9, 2011 Subject-Specific Criteria of Technical Committee 05 – Materials Science, Physical Technologies as of September 29, 2016 Subject-Specific Criteria of Technical Committee 13 – Physics as of March 20, 2020	

B Accreditation Status

Result Overview

The most recent decision for the ASIIN Seal was made by the ASIIN Accreditation Commission on 26 September 2025.

Degree Programmes	ASIIN Seal	Validity
B.Sc. in Nuclear Engineering	Accredited with requirements	26.09.2025 – 17.10.2026
B.Sc. in Medical Physics	Accredited with requirements	26.09.2025 – 17.10.2026
B.Sc. in Electronic Physics Technology and Informatics	Accredited with requirements	26.09.2025 – 17.10.2026

Fulfilment of the Accreditation Criteria

ASIIN General Criteria / Subject-Specific Criteria	Ba Nuclear Engineering	Ba Medical Physics	Ba Electronic Physics Technology and Informatics
1 Degree programme: Concept, Content & Implementation			
1.1 Objectives and learning outcomes (intended qualification profile)	Fulfilled	Fulfilled	**Not fulfilled** Requirement A6
1.2 Title of the degree programme	Fulfilled	Fulfilled	Fulfilled
1.3 Curriculum	**Not fulfilled** Requirement A5	**Not fulfilled** Requirement A5	**Not fulfilled** Requirement A7
1.4 Admission requirements	Fulfilled	Fulfilled	Fulfilled
1.5 Workload and credits	Fulfilled	Fulfilled	**Not fulfilled** Requirement A7

ASIIN General Criteria / Subject-Specific Criteria	**Ba Nuclear Engineering**	**Ba Medical Physics**	**Ba Electronic Physics Technology and Informatics**
1.6 Didactics and teaching methodology	Fulfilled	Fulfilled	Fulfilled
2 Exams: System, Concept and Organisation			
2 Exams: System, Concept and Organisation	**Not fulfilled** Requirements A1, A2	**Not fulfilled** Requirements A1, A2	**Not fulfilled** Requirements A1, A2
3 Resources			
3.1 Staff and staff development	Fulfilled	Fulfilled	Fulfilled
3.2 Student support and student services	Fulfilled	Fulfilled	Fulfilled
3.2 Funds and equipment	Fulfilled	Fulfilled	Fulfilled
4 Transparency and Documentation			
4.1 Module descriptions	**Not fulfilled** Requirements A3, A5	**Not fulfilled** Requirements A3, A5	**Not fulfilled** Requirement A3
4.2 Diploma and Diploma Supplement	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4
4.3 Relevant rules	Fulfilled	Fulfilled	Fulfilled
5 Quality Management: Quality Assessment and Development			
5 Quality Management: Quality Assessment and Development	Fulfilled	Fulfilled	Fulfilled

Requirements

Requirements

For all degree programmes

A 1. (ASIIN 2) Implement a mandatory Bachelor´s thesis for all students.

A 2. (ASIIN 2) Rules for the compensation of disadvantages experienced by students with disabilities or special needs related to the way exams or academic achievements are assessed need to be implemented, clearly defined and made accessible to the students.

A 3. (ASIIN 4.1) All mandatory courses need to be included in the module descriptions in particular a final thesis in all programmes and the internship in the EPTI programme.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains updated learning outcomes and the classification of the degree programme with regard to the Vietnamese education system. In addition to the final mark, statistical data about the student's GPA relative to the cohort as set forth in the ECTS Users' Guide need to be included.

For the Bachelor's degree programme Nuclear Engineering and Medical Physics

A 5. (ASIIN 1.3, 4.1) The module titles need to be aligned with the module content and the descriptions of the content for each module in the module handbook need to be revised and specified, particularly for courses that share the same name and are offered in both programmes.

For the Bachelor's degree programme Electronic Physics Technology and Informatics

A 6. (ASIIN 1.1) The learning outcomes need to be reviewed to make clear that three different specializations (semiconductors, electronics and informatics) are covered by the programme.

A 7. (ASIIN 1.3, 1.5) The number of credits and the workload of the internship need to be verified and adjusted accordingly. The minimum amount of time that students should spend in the company must be clearly defined and communicated transparently.

Accreditation History

The programmes have not been previously accredited by ASIIN.

C Characteristics of the Degree Programmes

a) Name	Final degree (original/ English translation)	b) Areas of Specialization	c) Corres-ponding level of the EQF[3]	d) Mode of Study	e) Double/ Joint Degree	f) Duration	g) Credit points/ unit	h) Intake rhythm & First time of offer
Nuclear Engineering	Cử nhân / B.Sc.	Physical technologies	6	Full time	No	8 Semester	210.5-214.5 ECTS/130 CP	Annually, November 2011
Medical Physics	Cử nhân / B.Sc.	Physical technologies	6	Full time	No	8 Semester	213.5 ECTS/131 CP	Annually, May 2020
Electronic Physics Technology and Informatics	Cử nhân / B.Sc.	Physical technologies	6	Full time	No	8 Semester	214 ECTS/132 CP	Annually, July 2022

[3] EQF = The European Qualifications Framework for lifelong learning

Introduction

Viet Nam National University Ho Chi Minh City (VNUHCM) is a public research university in Ho Chi Minh City (Saigon) and is one of Vietnam's largest educational institutions. The government founded it in 1995 to establish a centre for undergraduate and postgraduate education and scientific research, adhering to high quality and innovative multidisciplinary technology. VNUHCM consists of nine office and functional departments, nine member universities and institutions, and 24 affiliates. The University of Science (US) is one of its members as an autonomous HEI, in terms of finance, training, scientific research, and the application of science and technology. The University has 10 faculties.

The Faculty of Physics and Engineering Physics (FPEP) is one of the founding faculties of the university, dating back to its establishment in 1941. The faculty is divided into eight sections: Solid State Physics, Physics and Electronic Engineering, Nuclear Physics, Theoretical Physics, Physics and Computer Science, Geophysics, Applied Physics, and Oceanology, Meteorology and Hydrology. It comprises a total of 72 lecturers and a student body of nearly 1,000 undergraduate, 100 master's and 15 doctoral students. On average, 200 students have successfully completed Bachelor's degrees, 60 have attained Master's degrees, and 10 have achieved Doctorates. VNUHCM-US submitted their self-assessment report (SAR) to review three bachelor degree programmes at this faculty. The vision and mission of FPEP are as follows:

“Vision: To become a strong training and research center in the field of physics, engineering physics in Vietnam, comparable to regional and international standards.

Mission:

- Undergraduate and postgraduate training, scientific research and technology transfer in the fields of physics and engineering physics;
- Creating elite products to meet the increasing socio-economic development requirements of the country and in line with the international development trend, integrating with the advanced higher education in the region and the world”.

For the **Bachelor’s degree Nuclear Engineering (NE)**, the institution has presented the following profile on the SAR:

“Bachelor of Science in Nuclear Engineering Programme was established in 2011 and has its first academic enrolment in 2012 by Department of Nuclear Physics, Faculty of Physics – Engineering Physics, VNUHCM-US. The Department of Nuclear Physics has a long history associated with the development of the Faculty of Physics - Engineering Physics of the VNUHCM-US. The department was first established in 1965, named Atomic Department,

and belonged to the Faculty of Sciences, University of Saigon. Subsequently, the department was renamed Department of Nuclear Physics. Since then, the Department has been playing an important role in research and education of human resources in the field of nuclear physics and its applications in the South of Vietnam. The Department of Nuclear Physics can be considered the unique major for education and training in nuclear physics and nuclear engineering.

The purpose of the program is to provide quality training programs in nuclear engineering in order to meet an increasing demand for human resources in nuclear applications in industry, agriculture and medicine. The program also especially aims to satisfy the human resource demand of the government for nuclear power plant projects at that time".

According to the website, the general objective is as follows:

"The Nuclear Engineering major provides students with basic knowledge of physics and specialized knowledge of nuclear applications in science and life; personal, social and professional skills; and ethical qualities. In particular, students are trained in skills to form thinking capacity, professional responsibility, and apply scientific and technical knowledge in production and practical life. After graduation, students have the ability to research, teach and work effectively at schools, research institutes and enterprises at home and abroad."

For the **Bachelor 's degree programme Medical Physics (MP)** the institution has presented the following profile on the SAR:

"Bachelor of Science in Medical Physics Programme was established in 2020 and developed based on the existing training strengths of the Faculty of Physics and Engineering Physics in the application of nuclear physics and nuclear engineering in medicine. This aligns with the government's strategy to promote the use of radiation energy in response to the growing demand for disease diagnosis and treatment, especially for cancer, among the population. Although the Nuclear Engineering program includes training in medical physics, establishing the Medical Physics program independently is necessary to meet the demand for qualified medical physics personnel in healthcare facilities, both in terms of quantity and quality, suitable for job positions.

The Medical Physics program aims to train graduates with solid professional knowledge, practical skills, high creativity, and excellent teamwork and communication abilities. Graduates are proficient in specialized foreign languages, possess professional ethics, and meet the country's economic development needs. The programme focuses on applying modern physics technology and techniques in disease diagnosis and treatment, particularly in cancer treatment. Bachelors of Medical Physics are equipped to perform crucial tasks in

hospitals, including equipment calibration, radiation dose calculation, treatment planning for radiotherapy, and ensuring radiation safety. They can apply modern physics knowledge to science and daily life, as well as research and advice on advanced medical equipment. Graduates are prepared to contribute significantly to the field of Medical Physics through their specialized knowledge, practical skills, and research capabilities."

For the **Bachelor's degree programme Electronic Physics Technology and Informatics (EPTI)** the institution has presented the following profile on the SAR:

"Electronic Physics Technology and Informatics is an interdisciplinary science combining physics, electronics and computer sciences. Learners are trained in basic science, physics, electronics, software, computer algorithms, etc. to apply to manufacturing semiconductor electronic components and designing electrical systems. Application electronics, development of application software and computational science on computers through connection, operation and data communication mechanisms. Bachelor of Science in Electronic Physics Technology and Informatics can work in many fields related to Physics, semiconductor chips, electronics and computers, from semiconductor component manufacturing technology, to systems design single, to integrated systems in many measurement and signal processing applications, programming of embedded systems, automation and robotics; as well as developing software, web applications, applications on mobile devices, control systems, internet of things (IoT) applications and developing scientific applications, interdisciplinary computing".

"The Bachelor of Science in Electronic Physics Technology and Informatics Programme, established in 2022, aims to train bachelors of Science in Electronic Physics Technology and Informatics with solid professional qualifications, proficient practical skills, high creativity, good teamwork, and communication skills, proficient use of specialized foreign languages, high professional ethics, and professionalism, meeting the needs of economic development of the country in the period of industrialization and modernization."

Summary

The expert panel conducted a comprehensive audit of the study programmes and found that VNUHCM-US demonstrates a strong commitment to academic quality, student support, and continuous improvement. The Self-Assessment Report (SAR) submitted by the university was found to be thoroughly prepared and provided comprehensive and detailed information. The academic staff members were commended for their high level of qualification, dedication to student support, and openness to continuous improvement and curricular development. Students expressed strong satisfaction with their respective programmes and demonstrated a high level of motivation and proficiency in English. The

programmes benefit from robust collaborations with industry stakeholders, particularly with hospitals and nuclear centres. Furthermore, the university leadership, especially the president, was recognized for fostering a supportive and progressive environment for academic development and international engagement.

Notwithstanding these strengths, the evaluation also identified several areas for improvement. Most notably, the graduation thesis should be made mandatory for all students. The descriptions of modules require revision and clarification. In addition, all compulsory courses, including internships, must be clearly documented with details on content, structure, and credit allocation. The EPTI programme would benefit from a clearer structure and more detailed articulation of its three specializations. Learning outcomes should reflect this structure explicitly. Continued engagement with industry representatives is encouraged to strengthen curriculum relevance. Moreover, the Diploma Supplement must be updated to include programme learning outcomes, student qualification profiles, academic performance, and statistical data in line with the ECTS Users' Guide.

Other recommended enhancements include the modernization of laboratory facilities, particularly in the General Physics Lab, and broader access to up-to-date scientific literature and journals. The university is also encouraged to expand opportunities for practical training and project-based learning, enhance English language proficiency among students and staff, and develop a comprehensive internationalization strategy, including the promotion of academic mobility and further expand the collaboration with international guest lecturers.

Additional considerations include the need to revise course literature, establish transparent compensation regulations for students in special life circumstances and ensure transparent communication of tuition fees prior to enrolment and eliminate additional fees for escalation of grading complains.

These findings are intended to support the University of Science, VNUHCM, in its efforts to maintain and further develop high-quality academic programmes that meet international standards and respond effectively to evolving scientific, technological, and societal needs.

D Expert Report for the ASIIN Seal

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Self-Assessment Report (SAR)
- Learning outcomes of each study programme
- Objective-module matrix of each study programme
- Interrelation Between ILOS and ASIIN SSC
- Website Physics department: https://phys.hcmus.edu.vn/
- Diploma and diploma supplement
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The objectives and learning outcomes for each programme are published on the website and contained in the diploma supplement. Furthermore, to demonstrate that the objectives align with the specified exemplary learning outcomes in the relevant SSC, the university provides an overview of the relationship between ILOS and ASIIN SSC. Furthermore, the Module Handbook details the learning outcomes of each course (CLOs), which outline the knowledge, skills and competencies that will be acquired in the course.

As stated by the university, the programme objectives and the Intended Learning Outcomes (ILOs) of each programme are deeply interconnected. The ILOs are formulated based on the view of classifying educational goals according to the thinking scale of Bloom. They are developed with the involvement of the Faculty's Scientific Council, experts, lecturers, employers, and alumni. In addition, the learning outcomes for each module are prepared by the course instructor and undergo peer review by the Faculty Council.

In the SAR, the university presents the results of a satisfaction survey in terms of learning outcomes for the following groups: users, alumni, lecturers and students. With regard to the **NE Bachelor programme**, the results indicate that the programme exhibits a strong

alignment with social needs and has been successful in delivering fundamental and in-depth knowledge. However, there were improvements noted in foreign language and teamwork skills, and fluctuations in aspects such as job readiness. The **MP Bachelor programme** has been met with high levels of satisfaction from both lecturers and students, indicating a strong alignment with the Intended Learning Outcomes (ILOs). Regarding the **EPTI Bachelor programme**, the university has indicated that the inaugural cohort for this programme is scheduled to graduate in 2026. Subsequent to this, a tracer study will be conducted by the study programme. Furthermore, the majority of stakeholders concur that the present study programme's ILOs at the Faculty has satisfied the requirements of employers and the labour market. Nevertheless, the surveys reveal that each major should consider reviewing the curriculum with additional content and subjects, as well as specific skills, to further enhance the quality of training.

In terms of career opportunities, the SAR states that graduates from the NE programme are qualified to work at companies in a variety of fields, including non-destructive testing, food irradiation, nuclear instruments, medical equipment, environmental monitoring, equipment calibration, sample analysis, radiation safety, and more. Teaching and research represent other viable career options for them. They are also able to secure managerial positions in ministries, departments and agencies with a focus on Science & Technology. They may choose to continue studying a master's programme or start a business.

Following data on the employment status of **NE programme** graduates were obtained from the annual report on the study and employment status of students submitted to the Ministry of Education and Training by the university:

Year	Employment Situation					Working Area			
	Employed (%)			Continuing Higher Education (%)	Unemployed (%)	State-owned (%)	Private (%)	Self-Employment (%)	Foreign-Involved (%)
	Relevant to Major	Related to Major	Not Related to Major						
2020	22.22	5.56	27.78	38.89	5.56	6.67	73.33	0	20
2021	41.18	11.76	29.41	11.76	5.88	21.43	35.71	7.14	35.71
2022	35.29	5.88	47.06	5.88	5.88	13.33	53.33	13.33	20
2023	42.86	33.33	14.29	0	9.52	15.79	73.68	5.26	5.26

According to these data, in 2023, 42.86% of **NE** graduates found employment relevant to their major, 33.33% was continuing higher education and there are no graduate continuing higher education. The unemployed rate increase to 9.52%. Overall, the data show that

nuclear engineering graduates are increasingly favouring private sector roles and foreign-involved companies, reflecting broader industry trends and potentially more lucrative opportunities within these sectors.

Graduates in Bachelor **MP** are able to work as medical physicists, researchers, or technical specialists in radiation oncology, diagnostic imaging, or nuclear medicine departments and to pursue careers in universities, research institutes, hospitals, clinics, and medical equipment companies. They also can continue their education in Master's level in Medical Physics or related fields.

EPTI graduates are equipped with the necessary qualifications to pursue roles within companies specialising in semiconductor electronics manufacturing, electronics, and information technology. They are also eligible for positions in laboratories, national research facilities, materials science centres, and analysis centres at universities and research institutes. There are a number of job opportunities available, including teaching undergraduate and graduate degrees, as well as working as a manager in ministries, departments or agencies related to science and technology. They could also continue postgraduate programmes or accumulate their own experience to start a business.

During the on-site discussions, the experts raise questions regarding the outcomes of the alumni satisfaction surveys, which indicate that 80% of respondents are job-ready and that 50% of graduate positions align with their field of study. The experts also inquire about the initiatives undertaken by the university authorities to enhance these results. The rectorate states that they organise industry sessions on an annual basis in order to integrate industry needs and to encourage the involvement of industry in teaching. Furthermore, they collect students' feedback for making improvements through satisfaction surveys. With regard to the career opportunities for graduates of the programmes under review, the rectorate representatives emphasise that 20-30% of students continue to pursue a master's degree.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The expert panel concludes that the objectives and learning outcomes of the degree programmes are described briefly and concisely. They are transparently anchored and published on the programmes' web pages and are thus available to students, lecturers and interested third parties. In the opinion of the experts, the objectives and learning outcomes reflect the targeted academic qualification level, are feasible and equivalent to the relevant exemplary learning outcomes specified in the applicable SSC (academic classification). The intended competence profile further represents the level of qualification according to the European Qualifications Framework. The experts further remark that the relevance of the objectives and learning outcomes are reviewed on a

regular basis involving relevant stakeholders and considering the demand on the labour market and the society. The continuous student and module surveys suggest a satisfying achievement of the intended competence profiles. The thorough and transparent surveys of the modules and the facilities, the student workloads and satisfaction and the students' progress gives the impression that the programmes are running without major problems. The experts further state that the qualifications are clearly presented in the diploma and the diploma supplements. Nevertheless, the experts are of the opinion that for the **EPTI programme,** the learning outcomes need to be revised to make clear that three different specializations (semiconductors, electronics and informatics) are covered by the programme.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Diploma and diploma supplement
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The names of the three bachelor study programmes under review are regulated by the Decision of Vietnam National University Ho Chi Minh City and regulated by Vietnam's Ministry of Education and Training. In the opinion of the VNUHCM-US, these are also reflecting the international current standards.

During the discussions on-site, the programme coordinators explain the name of the programme "Electronic Physics Technology and Informatics". The programme should have an interdisciplinary focus highlighting physics and applications in informatics and semiconductors. They emphasise that the key difference with IT and informatics programmes is the strong grounding in physics fundamentals. A solid grasp of physics is essential for the development of technologies, including those in the field of electronics.

The expert panel agree that the names of the three bachelor's programmes accurately reflect their intended aims and learning outcomes. The programme names are well recognised in both English and Vietnamese, and are consistent with the main course language of each programme. In addition, they are used consistently in all relevant documents and on the website.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report (SAR)
- Objective-module matrix of each study programme
- Website Physics department: https://phys.hcmus.edu.vn/
- Study Plan for each programme
- Module Handbook for each programme
- Cooperation Agreements
- Students satisfaction surveys results
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Content and structure

The university provides study plan, module handbook as well as an objective-module matrix for each programme. As stated in the SAR, the curricula are designed following the Vietnamese Qualifications Framework 2017 (VQF) and the Law of Higher Education (revised and amended in 2019).

All Bachelor programmes under review are four-year programmes (8 semesters) upon completion of which graduates are awarded a Bachelor of Sciences (B.Sc.). In the module handbook, the requirements and recommended prerequisites for joining the respective modules are also formulated to ensure that students have the necessary knowledge and skills to progress to more advanced modules. After completing the specialized phase and successfully defending their graduation thesis, students are likely to graduate within the standard period of study.

The **Bachelor programme Nuclear Engineering (NE)** is worth 130-131 credits (210.5-214.5). Of the 130-131 credits (≈210.5-214.5 ECTS) of the study programme, 39.2% are general education, 23.1% fundamental, 30.0% professional education and 7.7% graduating works. General education is delivered during the first three semesters and includes compulsory and elective basic courses in political theory, law, social science, economics, mathematics, natural sciences and technology. Courses in computer science, language and national defence are not included in the GPA, but rather in terms of accumulated credits. The professional education block comprises fundamental modules in the fourth and fifth semesters. Students learn the specific fundamentals of their chosen field of study. In the sixth and seventh semester, students can choose one specialisation which includes both mandatory and elective courses. There are three specialisation options available: Nuclear

Engineering, Nuclear Energy and Power, and Medical Physics. Students can choose six credits (two to three modules) from the electives included within each specialisation. For that, they are guided by academic counsellors who take a personalised approach to ensure that each student's strengths and interests are met.

The **BSc programme Medical Physics (MP)** was established in 2020 and is focused on radiation techniques for disease diagnosis and treatment; the first cohort graduated in 2024. The programme is almost completely identical with the specialization Medical Physics of the programme Nuclear Engineering – the only differences occur in the first semester with a course “Introduction to Medical Physics” and within the optional modules, where the students of Medical Physics may choose up to two courses on Biomedical topics not available to Nuclear Engineering students (among them Biomedical Electronics, Biomedical Physis, Equipment and Technical Procedures in Diagnostic Imaging). A total of 131 credits are required to successfully complete the programme. The programme's structure is comparable to that of the NE programme. Of the 131 credits of the study programme, 40% are general education knowledge, 26.4% fundamental physics knowledge, and 24.6%-29.6% specialised education knowledge.

The **Bachelor’s programme Electronic Physics Technology and Informatics (EPTI)** encompasses 132 credits and is also structured in three knowledge blocks: general education (48 credits or 75 ECTS), professional education including fundamentals (38 credits or 62 ECTS) and specialization (36 credits or 57 ECTS) and graduating works (10 credits or 20 ECTS). Students can select 18 credits in elective courses (6-7 courses), following advice from their academic counsellors. In the second year of study, students have the opportunity to participate in field trips. During these visits, companies often present information about their working conditions, facilities, and culture, which helps students to understand more about their future careers and to gain first-hand insights into the operations, market positioning, target customers and hiring requirements of a major company within an industrial park.

According to the SAR, an internship is also included in the **NE** programme. It provides students with hands-on experience in real-world settings, such as Dalat nuclear research reactors, research facilities, hospitals, or regulatory agencies. During these placements, students apply theoretical knowledge to practical tasks, such as monitoring safety protocols, conducting experiments, or participating in nuclear radiation emergency response activities. The graduation thesis, on the other hand, focuses on developing students' research capabilities. In the SAR, internships are also mentioned for **MP** which are conducted in hospitals and provide students with hands-on experience in medical imaging, radiation therapy, and dosimetry, bridging theoretical knowledge with clinical practice.

Given that internships are not included in the module handbooks or curriculum overview of **NE** and **MP,** during the course of the discussions, the experts seek to clarify the organisation of internships in these programmes, and whether credits can be earned. From some additional documents submitted by the university after the on-site visit, the experts learn that the term “internship” seem to be used rather for practical training and individual activities outside the university such as short-term (1 day) excursions to hospitals, external lectures and laboratory exercises in hospitals or a nuclear research center and work on graduation thesis projects outside the university. These activities are part of some modules included in the study programmes. Inclusion of practical activities in individual courses is considered appropriate by the experts as it provides students with hands-on experience. However, the term “internship” seems to be not adequate, because it usually comprises an individual long-term (e.g. more than one month) stay in a professional environment, where typical tasks of engineers are to be fulfilled under permanent supervision of an experienced mentor. The experts recommend that the term 'internship' should be avoided in the above-mentioned context to prevent misunderstandings. It is advisable to use terms such as “practical training” instead. For instance, "external practical training" or "excursion" should also be specified in the teaching methods and included in the respective module descriptions such as in NTE10117 (Tour to Nuclear Technique) or MPH10108 (Physics of Radiotherapy). Furthermore, this should also be mentioned in relation to the objectives and content of the module.

In contrast, the **EPTI programme** includes a formal internship in the 7th semester which is offered as an optional course of the specialisation phase with 2 credits to be earned (PHY10614). According to the module handbook, the expected workload of the internship is in total 120 hours including 60 hours of contact time and 60 hours of private study. However, the total duration of the internship is not specified there. According to the SAR, the internship generally spans between six and eight weeks. The process begins with students preparing their CVs and applying for internships, often with faculty assistance to match students with suitable opportunities. The extended duration of internships allows students to gain a comprehensive understanding of the workplace and its demands, potentially leading to job opportunities post-graduation. The experts observe that, based on the internship review forms submitted 2024, periods between two and five months are considered to be more appropriate. For the summer of 2025, 10 companies are offering a total of 55 internships, which should be sufficient to accommodate up to 26 applicants for this optional module.

During the discussions, the experts raise the question of whether modules with identical names in both the **NE and MP programmes** offer equivalent content and are attended by students from both programmes concurrently. The programme coordinators clarify that

there are distinct courses for each study programme. Although some modules have similar names and content, their application orientation differs depending on the programme. This procedure is confirmed by both students and teachers. However, the experts note that this cannot be deduced from the module descriptions, which contain the same general content for similar modules in both programmes.

The students interviewed are very satisfied with the curriculum and the order in which the courses are taught. They learn the fundamentals in the first years, after which they move on to more advanced topics and practical applications. They believe that the electives offered are sufficient and are organised into different groups very well. **EPTI** students wish for more English practice and communication training. Moreover, the students from all the programmes would like to see a greater emphasis on practical exercises in the classroom, since they feel that the focus on theory is very high.

Student mobility

Both the **NE and MP programmes** have established scientific research cooperation and lecturer-student exchange programmes with a number of foreign universities. Partner institutions include Osaka University, Kyushu University, KEK (Japan), National Central University, Chang Gung University, Dong Hwa University (Taiwan), LNE-LNHB (France), and the University of Saskatchewan (Canada). The university has signed MOUs with Chang Gung University in Taiwan and Osaka University in Japan to promote educational and research collaborations between institutions. There are short-term exchange programmes such as the Sakura Science Exchange Programme, the Taiwan Experience Education Programme (TEEP), and individual exchange programmes funded by foreign professors and laboratories. These programmes range from one week to several months (three to six months), along with more advanced programmes. Furthermore, the programme curriculum is designed such that graduates can efficiently pursue MSc or PhD degrees at foreign universities.

For **EPTI programme**, there is also collaboration with international institutions such as National Chi Nan Univ., National Tsing Hua Univ., National Chung Hsing University, (Taiwan); Hanyang Univ., ChungNam National Univ. (Korea); Univ. of Tasmania and Univ. of Bialystok (Poland).

Many students have pursued higher education at the MSc or PhD level at partner universities after participating in these exchange programmes. The Sakura Science Exchange Program provides consistent annual sponsorship for many of the lecturers and students (2–4 students and 1 lecturer as a mentor per year) to study radiation measurement techniques at universities in Japan. Furthermore, the university organises and participates in international classes and summer schools, including:

- International School on Real-time Systems, Ho Chi Minh City, Vietnam (18-26/7/2016)
- International School on Nuclear and Related Analytical Techniques for the Life Science (9/12 – 13/12/2018)
- International School on Real-time Systems, Kuala Lumpur, Malaysia (10-15/11/2019)
- 24th IEEE Real Time Conference, ICISE, Quy Nhon, Vietnam (22-26/4/2024)
- International School on Advanced Topics in Medical Imaging (12-19/8/2025).

In order to foster international mobility through exchange programmes and partnerships, the university and faculty provide robust support services to ensure the success of participating students. The faculty is responsible for announcing cooperation programmes and international classes to students, ensuring that they are well-informed about available opportunities. In addition, the faculty is responsible for the management of the application process and selection of suitable students to participate in these programmes. The faculty has a rigorous selection process in place to ensure that only the most qualified and motivated students are chosen to represent the university. The Office of External Relations serves as the primary contact point for receiving information and coordinating international collaborations.

The students interviewed indicate that the university has programmes and scholarship offers to go abroad: If you meet the requirements for the scholarship, then you can do that. Otherwise, it is too expensive. There are also several exchange programmes opportunities. They emphasize that the lecturers are very supportive, encourage them to go abroad and support them. On the Website, social media as well as through notifications per email, they get enough information about these offers.

Periodic Review of the Curriculum

As stated in the SAR, the curricula are subject to periodic review every two years by the Scientific and Academic Committee (SAC) of the faculty, based on feedback from stakeholder surveys. The results will be documented in the Minutes of the SAC Meeting on Curriculum Updates.

A stakeholder survey on the curriculum structure of all programmes under review is conducted. This survey assesses whether the modules meet the required academic and practical standards. It also examines the interconnections between the modules. These relationships are further discussed and evaluated during the Faculty Council meetings to ensure a seamless and logical progression in students' learning experiences. The survey data highlights key trends in satisfaction rates among lecturers and students.

The **BSc programme NE** is the oldest of the three programmes, running already since 2012 with several revisions in the meantime. Its curriculum was last updated in 2022, following a review of stakeholder feedback gathered during the University of Natural Sciences' recruitment project in Ho Chi Minh City. The update aimed to enhance the curriculum and boost enrolment in subjects that had been challenging to attract students in recent years. For instance, a section on Professional Responsibility was added to the specific objectives, and the syllabus for some courses was revised to align with the program's learning outcomes. Additionally, a new module has been added to the curriculum: Equipment and Technical Procedures in Diagnostic Imaging.

The **BSc programme Electronic Physics Technology and Informatics (EPTI)** is the youngest study programme of the faculty, which started in 2022 and attracts since then the largest number of beginner students. Since up to now no graduates have completed their studies, their success on the labour market cannot be judged quantitatively up to now. However, many companies participated in the design of the curriculum, which aims at professional careers in semiconductor manufacturing, electronics and information technology.

In their summative evaluation of the curriculum, the ASIIN expert team comes to the following conclusions:

Overall, the experts conclude that the curricula of all programmes under review are well structured and enable students to achieve the intended learning outcomes. The electives offered provide opportunities for individual focus. In the module handbooks, learning outcomes for each module are clearly defined. The experts confirm that all programmes under review have a curriculum that is periodically reviewed, revised, and updated in an appropriate manner, with all relevant stakeholders being integrated. Furthermore, VNUHCM-US and the respective programmes under evaluation promote international student mobility and academic exchange through different cooperation and exchange activities and provide adequate support and information for students.

Nevertheless, they conclude that the description of the modules in both **NE and MP** need to be revised and specified, especially for the courses with the same name that are offered in both programmes Practical activities such as excursions or visit of external institutions integrated in respective courses should be specified in the information about teaching methods and in relation to the objectives and content in the module handbook(see also below **4.1**). In addition, the number of credits and the workload of the internship in **EPTI** need to be verified and adjusted accordingly (see below **1.5**). The experts recommend that a minimum and, in the case of part-time, a maximum duration of time spent in the company for the internships be clearly defined and transparently communicated to students. Based on the students' feedback, the experts are of the opinion that, for all programmes under

review, the theoretical education should be complemented by enhancing the practical extent of the courses. Strategies should also be developed to facilitate the undertaking of project work initiated by students and related to their respective study programmes. In addition, it should be ensured that students are given additional chances to practice English communication and improve English fluency. Furthermore, the experts encourage the university to continue involving beneficial input from industry stakeholders in the development of the curriculum of the **EPTI programme**.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report (SAR)
- Admission Regulation VNUHCM
- Admission brochure of Faculty of Physics and Engineering Physics
- Study Handbook academic year 2023-2024 (Summary Translation)
- Website Physics department: https://phys.hcmus.edu.vn/
- Discussion during the audit

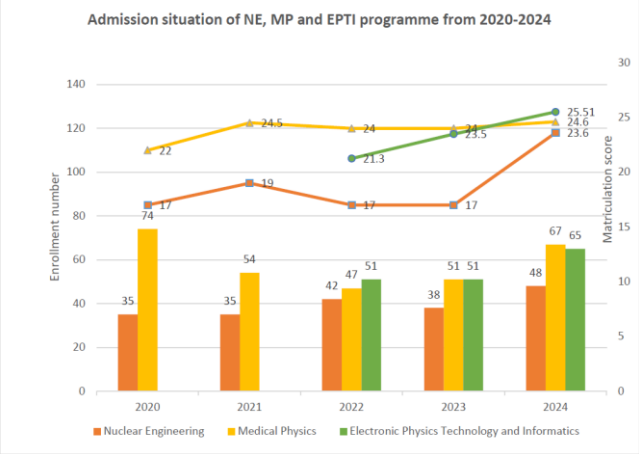
Preliminary assessment and analysis of the experts:
According to the SAR, there are six admission paths at HCMUS:

1) **Priority admission according to regulations of the Ministry of Education and Training** (accounting for 1-5% of total enrolment quota) applies to individuals who have one of the following titles or awards: labour hero, military hero, national emulation fighter, national excellent student, international excellent student, national science and technology award, international science and technology award. In addition, it also applies to candidates who are ethnic minorities or live and study at high schools in poor districts on the border or islands.
2) **Priority admission according to regulations of VNUHCM** (accounting for 1-5% of total enrolment quota) applies to candidates in the group of five students with the highest average score (of 3 years from grade 10 to grade 12) in high school and with good academic performance and good conduct. A letter of recommendation from the principal of the high school is required.
3) **Admission based on high school graduation exam results** (accounting for 33-52% of total enrolment quota).
4) **Admission based on the results of the competency assessment exam organized by VNUHCM** (accounting for 45-55% of the total enrolment quota).

5) **Admission based on academic results of international high school** (1-2% of total enrolment quota): Candidates are admitted from high to low based on the average learning results of the last 3 years of high school and TOEFL or IELTS test scores.
6) **Admission based on the results of international language certificates combined with high school academic performance** (8-20% of total enrolment quota).

Candidates can directly apply for admission to the **NE and MP programmes**. In contrast, the **EPTI programme** has a joint admission process with the Physics group. After being accepted for Physics, candidates can apply for transfer to the Electronic Physics Technology and Informatics programme if they wish. The faculty will base its decision on the training quota and the number of applications received to determine an appropriate cut-off score.

The university provides data on matriculation scores for all programmes during the period 2022-2024. As following figure shows, the programmes have gradually enhanced their appeal, leading to higher matriculation scores, especially in 2024 and improved attendance rates, indicating a positive trajectory in attracting capable students:



Regarding recognition rules, the study handbook includes following regulations:

1. “Students who have passed or have a passing score for a module at another University, if they want to apply for an exemption from that module, they must apply the application with confirmation of the syllabus content, number of periods, number of credits, and module grades to submit to the VNUHCM-US at the beginning of the semester.
2. VNUHCM-US will consider recognizing and transferring credits based on comparing learning outcomes, learning content and students' workload, module assessment methods and quality assurance conditions. If approved, the exempted module will have the grade that the student has achieved at another University with the word

reservation. In case the specific score is not determined, the exempted module will have a grade denoted M (grade M).

3. Reserved grades and exempted grades (M) are not included in the semester grade point average (GPA) and cumulative GPA.
4. Recognized and transferred maximum volume does not exceed 25% of the minimum learning volume of the study programme".

In their summative evaluation of the curriculum, the ASIIN expert team comes to the following conclusions:

The admission rules are published on the university's website and provide potential students with detailed information on the requirements and steps necessary to apply for admission to the programmes. As they are based on official regulations, the experts consider them to be binding and transparent. They confirm that the admission requirements support students in achieving the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Study Plan for each programme
- Module Handbook for each programme
- Students' survey results
- Statistical data about the progress of studies
- Study regulation
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The university uses a credit system, known as the Vietnamese Qualifications Framework awarding credit points and is aligned with the intended learning outcomes (ILOs) and learning activities of each course to ensure students have adequate time to achieve the desired competencies. According to the SAR, this framework stipulates:

- one theoretical credit is equal to 15 periods in class with 30 self-study hours
- one practical/ experiment/assignment/ internship credit is equivalent to 30 periods in class with 30 self-study hours
- 50 minutes with lecture in class for each period

The university employs following conversion to the ECTS credits:

- one theoretical credit = 1.5 ECTS
- one practical/ experiment/assignment/ internship credit = 2.0 ECTS

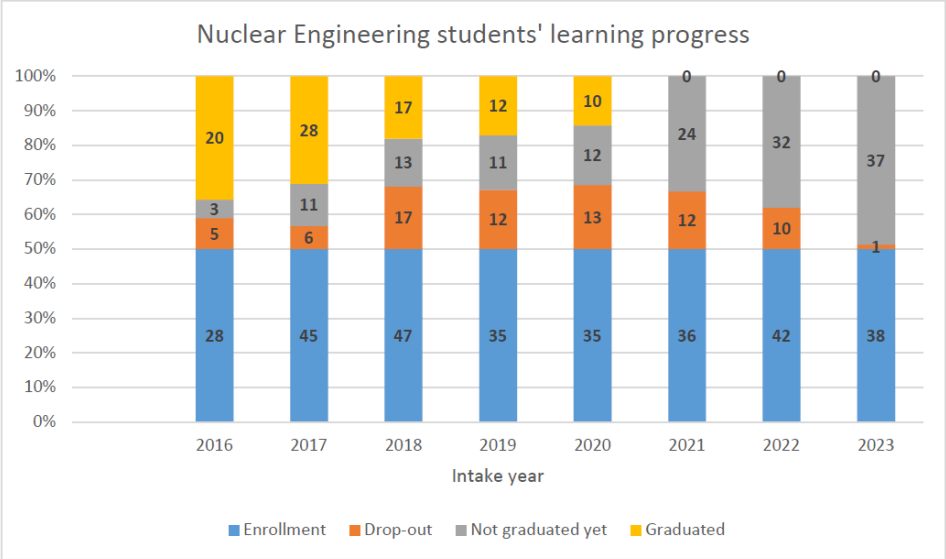
The Bachelor's programmes under review follow a credit-based system spread over eight semesters (four academic years). Each year consists of two main 15-week semesters, with an optional six-week summer semester for students to retake courses or expedite their studies.

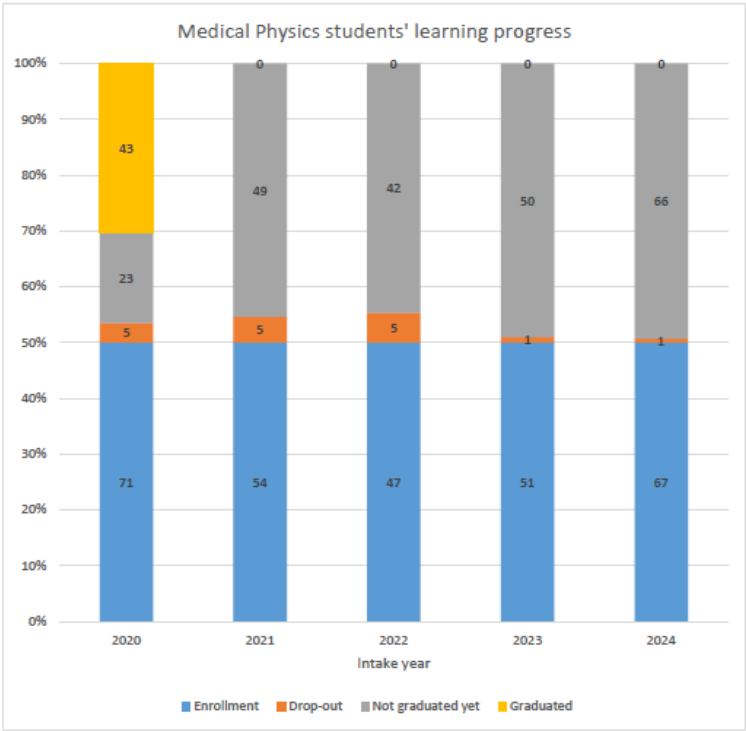
The **NE programme** is worth 130-131 credits (210.5-214.5). Of the 130-131 credits (≈210.5-214.5 ECTS) of the study programme, 39.2% are general education, 23.1% fundamental, 30.0% professional education and 7.7% graduating works. **MP programme**'s structure is comparable to that of the NE programme. Of the 131 credits of the study programme, 40% are general education knowledge, 26.4% fundamental physics knowledge, and 24.6%-29.6% specialised education knowledge. The Bachelor's programme EPTI encompasses 132 credits and is also structured in three knowledge blocks: general education (48 credits or 75 ECTS), professional education including fundamentals (38 credits or 62 ECTS) and specialization (36 credits or 57 ECTS) and graduating works (10 credits or 20 ECTS). Students can select 18 credits in elective courses (6-7 courses), following advice from their academic counsellors.

As stated in the SAR, students' performance is continuously assessed through GPA and cumulative GPA, while competence indicators track their overall progress. The Scientific Councils evaluate credits for each module based on student workload. At the beginning of each course, lecturers explain the workload. Surveys conducted by the Office of Quality Assurance gather feedback from students, lecturers, advisors, and alumni, which is reported to the Scientific Council for curriculum adjustments.

A newly introduced metric in 2024, evaluating the allocation of course workload per semester, received a strong satisfaction rate of 85.71% for **NE**, 83% for **MP**, reflecting a positive reception from students.

For **NE and MP programmes**, data on enrolment, dropout rates, and graduation ratios over recent years are provided.





For **NE**, these data reflect a pattern of rising dropout rates and decreasing graduation. For instance, in 2019, 35 students enrolled, with a dropout rate of 34.29%, and only 12 students graduating, leaving 11 still in progress. Similarly, in 2020, 35 students enrolled, but the dropout rate rose to 37.14%, resulting in only 10 graduates, with 12 still in progress. The university attributes as reasons for this decline in graduation rates not only to the challenges posed by the pandemic—such as remote learning difficulties and disruptions—but also to the increased English proficiency requirements, which may have hindered student progress. Regarding graduation time, the recent cohorts (2019 and 2020) are making slightly better progress toward graduating within the standard timeframe of four

years. In contrast, **MP programme** shows a strong graduation rate and overall low dropout rates indicating good retention.

The **EPTI programme** has no graduates yet. For the 2022 cohort, 49 out of 51 students (96.08%) are still in progress, while two students (3.92%) have dropped out. Similarly, the 2023 cohort has 50 out of 51 students (98.04%) still continuing their studies, with a very low dropout rate of 1.96% (1 student). These results indicate strong retention rates for both cohorts, with the vast majority of students actively pursuing their studies. However, further evaluation will be required in the coming years to assess graduation outcomes.

The experts discuss the dropout data for the NE programme. The programme coordinators explained that some of these students changed their programme of study or entered the industry. The experts also asked about the reasons for the lower dropout rate in MP compared to NE. The programme coordinators believe that, for many NE students, the transition from school to university has been challenging. In some cases, they note that the study programme is not adequate for them. Financial issues and mental health problems are also often cited as reasons. They emphasise that the programme provides full support to students, and academic advisors support students with academic issues. They are very satisfied with the fact that MP students are more motivated and dedicated than others.

The interviewed students consider the workload of their programme to be adequate, allowing them to participate in extracurricular activities and enjoy free time.

As mentioned above in Criterion **1.3**, the **EPTI programme** includes an internship in the 7th semester which is offered as an optional course of the specialisation phase with 2 credits (4 ECTS) to be earned (PHY10614). According to the module handbook, the expected workload of the internship is in total 120 hours including 60 hours of contact time and 60 hours of private study. However, the total duration of the internship is not clearly specified. According to the SAR, the internship generally span between six and eight weeks.

In their summative evaluation of the curriculum, the ASIIN expert team comes to the following conclusions:

The experts confirm that the credit system used by VNUHCM-US is based on the student workload and conclude that the estimated workload is mostly realistic and transparently anchored, as confirmed by students, and that the workload is regularly monitored. However, the number of credits and the workload of the internship in **EPTI** need to be verified and adjusted to a realistic value, since eight weeks in a company is not in accordance with 60 contact hours or 2 credits (4 ECTS). The experts recommend that a minimum and, in the case of part-time, a maximum duration of time spent in the company has to be clearly defined and transparently communicated to students.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Module Handbook for each programme
- Students' satisfaction survey results
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The study programmes under review apply a diverse and learner-centred didactic approach, deeply rooted in Outcome-Based Education (OBE) principles. According to the SAR, these programmes are designed to foster the development of both technical competencies and essential soft skills through a balanced combination of lectures, seminars, practical laboratory sessions, project work, and internships.

Teaching methods emphasize active learning, aiming to stimulate critical thinking, creativity, teamwork, and problem-solving abilities. For instance, methods such as project-based learning, group discussions, and experimental learning are widely implemented across modules. The integration of theory and practice is ensured through the inclusion of hands-on laboratory work, particularly in courses that relate to applied physics, medical imaging, nuclear instrumentation, and electronics.

In addition, learning is also supported through digital tools, e-learning platforms, and simulation software that allow students to better visualize and experiment with complex physical systems and technical scenarios.

Student satisfaction surveys demonstrate high levels of approval regarding the relevance and effectiveness of the teaching methodologies. For example, satisfaction rates in 2023 reached over 90% for key components such as content delivery, learning materials, and interactive engagement. Lecturers actively participate in pedagogical training to stay updated with modern teaching methods and education technology, further contributing to continuous improvement.

During the course of the discussions, the experts address the use of AI in the courses and the handling of tools such as ChatGPT. The lecturers explain that they provide guidance to students on how to utilise tools such as ChatGPT efficiently in problem-solving, enhancing skills and identifying effective solutions.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts appreciate the diversity of teaching methods and believe that they ensure that the course objectives and the overall intended learning outcomes are achieved. However, they suggest that the university should consider incorporating a recommendation on the use of AI in courses and in thesis work e.g. a one page document to give a guideline for the students how they should use AI and how not.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:

VNUHCM-US has submitted the revised learning outcomes for the EPTI programme and clarifies that these revisions will be sent to the Committees of the Faculty of Physics and Engineering Physics for approval. The experts acknowledge this revision and conclude that the **EPTI** learning outcomes meet the required standards and are aligned with the three specialisations offered (semiconductors, electronics, and informatics). However, the sentence structure of ILO1, ILO2 and ILO3 should be revised and the profound knowledge in physics which forms the basis for these specialisations should be mentioned – e.g. in ILO1: "Ability to apply basic mathematics, science and in particular basic and advanced knowledge in physics to solve problems related to semiconductors, electronics and informatics, respectively". Moreover, since these new learning outcomes have not yet been approved, experts have decided to maintain the requirement.

In addition, the university provides updated module handbooks for the programmes **MP and NE**. The experts revised the descriptions of modules, but there were still some modules with the same code and the same name, which were offered both in the NE and MP programmes for example MPH 10108 Physics of Radiotherapy, MPH 10109 Physics of Nuclear Medicine, MPH10111Fundamental Practice in Medical Physics and MPH 10112 Advanced Practice for Medical Physics. Their descriptions in the module handbooks are completely identical, including the Vietnamese credits. There are only differences in the ETCS credits of the modules MPH 10108 (5 cp in MP, 6.5 cp in NE) and MPH 10111(4 cp in MP, 6 cp in NE). It is not clear, whether there is common or separate teaching for the MP and NE student cohorts in these courses and it is not understandable why students from these two cohorts will earn different ECTS credits, but the same Vietnamese credits.

It was claimed that several fundamental courses have been updated with additional practical credits to enhance students' understanding of theoretical concepts and that it is also planned to introduce more mini-projects in some courses. The experts appreciate these approaches, but which courses are intended has to be specified. Practical components are already part of the teaching methods of modules PHY10008 (lab works 30

hrs), NTE 10102 (laboratory 30 hrs), NTE 10105 (exercise), NTE 10108 (exercise) and NTE 10115 (lab work, 60 hrs), but projects are not yet mentioned in the teaching methods of the revised module descriptions. Only in PHY 10008, projects seem to be part of the examination forms. Regarding additional opportunities to practise English communication, the university states that students are encouraged to prepare and deliver presentations in English for several courses. Furthermore, the university supports activities such as academic clubs and an English club. It also provides opportunities to participate in classes and seminars conducted by international professors. The experts appreciate these measures and encourage VNUHCM-US to further increase the practical component of the courses and give students more opportunities to practice English communication and improve their language skills.

The university states that the duration of the internship included in the EPTI programme will be clearly defined and communicated to both students and the company. Although internships are typically 6–8 weeks (100–120 hours/4 ECTS), this is arranged flexibly by the company during discussions with students. According to the university, this information is presented clearly in the company internship document. Nevertheless, the faculty recommends longer internships, as students will learn more in a real-life setting and gain a better understanding of their future careers. The experts appreciate these explanations, but it remains unclear, why a duration of 6 weeks of a full-time internship would comprise only 100 hours of work or 4 ECTS. A 6 week full-time intern adds up to 240 hours of work and thus 8 ECTS. In addition, it should be explained, how the internship at the company and the lectures at the university will be organized i.e. does the internship take place during the break between semesters or during the lecture period on lecture-free days. The corresponding requirement should remain in place until these questions are answered and the description of the corresponding module PHY10614 in the EPTI programme has been revised accordingly.

VNUHCM-US describes some initiatives to improve the internationalization of their programmes as well as lecturers' English competence. The experts value the measures initiated and the strategy for the future. They encourage the university to continue to strengthen the internationalization of the programmes under review and provide more support for international mobility of the teaching staff as well as more exchange and cooperation with foreign institutions and lecturers.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report (SAR)
- Study Plan for each programme
- Module Handbook for each programme
- Study regulation
- Examination regulations
- Samples of graded exams and final projects
- Statistical data about the progress of studies
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The examination system across the three programmes evaluated combines continuous assessments and final examinations to ensure both formative and summative evaluation of learning outcomes.

Each course defines its own examination format, typically blending written exams, laboratory reports, presentations, midterms, and practical assessments. The assessment methods of courses are included in the Module Handbook for each module. Most modules use a written exam for the final assessment. In addition to mid-term and final exams, small classes at the specialisation stage use other learning assessments, such as course-specific seminars (discussions, essays and presentations). For practical modules, students are required to participate fully in hands-on experiments in laboratories.

The exams organisation is regulated by established institutional guidelines, ensuring fairness, transparency, and consistency. The examination for different classes of the same module is organised at the same time and includes the same test. Instructors are required to submit final grades no later than two weeks after the examination. The course grades are published on the website of the Office of Educational Testing and Quality Assurance and transferred to the student portal system.

Following table shows the grading system used at VNUHCM-US:

10-point scale	4-point scale	Grade	Classification	Study result
9.0 to 10.0	4.0	A+	Excellent	Pass
8.0 - below 9.0	3.5	A	Very good	Pass
7.0 - below 8.0	3.0	B+	Good	Pass
6.0 - below 7.0	2.5	B	Fairly good	Pass
5.0 - below 6.0	2.0	C	Average	Pass
4.0 - below 5.0	1.5	D+	Weak	Fail
3.0 - below 4.0	1.0	D	Poor	Fail
Less than 3.0	0.0	F	Poor	Fail

The weighting of different assessment components is distributed as follows:

Type of modules	Performance assessment	Weighting percentage
Theoretical modules	Ongoing assessment	20% - 30%
	Mid-term test	20% - 30%
	Final exam	50% - 60%
Project modules (mini-project, internship report)	Ongoing assessment	30%
	Supervisor assessment	30%
	Committee assessment	40%
Graduation thesis	Reviewer's assessment	30%
	Supervisor assessment	30%
	Committee assessment	40%

During the meetings with the rectorate, the experts inquired about the rules for make-up exams, non-attendance, and cases of illness as well as compensation of disadvantages in the case of students with disabilities or special needs (e.g. pregnancy, childcare, caring for relatives, restrictions due to medical reasons, dyslexia and ADHD). The rector explains that in the event that students are unable to take the exam due to unexpected circumstances that are deemed legitimate (e.g. illness, accident, unexpected difficult circumstances), they will be considered for exam postponement (see Article 12 of the VNUHCM-US academic regulation). On the website, examination retaking and student grade appeals are announced. In case of failure of the course, students must take the course again in accordance with the university's academic regulations (Article 4).

As stated in the SAR, the results of the students' satisfaction survey to gather feedback on the examination retake and appeals processes showed that students were satisfied with the seriousness, objectivity, accuracy, fairness, transparency and appropriateness of these processes. All assessed aspects received a consistent satisfaction rating of 94.44%.

During the on-site discussions, the students state that the number of exams and assignments is manageable. They report that they receive information regarding the

examination in a timely manner and that the organisation and distribution of the exams is adequate. They also feel that they have enough time to prepare for their exams.

Final Thesis

According to the SAR, students typically undertake their thesis in the final semester, during which they are required to independently conduct a research or application-based project under the supervision of a faculty member. The thesis topic is chosen to address a real-world problem within the student's specialisation, such as nuclear reactor modelling, medical imaging system development, or advanced electronic systems. However, as stated in the SAR, starting from the 2023 enrolment cohort, in addition to the graduation thesis, students have the option of replacing it with a graduation examination and seminar.

According to the study plan provided, the three bachelor's programmes under review include two different options in the eighth semester for accumulating 10 credits (equivalent to 20 ECTS). **NE** students can choose either a graduation thesis (10 credits) or three additional modules: Nuclear Engineering (3 credits), Problems in Nuclear Engineering Simulation (3 credits), and a Graduation Seminar (4 credits). In the **MP programme**, option 1 is a graduation thesis, while option 2 comprises the Medical Physics modules (3 credits), Simulation of Problems in Medical Physics (3 credits), and a Graduation Seminar (4 credits). The **EPTI programme** also offers two options: a graduation thesis or a graduation project (6 credits) and a specialised seminar (4 credits). Thus, although a graduation thesis is present in the study plan, this module seems to be not mandatory.

The VNUHCM-US study regulation stipulates the following with regard to the final thesis:

"At the beginning of the last semester of the course, based on the student's wishes and regulations of the Faculty in charge of training, the Faculty Council considers and makes the list of students allowed to take part in graduation project or graduation thesis/graduation internship/ graduation project thesis (hereinafter referred to as the graduation thesis) as follows:

a) Do a graduation thesis that has a total volume of 10 credits.
b) Do a graduation project and study some career-oriented specialization modules that have a total volume of 10 credits.
c) Choosing some career-oriented specialization modules with a total amount of 10 credits as prescribed by the study programme.
d) Conditions for making a thesis or graduation project are based on the following criteria:
    - The cumulative point average of the course.
    - Other criteria as prescribed by the Faculty in charge of training".

The final thesis process includes the submission of a written report, an oral defence before an academic committee, and a formal grading process based on established rubrics. The evaluation criteria encompass technical content, originality, methodological rigor, practical relevance, and communication skills. The thesis is a vital component in demonstrating the students' readiness for either professional practice or further academic pursuit.

During the discussions, the experts seek to clarify how the procedure with the two options instead of a mandatory thesis works. The programme coordinators explain that an alternative option is available for students who do not meet the criteria for completing a graduation thesis, which is to accumulate credits from extra courses. In the event of students not meeting the requirements (e.g. the English language proficiency requirement) or being unable to dedicate sufficient time to working on their thesis, they are required to complete some seminars. They emphasise that all students have the capacity to complete the thesis and actively encourage them to do so. According to the university, statistics generally indicate that approximately 80% of students complete a graduation thesis, while 20% of students undertake a graduation project.

Additionally, after the on-site visit, the university provides additional documents which evidence that there are different procedures and requirements for each study programme depending of the cohort year:

- In **MP**, for the 2020, 2021 cohorts, there were three graduation courses: Medical Physics (3 credits), Simulation of problems in Medical Physics (3 credits), Graduation Seminar (4 credits). Since 2022, there are two options either thesis (10 credits) or graduation project (6 credits) and specialized seminar (4 credits). However, if students meet the requirements, thesis is still prioritized.
- For NE, it is explained that, in 2020, three graduation courses were also included: Nuclear Engineering (3 credits), Simulation of problems in Nuclear Engineering (3 credits), Graduation Seminar (4 credits), while during the years 2021 and 2022, there was only a thesis. In 2023 and 2024, the programme comprises a graduation project (6 credits) and a specialized seminar (4 credits).
- As **EPTI** only has 3rd year students, there is no announcement about the decision on the thesis. The Faculty will update the announcements when available.

In order to prevent students who have failed too many courses from being required to write a thesis only to abandon it halfway through and not be able to defend it, the faculty has established the following regulations on completing a graduation thesis or project:

STT	Criteria	Conditions for undertaking graduation thesis	Conditions for graduation examination
1	Grade Point Average (GPA)	GPA ≥ 6.0	GPA ≥ 5.0
2	Number of outstanding course credits (including courses in the curriculum that have not yet been registered)	Not owing more than 06 credits	Not owing more than 15 credits
3	By the current semester, must have registered for all specialized courses	Registered for all specialized courses	Allowed to be missing 1-2 specialized courses
4	English standard	Students must pass 4 English courses or possess an English certificate meeting the output standard as regulated	Students must pass 4 English courses or possess an English certificate meeting the output standard as regulated

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts examine samples of examinations and graduation thesis submitted by the programmes under review. According to them, the documents show that the level of the students' academic performance and the content of the modules are adequate for the programmes concerned. The graduation theses are of a very high standard and show that students are able to work independently. The experts confirm that the students have the opportunity to consult their lecturers about the results of their exams. Furthermore, it is regularly reviewed whether the exams can adequately determine the achievement of the learning objectives, whether the requirements are appropriate to the level of the degree programme, and whether students have sufficient time for preparing and conducting the exams. They also consider that the number and distribution of examinations ensure an appropriate workload and sufficient time for preparation.

However, the information provided by the university regarding the graduation thesis seems to be contradictory and is unclear for the experts. As outlined in the study plans submitted by the university for the accreditation process, **NE and MP** still include the three modules as option 2 along the graduation thesis. Additionally, it should be noted that these modules are not included in the module handbook. In any case, the experts reach the conclusion that the graduation thesis needs to be mandatory for all students and included in the module descriptions (see below **4.1**). All students are expected to demonstrate their ability

to work independently at the intended level of their degree programme. Furthermore, English language needs not to be a requirement for a thesis.

In addition, the experts conclude that rules for the compensation of disadvantages experienced by students with disabilities or special needs (e.g. pregnancy, childcare, caring for relatives) need to be implemented, clearly defined and made accessible to the students.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:

Regarding the final thesis in MP and NE, according to VNUHCM-US, 'option 2' will be removed from the upcoming curriculum update to ensure clarity. A description of the compulsory graduation thesis has been added to the updated module handbooks. Furthermore, the university has clarified that students are not required to write their thesis in English. They must only meet the university's English proficiency requirements for graduation, either by completing the necessary English courses or by providing a valid certificate. This ensures that they have the ability to access and utilise international reference materials for their thesis research. The experts acknowledge these statements and reiterate the need for the thesis to be compulsory for all students and for no other alternatives to be offered. Since this change has not yet been implemented, the current requirement for the final thesis remains in place.

Regulations and policies to support students with disabilities or special needs are established and, according to the university have been widely communicated to students during each orientation session before enrolment and are published on the website. This includes exemption for tuition fees and scholarships. The experts welcome this support programmes. However, they were unable to locate any regulations that would allow for the adjustment of exams or academic achievements for disabled students or students with special needs (e.g. pregnancy, childcare, caring for relatives, restrictions due to medical reasons, etc.). Such regulations are generally adapted to suit the specific circumstances, including time and deadline extensions, the use of technical aids, the provision of a separate examination room, and adjustments to examination performance. The procedure to apply for this type of compensation needs to be formally documented, for instance in the examination regulations, and made available to students. For these reasons, this requirement is maintained

3. Resources

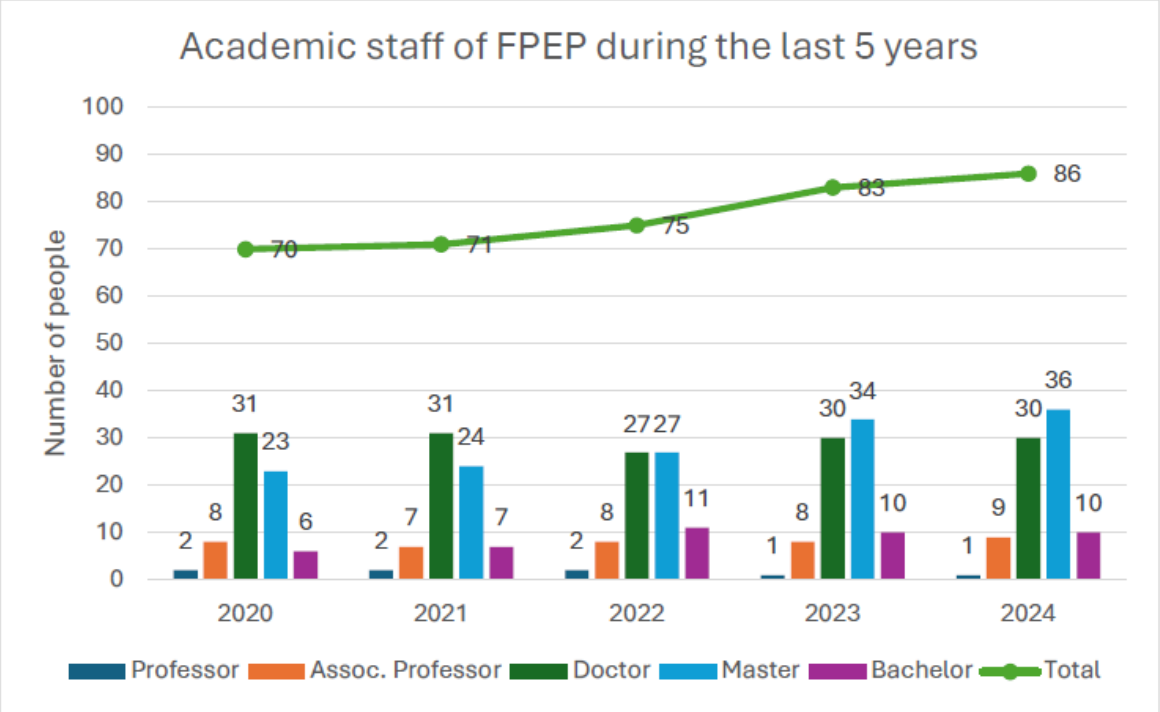
Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Staff Handbook
- Module Handbook for each programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The Faculty of Physics - Engineering Physics currently has 86 staff members, the positions and qualifications of whom are shown in the following table:



According to the SAR, the staff plan is evaluated annually to update personnel changes due to retirements and long-term study abroad, ensuring that the lecturer-to-student ratio meets the required standards. The student-lecturer ratio for 2024 was 16.4.

The university also provides opportunities for lecturers to have dedicated time for scientific research, to attend conferences and to participate in training courses to enhance teaching methods and apply technology in teaching. During the period from 2020 to the end of 2024, the faculty's staff carried out many scientific research projects with different funding

sources and published in international and national recognized scientific journals. In addition, the staff also actively participates in specialized scientific committees.

In order to avoid overloading lecturers, the university has set standard teaching hours for its academic staff (300 hours per year). These hours are distributed reasonably across the lecturer base and ensure that teaching hours are balanced among all members of staff. Furthermore, should the teaching load exceed 500 hours per year, the remuneration for teaching will be reduced with a view to discouraging lecturers from taking on excessive responsibility, which could lead to overload. Lecturers who assume extra responsibilities outside of teaching duties will have their teaching hours reduced accordingly. For classes with more than 50 students, teaching assistants will be allocated to support the main lecturer.

The University and its faculties provide support for faculty members seeking to pursue higher training at PhD level, either domestically or internationally. This support includes maintaining their employment status during their absence if they are travelling abroad. In addition, the university covers 100% of tuition fees for lecturers pursuing a master's or doctoral degree. The faculty has, currently, 18 doctoral candidates, 3 master's students studying domestically, and 1 doctoral candidate and 1 master's student studying abroad.

Faculty members are encouraged to conduct short-term research visits in the country and abroad. Attendance at scientific conferences is subject to financial support. The faculties themselves also regularly organise scientific seminars and conferences, creating favourable conditions for the faculty's lecturers to update their expertise. In 2020, the university and its faculties organised training sessions for lecturers on online teaching. These sessions helped them to develop new teaching capabilities.

The experts ask the rectorate whether it is a strategy to reduce lecturers' teaching loads and to increase administrative support to enhance teaching quality and research output. As the rector explains, it is a challenge for the university to ensure the quality of the training due to the total number of students (20-50 students per class). Consequently, there is a necessity to open additional classes. Recruitment of additional lecturers is challenging. However, they do try to attract PhD holders. The university has recently embarked on a significant project to recruit young PhD holders to return to Vietnam and take up positions within the institution. The objective of this programme is to increase the number of teaching staff.

The lecturers are satisfied with the university's commitment to supporting their professional development. Furthermore, they emphasise that there are numerous funding options for research initiatives in the field of science and technology available from both

the university and the national research institution (NAFOSTED). However, they wish more support to go abroad.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The composition and academic orientation of the teaching staff are appropriate for the successful implementation and sustainability of the three programmes under review. The university and the faculty support their staff and provide adequate opportunities for professional and pedagogical development. However, the experts conclude that additional chances for students and staff to practice English communication and to improve English fluency should be offered. Furthermore, they recommend to develop an internationalization strategy e.g. inviting more international guest lecturers and providing more support for staff mobility.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Students' satisfaction survey results
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The university offers academic advising activities that cover the entire learning process and support efficient learning for students. A number of offices and staff members provide support for student activities, including the Student Affairs Office, the Academic Affairs Office, the Student Assistance Centre, the Communist Youth Union, academic advisors and teaching assistants.

Each year, faculty members organise a range of activities to support students and prepare them for their future professional careers including orientation programmes for new students, additional training courses, soft-skills seminars, and knowledge competitions. Along with the University's scholarships for high-achieving students, the faculty is also the recipient of scholarship funding from various companies, businesses and the alumni association.

The survey results indicate a high level of satisfaction among students regarding the support provided by faculty staff. Notably, 100% satisfaction rate was achieved in several

key areas, including the prompt resolution of inquiries, timely feedback and suggestions, and the provision of counselling, career guidance, and job orientation.

During the meetings with the rectorate, the experts inquired about the university's support mechanisms for students facing challenges due to disabilities or unique life circumstances, including dyslexia, ADHD, and pregnancy. They explain that in the event that students are unable to take the exam due to unexpected circumstances, they will be considered for exam postponement (see above Criterion **2**). In addition, tuition exemptions are in place for students with disabilities, learning difficulties such as dyslexia, students from disadvantaged socio-economic backgrounds, and those who are pregnant or raising children under 36 months of age. The university emphasises that students from ethnic minorities or with disabilities may receive scholarships covering up to 100% of tuition and additional learning tool support. Female students from disadvantaged financial backgrounds and those with strong academic records are eligible for scholarships specifically designed for them. Moreover, scholarships are provided for students facing challenging life circumstances who are not eligible for state tuition exemptions. These are issued per semester and deducted directly from tuition fees. Students in specific, less popular majors (such as Nuclear Engineering, Geophysics, Marine Science, and Environmental Engineering) may be eligible for full or partial tuition scholarships.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts note that students feel well supported by the university and their lecturers. They also believe that their needs and interests are taken seriously. Students are well informed about the services available to them. The experts consider the guidance and mentoring system to be adequate.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report (SAR)
- Strategic plan
- Website Physics department: https://phys.hcmus.edu.vn/
- Cooperation Agreements
- Students and lecturers satisfaction surveys results
- Discussion during the audit

Preliminary assessment and analysis of the experts:

VNUHCM-US provides an overview of the funding allocated for the strategic objectives between 2021 and 2025. In addition, the university has emphasised that investments to upgrade and enhance equipment during the 2025–2030 period will be received. These investments will support training and research in laboratories for the Nuclear Engineering and Medical Physics programmes. Furthermore, it is expected that during 2025–2026, the university will be considered for the approval of an additional project to invest in a laboratory aimed at enhancing teaching and research capacity in the fields of nuclear power, nuclear engineering, and medical physics, with a budget of 100 billion VND.

With regard to facilities, the University boasts two campuses in District 5 (Campus 1) and Thu Duc City (Campus 2). The university has a total of 116 classrooms and three lecture halls at both campuses. These are fully equipped with projectors, boards and sound systems. The library offers a wide variety of resources including books, journals, academic publications, scientific reports and e-books. The library's collection currently includes a wide range of books and journals relevant to teaching and research, as well as research articles from various subject areas, including Earth Sciences. In addition, the libraries at two campuses are equipped with computer systems connected to the internet. Students can connect and read resources online. There is also a central library of VNUHCM.

Currently, the Faculty of Physics and Engineering Physics has 10 laboratories and two collaborative laboratories for both teaching and research. During the on-site visit, the experts visit the two campuses and inspect the university's facilities, library, computer rooms and several laboratories. They visit among others following labs: General Physics I and II, Optics and Photonics, Vacuum Physics, General Nuclear Physics, Specialized Nuclear Physics, Nuclear Technique, Computer, Solid-State Physics and Specialized Physics and Electronics Engineering.

With regard to collaboration, the university provides evidence for international cooperation agreements as well as agreement with national entities for students' trainings. For example, the programmes collaborate with the oncology hospital. There is also collaboration with several international institutions. The Nuclear Engineering programme had several scientific research cooperation and lecturer-student exchange programmes with foreign universities such as Osaka University, Kyushu University, KEK (Japan), National Central University, Chang Gung University, Dong Hwa University (Taiwan), LNE-LNHB (France), and the University of Saskatchewan (Canada). The university has signed MOUs with Chang Gung University in Taiwan and Osaka University in Japan to promote educational and research collaborations between institutions. There are short-term exchange programs such as Sakura Science Exchange Program, Taiwan Experience

Education Program (TEEP), and individual exchange programs funded by foreign professors/laboratories.

During the discussions, the students indicate that the laboratories would benefit from more modern equipment and tools, as well as the inclusion of robotics. Furthermore, they report experiencing restricted access to the laboratories. The lecturers would also like to have more equipment in the labs and think that collaboration with other institutions to share equipment is a good option.

In an additional meeting, the experts ask the institutions' management about the projects and plan investments for equipment. The university's' president explains that a project has been initiated for the provision of teaching labs, with a budget of $2 million. The decision regarding these funds will be made in June. In addition, plans are in place to renovate the general physics laboratories and to construct new facilities for robotics in Campus 2. The experts are informed that, in accordance with an order issued by VNUHCM, Campus 1 will be relocated to Campus 2. The Campus 1 will henceforth be designated for graduate students, collaborative learning and research. It is planned to make a significant investment in licences for access to international journals and books.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

VNUHCM-US has secure funding and reliable financial planning. Furthermore, it boasts two campuses with adequate and sufficient infrastructure. The experts acknowledge the existence of numerous ongoing collaborative initiatives with local hospitals and institutions as well as with international universities. They recognise the president's supportive approach and his willingness to develop programmes at the university. Nevertheless, experts recommend modernising equipment in teaching and research laboratories. This involves replacing outdated equipment with modern devices and acquiring instruments for additional exercises or research topics to complement existing equipment (e.g. computer-based lab experiments and additional experiments with respect to harmonic oscillations or rotational motions in the General Physics lab or modern pumps in the Vacuum lab). In addition, the accessibility to scientific literature and journals for staff and students should be enhanced.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:

With regard to the modernisation of equipment, the university has announced that a state investment project has been approved. This project is specifically aimed at upgrading laboratories to serve training and research in the fields of Nuclear Engineering and Medical Physics, but the EPTI program will benefit from these investments as well. In addition, VNUHCM has broader projects to invest in upgrading laboratories that serve basic science training and research. Furthermore, the Faculty of Physics and Engineering Physics plans to supplement and modernize the practical equipment in the General Physics Laboratory. These announcements have been positively received by the experts, who have praised the university's efforts. As this is a long-term strategy, the results of this process will become evident in the reaccreditation process.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Study Plan for each programme
- Module Handbook for each programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The module handbooks for all degree programmes under review are provided by the university. These are published on the university's website for each degree programme and are thus accessible to the students as well as to all stakeholders in both Vietnamese and English language.

The experts found that the module descriptions are accessible and contain following information for each module: Course code, number of credits, course learning outcomes, course contents, assessment components, and learning module name, responsible persons, language, relation to curriculum, teaching methods, credit points awarded and workload (including contact hours and self-study time), requirements and recommended prerequisites, module objectives/intended learning outcomes, content, examination forms and requirements incl. weight assigned for each examination, reading list and details explaining how the final grade is calculated.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts note that not all mandatory modules are included in the module descriptions. They therefore conclude that the module handbooks of the programmes NE and MP need to be reviewed and updated. All compulsory and elective courses, including theses and internships, must be included in the module descriptions. Additionally, the module descriptions in both **NE and MP** need to be revised and specified, particularly for courses with the same name offered on both programmes. The specification of practical activities, such as excursions or visits to external institutions, should be included in the information about teaching methods and the objectives and content in the module handbook (see also below **4.1**).

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Samples of diploma supplement, transcript of records and degree certificate
- Discussions during the audit

Preliminary assessment and analysis of the experts:
VNUHCM-US graduates receive a full-course academic transcript and diploma supplement issued in Vietnamese and English. The diploma contains information about the Higher education institution, the type of training, the discipline of training, the basic information of the student, and the student's academic rating. The full course transcript is presented in Vietnamese. However, students can request transcripts in English if needed.

The experts observe that the diploma supplements of the three programmes under review do not contain the updated learning outcomes nor include information about the Vietnamese education system and data on the student's GPA distribution of graduates.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The information contained in the diploma supplement needs to be revised and updated, particularly in terms of objectives and learning outcomes of each programme. The classification of the degree programme with regard to the Vietnamese education system also needs to be described in the diploma supplement. In addition to the final mark, statistical data to GPA distribution of graduates as set forth in the ECTS Users' Guide need to be included to allow readers to assess the individual mark and to ensure fair transfer as well as recognition of grades for mobile students.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Study Regulation
- Internal regulations of VNUHCM-US
- Regulations on working regime of lecturers
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, detailed regulations regarding the rights and obligations of students are widely published on the university and faculty websites. Furthermore, a civic activity session is scheduled at the beginning of each academic year to ensure that new students are acquainted with the specific rules and regulations.

Student handbooks provide a guide to policies, procedures, rules and regulations for students, and is available on the university's website.

The students interviewed seem to be satisfied with the website and the academic intranet. They can find all information required on the website and are informed via email or in social media about the specific information or news. Nevertheless, students indicate a lack of clarity regarding tuition fees, given that these depend on the number of credits and subsequently courses they have each semester. Moreover, experts learn that students are required to pay an additional fee in the event of a complaint regarding marks or a request for a grade re-assessment.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts confirm that the rights and obligations of both VNUHCM-US and the students are clearly defined and binding. They acknowledge that they can find all relevant course-related information. However, the experts get the impression that the costs for tuition fee per semester need to be communicated more transparently to the students before enrolment. In addition, they suggest to remove the fee for escalation which takes place after complaint regarding marks or request of revision of the grade by students.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:

The university provides revised and updated module handbooks for the **NE and MP programmes.** These now include all compulsory and elective courses. However, as these have not yet been approved, the requirement remains in place. Moreover, some minor mistakes or inadequate formulations should become corrected in the final version of the revised module handbooks (e.g. PHY 10001 General Physics I, Content: “8 The first law” – replace by “8. The second law”, or MPH 10001 Introduction Medical Physic, Content: The topics are not explained explicitly). The experts are of the opinion that the module handbooks need further revision.

Regarding the diploma supplement of the programmes under review, the university will issue a Diploma Supplement, which is aligned with the European template including

relevant information such as the GPA distribution of graduates in line with the ECTS Users' Guide. As the new diploma supplement has not been implemented yet, the requirement remains in place.

In addition, the university clarifies that the costs for tuition fee are communicated to students prior to enrolment and are also made available on the website. The link is provided. The university has confirmed the removal of the fee for escalation. Students are now entitled to submit complaints or requests free of charge. The experts express their approval of this measure and commend VNUHCM-US for their decision.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report (SAR)
- Website Physics department: https://phys.hcmus.edu.vn/
- Study Regulation
- Internal regulations of VNUHCM-US
- Samples of students satisfaction surveys on module and lecturer as well as on study programme for each programme
- Sample survey module results
- Students' survey results
- Survey results about students' workload
- Regulations on working regime of lecturers
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The Bachelor's degree programmes in Nuclear Engineering, Medical Physics, and Electronic Physics Technology and Informatics at VNUHCM–US are subject to periodic internal quality assurance processes.

Processes and responsibilities related to programme development and quality assurance are clearly delineated within the institution. The Scientific and Academic Committee (SAC) oversees academic standards and curriculum oversight, while the Office of Education Training and Quality Assurance (OETQA) manages data collection, analysis, and reporting to ensure informed decision-making and accountability.

As stated in the SAR, the university implements a comprehensive internal quality assurance mechanism grounded in the Plan-Do-Check-Act (PDCA) cycle. Each degree programme undergoes systematic review and evaluation at least once every five years. SAC plays a central role in the development, revision, and validation of programme objectives and intended learning outcomes.

Feedback is collected on a regular basis from various stakeholder groups, including students, lecturers, alumni, and employers. OETQA and the Office of Student Affairs (OSA)

conduct annual satisfaction surveys and feedback collection. The insights gained are critically analysed and integrated into the curricular and pedagogical development of the programmes.

The collected data pertains to stakeholder satisfaction, programme effectiveness, curriculum relevance, and graduate employability. The findings from internal evaluations and stakeholder feedback are used to inform revisions of learning outcomes, programme content, and teaching strategies. These elements are designed to align with national educational standards, the Vietnamese Qualifications Framework (VQF), and relevant international subject-specific criteria.

The university states that the results of internal quality assurance activities and stakeholder feedback are communicated transparently to students and other stakeholders. The outcomes of surveys, graduate employment data, and subsequent improvement measures are regularly disseminated through formal channels. To analyse learner needs on an ongoing basis, the Office collects student feedback on modules on a semester basis. This includes opinions about teaching staff and the content of teaching, and is collected via the student portal. This data is then processed, analysed, and disseminated to the relevant faculties. The Board of Deans is responsible for reviewing student satisfaction levels with modules and instructors, and taking action when satisfaction falls below 50%. The university holds an annual meeting, providing a direct channel of communication between students and the Board of Presidents, Deans of the faculties, and relevant functional offices. This meeting facilitates the articulation of student concerns and the provision of responses from the university. The monthly leadership briefings provide valuable comparative information on training activities from university leadership, offices and faculties.

The students interviewed confirm that they regularly complete several satisfaction surveys regarding their study programme, the performance of their lecturers and the administrative staff and facilities. They appreciate the lecturers' willingness to discuss their feedback and are open to suggestions. Students interviewed are confident that their feedback is duly considered and measures are taken based on that.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

In conclusion, the expert group confirms that the overall quality management system is effective in identifying weaknesses and improving programmes. All stakeholders are involved in the process. The results of these processes are incorporated into the continuous development of the programme. Processes and responsibilities seem to be well defined for

the further development of the programme. The results and any measures derived from the satisfaction surveys are communicated to the students.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:

No comment related to this criterion.

E Additional Documents

Before preparing their final assessment, the panel asks that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

No additional documents needed.

F Comment of the Higher Education Institution (07.08.2025)

The following quotes the comment of the institution:

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
Criterion 1: The Degree Programme: Concept, Content & Implementation		
1.1	For the EPTI programme, the learning outcomes need to be revised to make clear that three different specializations (semiconductors, electronics and informatics) are covered by the programme.	Thanks for your comments. We will revise the learning outcomes need to be revised to make clear that three different specializations (semiconductors, electronics, and informatics) are as follows: ILO1. Ability to apply basic mathematics, science, and knowledge specialized knowledge to solve problems related to semiconductors, electronics, and informatics, respectively. ILO2. Ability to design, build systems, and propose responsive solutions Technical specifications for industry and cross-industry applications semiconductors, electronics, and informatics, respectively. ILO3. Possess effective professional skills for technical problem solving technology, electronics, and information technology such as logical thinking. Scientific research, observation, evaluation of results and experimentation related to each field of semiconductors, electronics, and informatics, respectively. ILO4. Ability to work in teams, leadership, organization, and planning abilities planning and operations. The ability to flexibly adapt to the learning and working environment. Ability to fluently use English in study, research and communication, especially in specialized fields of semiconductors, electronics, and informatics, respectively. ILO5. Have the spirit of self-study, self-research and lifelong leaming, proactively overcome difficulties. Have a culture of standards, respect, and honesty in learning. ILO6. Responsible for developing expertise applied in practice and serving the community. Be responsible and honest with assigned work in specialized fields of semiconductors, electronics, and informatics, respectively. These revisions will be sent to the Committees of the Faculty of Physics and Engineering Physics for approval.

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
1.3	The term “internship” seems to be not adequate. The experts recommend that the term 'internship' should be avoided in the mentioned context (short-term, 1 day) to prevent misunderstandings. It is advisable to use terms such as “practical training” instead. For instance, "external practical training" or "excursion" should be specified in the teaching methods included in the respective module descriptions, such as in NTE10117 (Tour to Nuclear Technique) or MPH10108 (Physics of Radiotherapy). Furthermore, this should also be mentioned in relation to the objectives and content of the module.	We agreed with the experts' feedback. We have updated the relevant modules via link https://Module Handbooks to specify 'practical training' at external institutions, such as in NTE10117 (Tour to Nuclear Technique) and MPH10108 (Physics of Radiotherapy). Please refer to the attached Module Handbooks for your information.
	The total duration of the internship is not specified. According to the SAR, the internship generally span between six and eight weeks. The experts observe that periods of between two and five months are considered to be more appropriate	Thank you for your feedback. In practice, internship durations of two to five months are popular among our students.
	The experts conclude that the description of the modules in both NE and MP need to be revised and specified, especially for the courses with the same name that are offered in both programmes	We have supplemented and revised the descriptions of modules with the same name offered in both programs to clarify the distinctions between them. For the updated Module Handbooks, please click here for your kind consideration.
	The theoretical education should be complemented by enhancing the practical extent of the courses.	We acknowledged the experts' feedback. Several fundamental courses have been updated with additional practical credits to enhance students' understanding of theoretical concepts. In the MP and NE programs, we also encourage adding more practical

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
	Strategies should also be developed to facilitate the undertaking of project work initiated by students and related to their respective study programmes. In addition, it should be ensured that students are given additional chances to practice English communication and improve English fluency.	components to theoretical courses, such as Nuclear Physics, Radiation Detection Techniques, Radiation Safety, and Nuclear Applications in Industry. Fundamental and Advanced Practice in Nuclear Technique courses already include content that supplements the theoretical modules. In these courses, we will enhance the organization of mini-projects, allowing students to freely choose and implement their ideas. Students are encouraged to prepare and deliver presentations in English for several courses. Furthermore, the university supports academic clubs (e.g., NES Academic Club, USAC Astronomy Club) and English club (BEE Club: Begin to Enhance English) where students can explore scientific topics using English. Additionally, students are provided with opportunities to participate in classes and seminars conducted by international professors.
1.5	The number of credits and the workload of the internship in EPTI need to be verified and adjusted to a realistic value, since eight weeks in a company is not in accordance with 60 contact hours or 2 credits (4 ECTS). The experts recommend that a minimum and, in the case of part-time, a maximum duration of time spent in the company has to be clearly defined and transparently communicated to students.	Thanks so much for your recommendation. The content of a minimum and, in the case of part-time, a maximum duration of time spent in the company will be clearly defined and transparently communicated to students and the company. It is expected that the internship time duration is 6-8 weeks, which is equivalent to 100-120 hours of work (or 4 ECTS). This time duration is scheduled flexibly by the company when discussing with the student. This information is presented clearly in the official document send to company to introduce the student who will intern at the company. Although the minimum internship time is usually from 6-8 weeks, the Faculty recommends that students do practical internships at the company for longer than the minimum time required for the course because through this internship, students will learn a lot of knowledge, skills, and working attitudes in a real environment. Thereby, it helps students better understand the career orientation they will pursue in the future.
1.6	The University should consider incorporating a recommendation on the use of AI in courses and in thesis work e.g. a one page document to give a guideline for the students how they should use AI and how not.	We agreed with the recommendation. This has been proposed, and the University will provide guidelines on this matter. Additionally, the University has organized AI workshops and schools to enhance students' awareness of AI. https://hcmus.edu.vn/khai-mac-truong-he-fithcmus-summer-school-2025-ve-tri-tue-nhan-tao-tao-sinh-va-he-da-tac-tu/
Criterion 2 Exams: System, Concept and Organisation		
2	The information provided by the university regarding the graduation thesis seems to	For the NE and MP programs, students are required to complete a graduation thesis. We will definitely remove the alternative 'option 2' in the upcoming curriculum update this year to ensure

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
	be contradictory and is unclear for the experts. As outlined in the study plans submitted by the university for the accreditation process, NE and MP still include the three modules as option 2 along the graduation thesis. Additionally, it should be noted that these modules are not included in the module handbook. In any case, the experts reach the conclusion that the graduation thesis needs to be mandatory for all students and included in the module descriptions. All students are expected to demonstrate their ability to work independently at the intended level of their degree programme. Furthermore, English language needs not to be a requirement for a thesis.	clarity. A description of the mandatory graduation thesis has been added to the module handbook. Please click here to find out our updated Module Handbooks. Students are not required to write their thesis in English. They may write it in English if they wish. However, they must meet the University's English proficiency requirements for graduation, either by completing the necessary English courses or by providing a valid certificate. This ensures they have the ability to access and utilize international reference materials for their thesis research.
	Rules for the compensation of disadvantages experienced by students with disabilities or special needs (e.g. pregnancy, childcare, caring for relatives) need to be implemented, clearly defined and made accessible to the students.	The University has established regulations and policies to support students with disabilities or special needs. These provisions have been widely communicated to students during each orientation session before enrollment and are published on our website via the link https://hcmus.edu.vn/thong-bao-thuc-hien-che-do-chinh-sach-cho-sinh-vien-hoc-ky-2-2024-2025/
Criterion 3. Staff and Development		
3.1	The additional chances for students and staff to practice English communication and to improve English fluency should be offered.	VNUHCM–US has implemented English proficiency improvement courses for VNUHCM-US' employees such as English communication courses, English proficiency improvement courses, etc. Please click here for more details. For students, in addition to compulsory English courses, VNUHCM-US also has a Foreign Language Centre that offers a variety of English courses and clubs to help students improve their English proficiency. More information can be found at:

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
		https://www.facebook.com/cfl.hcmus/. Moreover, the BEE Club (Begin to Enhance English), affiliated with VNUHCM-US, is an English club where students can practise the language, exchange ideas, learn, and take part in exciting activities and competitions. The club also serves as a platform for student exchange activities, giving students opportunities to explore different cultures. Additionally, the BEE Club organises experience sharing and training sessions to enhance students' English skills and professional competencies. For more information about the BEE Club, Please visit: • https://www.facebook.com/beeclub.khtn/ • https://sam.doantn.hcmus.edu.vn/organizations/269/
	Develop an internationalization strategy e.g. inviting more international guest lecturers and providing more support for staff mobility.	VNUHCM is actively implementing initiatives such as the VNU350 project via link https://vnu350.vnuhcm.edu.vn/en, along with the Visiting Professor Program via link https://vnu350.vnuhcm.edu.vn/Visiting_Professor_Program, to invite PhDs and professors from abroad to participate in our training and research activities. We consistently sign MoUs with foreign partners for collaboration in training and research. We are open to receiving international researchers and lecturers to teach and work at our university and always facilitate opportunities for our staff to participate in international courses and cooperative programs. The Faculty of Physics and Engineering Physics will also invite foreign lecturers for specific courses and as guest speakers at scientific conferences. Annually, the Faculty organizes international conferences and seminars, which attract participation from foreign professors from many countries. Please click the links https://ICEBA 2023 conference and https://ICEBA 2024 conference for more details.
3.3	The experts recommend modernising equipment in teaching and research laboratories. This involves replacing outdated equipment with modern devices and acquiring instruments for additional exercises or research topics to complement existing equipment (e.g. computer-based lab experiments and additional experiments with respect to harmonic oscillations or rotational	We acknowledged this concern. According to Decision 245, there is an approved state investment project specifically aimed at upgrading laboratories to serve training and research in the fields of Nuclear Engineering and Medical Physics. Concurrently, the Faculty of Physics and Engineering Physics has its own plans to supplement and modernize practical equipment in the General Physics Laboratory. Furthermore, VNUHCM also has broader projects to invest in upgrading laboratories that serve basic science training and research. Please click the links https://Training laboratory proposal; https://Research laboratory proposal and https://Nuclear power labolatory proposal for more details. These proposed projects are progressing to the review stage by the Board of Directors of VNUHCM.

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
	motions in the General Physics lab or modern pumps in the Vacuum lab). In addition, the accessibility to scientific literature and journals for staff and students should be enhanced.	Currently, the VNUHCM-US' staff and students can access the central library and libraries of member universities under VNUHCM as a shared library system via the link https://glib.hcmus.edu.vn/en/introduction/vnuhcm-libraries. In addition, VNUHCM-US has signed an agreement with Nong Lam University -Ho Chi Minh City to enhance the diverse resources for users and improve the quality of training and scientific research. The VNUHCM-US also supports students in registering new accounts, renewing accounts to access E-databases and providing List of websites to students. Please click here for more details.
Criterion 4. Module Descriptions		
4.1	The experts note that not all mandatory modules are included in the module descriptions. They therefore conclude that the module handbooks of the programmes NE and MP need to be reviewed and updated. All compulsory and elective courses, including theses and internships, must be included in the module descriptions	We acknowledged the experts' feedback. The module handbooks for the NE and MP programs have been updated to include all compulsory and elective courses. Please click here to find out our updated Module Handbooks.
4.2	The information contained in the diploma supplement needs to be revised and updated, particularly in terms of objectives and learning outcomes of each programme. The classification of the degree programme with regard to the Vietnamese education system also needs to be described in the diploma supplement. In addition to the final mark, statistical data to GPA distribution of graduates as set forth in the ECTS Users' Guide need to be included to allow readers to assess the individual mark and to ensure fair transfer as	To fulfil the ASIIN requirements related to the diploma supplement for our clusters including the GEO cluster and FIT cluster, we have already updated our diploma supplement in January 2025 and the updated version have approved by ASIIN. However, we acknowledges the recommendation to revise and improve the content of the diploma supplement, particularly regarding the objectives, learning outcomes, and classification of the study programmes in accordance with the Vietnamese education system. In the near future, the university will review and update the supplement to include relevant information such as the GPA distribution of graduates in line with the ECTS Users' Guide. This aims to ensure transparency and support fair recognition and credit transfer for mobile students.

Criteria	ASIIN Questions	Explanations from VNUHCM-US to clarify all ASIIN Questions
	well as recognition of grades for mobile students.	
4.3	The costs for tuition fee per semester need to be communicated more transparently to the students before enrolment.	The costs for tuition fee is communicated to students prior to enrolment and is also made available on our website via link https://tuyensinh.hcmus.edu.vn/hoc-phi-du-kien-cho-khoa-tuyen-2025/
	Remove the fee for escalation which takes place after complaint regarding marks or request of revision of the grade by students.	Currently, we have already removed the fee for these processes. Students have the right to make complaints or requests without fee. Please click here for more details and we also disseminated this official announcement to students and stakeholders via link http://ktdbcl.hcmus.edu.vn/index.php/thong-bao/900-thong-bao-v-vi-c-khong-thu-l-phi-phuc-kh-o-bai-thi-cu-i-ky.

G Summary: Expert recommendations (30.08.2025)

Taking into account the additional information and the comments given by VNUHCM-US, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Nuclear Engineering	With requirements for one year	30.09.2031
Ba Medical Physics	With requirements for one year	30.09.2031
Ba Electronic Physics Technology and Informatics	With requirements for one year	30.09.2031

Requirements

For all degree programmes

A 1. (ASIIN 2) Implement a mandatory Bachelor´s thesis for all students.

A 2. (ASIIN 2) Rules for the compensation of disadvantages experienced by students with disabilities or special needs related to the way exams or academic achievements are assessed need to be implemented, clearly defined and made accessible to the students.

A 3. (ASIIN 4.1) All mandatory courses need to be included in the module descriptions in particular a final thesis in all programmes and the internship in the EPTI programme.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains updated learning outcomes and the classification of the degree programme with regard to the Vietnamese education system. In addition to the final mark, statistical data about the student's GPA relative to the cohort as set forth in the ECTS Users' Guide need to be included.

For the Bachelor's degree programme Nuclear Engineering and Medical Physics

A 5. (ASIIN 1.3, 4.1) The module titles need to be aligned with the module content and the descriptions of the content for each module in the module handbook need to be

revised and specified, particularly for courses that share the same name and are offered in both programmes.

For the Bachelor's degree programme Electronic Physics Technology and Informatics

A 6. (ASIIN 1.1) The learning outcomes need to be reviewed to make clear that three different specializations (semiconductors, electronics and informatics) are covered by the programme.

A 7. (ASIIN 1.3, 1.5) The number of credits and the workload of the internship need to be verified and adjusted accordingly. The minimum amount of time that students should spend in the company must be clearly defined and communicated transparently.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to complement the theoretical education by enhancing the practical extent of the courses and find ways to allow students to perform project work initiated by themselves and related to the study programmes.

E 2. (ASIIN 1.3) It is recommended to provide students with additional opportunities to practise English communication and improve their fluency.

E 3. (ASIIN 1.3) It is recommended to incorporate a general recommendation on the use of AI in the courses.

E 4. (ASIIN 3.1) It is recommended to develop an internationalization strategy by stronger support for international mobility of the teaching staff as well as more exchange and cooperation with foreign institutions and lecturers e.g. inviting more international guest lecturers.

E 5. (ASIIN 3.2) It is recommended to continue modernizing and complementing the equipment in the teaching and research labs, especially the introduction of computer-based control and data acquisition in the teaching labs.

E 6. (ASIIN 3.2) It is recommended to improve access to scientific literature and journals for staff and students.

E 7. (ASIIN 4.1) It is recommended to revise and update the literature of the modules included the module handbook.

For the the Bachelor's degree programme Electronic Physics Technology and Informatics

E 8. (ASIIN 1.3) It is recommended to continue involving beneficial input from industry stakeholders in the development of the curriculum of the programme.

H Comment of the Technical Committees

Technical Committee 02 – Electrical Engineering/Information Technology (10.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the case and follows the assessment of the experts without any changes.

The Technical Committee 02 – Electrical Engineering/Information Technology recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Electronic Physics Technology and Informatics	With requirements for one year	30.09.2031

Technical Committee 05 – Materials Science, Physical Technologies (18.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the case and follows the assessment of the experts without any changes.

The Technical Committee 05 – Materials Science, Physical Technologies recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Nuclear Engineering	With requirements for one year	30.09.2031
Ba Medical Physics	With requirements for one year	30.09.2031

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Electronic Physics Technology and Informatics	With requirements for one year	30.09.2031

Technical Committee 13 – Physics (18.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The members follow the experts' assessment. However, they suggest changes to the wording of recommendations E 2 and E 3 to enhance clarity: They propose to add in E2 the word "further" before the word "improve", in E3 instead "incorporate" the word "develop" and in E6 "software" instead "journals".

The Technical Committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Nuclear Engineering	With requirements for one year	30.09.2031
Ba Medical Physics	With requirements for one year	30.09.2031
Ba Electronic Physics Technology and Informatics	With requirements for one year	30.09.2031

I Decision of the Accreditation Commission (26.09.2025)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission agrees with the experts' assessment and proposals of the Technical Committee 13 – Physics. In addition, it amends the wording in E1.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Ba Nuclear Engineering	With requirements for one year	30.09.2031
Ba Medical Physics	With requirements for one year	30.09.2031
Ba Electronic Physics Technology and Informatics	With requirements for one year	30.09.2031

Requirements

For all degree programmes

A 1. (ASIIN 2) Implement a mandatory Bachelor´s thesis for all students.

A 2. (ASIIN 2) Rules for the compensation of disadvantages experienced by students with disabilities or special needs related to the way exams or academic achievements are assessed need to be implemented, clearly defined and made accessible to the students.

A 3. (ASIIN 4.1) All mandatory courses need to be included in the module descriptions in particular a final thesis in all programmes and the internship in the EPTI programme.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains updated learning outcomes and the classification of the degree programme with regard to the Vietnamese education system. In addition to the final mark, statistical data about the student's GPA relative to the cohort as set forth in the ECTS Users' Guide need to be included.

For the Bachelor's degree programme Nuclear Engineering and Medical Physics

A 5. (ASIIN 1.3, 4.1) The module titles need to be aligned with the module content and the descriptions of the content for each module in the module handbook need to be revised and specified, particularly for courses that share the same name and are offered in both programmes.

For the Bachelor's degree programme Electronic Physics Technology and Informatics

A 6. (ASIIN 1.1) The learning outcomes need to be reviewed to make clear that three different specializations (semiconductors, electronics and informatics) are covered by the programme.

A 7. (ASIIN 1.3, 1.5) The number of credits and the workload of the internship need to be verified and adjusted accordingly. The minimum amount of time that students should spend in the company must be clearly defined and communicated transparently.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to complement the theoretical education by enhancing the practical extent of the courses and find ways to allow students to perform project work initiated by themselves and related to the study programmes.

E 2. (ASIIN 1.3) It is recommended to provide students with additional opportunities to practise English communication and further improve their fluency.

E 3. (ASIIN 1.3) It is recommended to develop a general recommendation on the use of AI in the courses.

E 4. (ASIIN 3.1) It is recommended to develop an internationalization strategy by stronger support for international mobility of the teaching staff as well as more exchange and cooperation with foreign institutions and lecturers e.g. inviting more international guest lecturers.

E 5. (ASIIN 3.2) It is recommended to continue modernizing and complementing the equipment in the teaching and research labs, especially the introduction of computer-based control and data acquisition in the teaching labs.

E 6. (ASIIN 3.2) It is recommended to improve access to scientific literature and software for staff and students.

E 7. (ASIIN 4.1) It is recommended to revise and update the literature of the modules included the module handbook.

For the Bachelor's degree programme Electronic Physics Technology and Informatics

E 8. (ASIIN 1.3) It is recommended to continue involving beneficial input from industry stakeholders in the development of the curriculum of the programme.

Appendix: Programme Learning Outcomes and Curricula

According to the website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Bachelor programme Nuclear Engineering**:

Objective 1. Science knowledge: Having a foundation in natural sciences, economics, society, and ideological politics; learners can grasp the characteristics of nature, economy, and society in practical contexts of science and life.

Objective 2. Knowledge in nuclear engineering foundation and profession: Being able to analyze and solve problems related to their major, and research and apply in production practice, design, manufacture, process formulation, survey, evaluation, and solutions of specialized problems.

Objective 3. Professional skills: Being able to demonstrate moral qualities, personal and social skills, including independence, critical thinking, creativity, and adaptability to new environments. Utilizing professional knowledge to analyze and solve practical problems; developing communication, teamwork, cooperation, leadership skills, and foreign language proficiency (particularly English) to work effectively and successfully in a modern working environment.

Objective 4. Professional ethics: Forming professional culture, professional ethics, professional responsibility, respecting for diversity, being honest, and committed to serving the community.

PROGRAM LEARNING OUTCOMES

Label	Learning Outcomes
ILO1	Apply natural sciences (mathematics, chemistry, earth science, and informatics) and social sciences to solve problems in nuclear engineering.
ILO2	Utilize fundamental and in-depth knowledge of nuclear physics, nuclear engineering and mathematical principles for theoretical analysis, modeling, and simulation of the relevant processes in nuclear engineering.
ILO3	Apply knowledge of nuclear engineering to address challenges in the field of nuclear engineering, physics and engineering physics.
ILO4	Demonstrate career skills for problem-solving in nuclear engineering, including skills such as logical thinking, scientific research, practice, design, and conducting experiments.
ILO5	Exhibit personal skills such as communication skills, lifelong self-study skills, critical thinking skills, judgment, and decision-making skills to enhance professional performance.
ILO6	Utilize specialized English and information technology to conduct scientific research and support personal and career development.
ILO7	Apply knowledge and experience in engineering design to develop solutions for complex challenges in nuclear engineering projects with consideration of interdisciplinary aspects.
ILO8	Engage in organization, leadership, planning, teamwork, and effective communication in science and social interaction to promote a positive workplace environment.
ILO9	Design experiments to investigate nuclear phenomena, analyze and evaluate experimental results, processes, methods to draw valid conclusions.
ILO10	Recognize the importance of professional culture and ethics, professional responsibility, respect themselves, and colleagues, be honest, and community service to ensure public and environmental safety.

The following **curriculum** is presented for **NE**:

No	Code	Course Name	Credit	Accumulated ECTS	ECTS*	Note
1st Semester						
1.	BAA00101	Philosophy Marx- Lenin	3	4.5	4.5	
2.	BAA00102	Marxist-Leninist Political Economy	2	3	3	
3.	MTH00003	Integral Calculus 1B	3	4.5	4.5	
4.	MTH00081	Practice for Integral Calculus 1B	1	2	2	
5.	PHY00001	General Physics 1 (Mechanics - Thermodynamics)	3	4.5	4.5	
6.	PHY00012	Introduction to Nuclear Engineering	3	5.5	5.5	
7.	BAA00011	English 1	3		5	
8.	BAA00021	Physical education 1	2		3.5	
9.	CSC00003	Computer Science 1	3		5.5	
10.	BAA00030	National defense - Security education	4		8	
Sub-Total (excluded English 1, Physical education 1, Computer Science 1, National defense - Security education)			**23**	**24**	**38**	
2nd Semester						
1.	CHE00001	General Chemistry 1	3	5	5	
2.	BAA00004	Introduction to the Vietnamese Law System	3	4.5	4.5	
3.	MTH00004	Integral Calculus 2B	3	4.5	4.5	
4.	MTH00030	Linear Algebra	3	4.5	4.5	
5.	PHY00002	General physics 2 (Electromagnetism - Optics)	3	4.5	4.5	
6.	PHY00003	General physics 3 (Advanced Mechanics - Thermodynamics)	3	4.5	4.5	
7.	PHY00081	Labwork on General Physics	2	4	4	
8.	BAA00012	English 2	3		5	
9.	BAA00022	Physical Education 2	2		3.5	
Sub-Total (excluded English 2, Physical Education 2)			**25**	**31.5**	**40**	

3th Semester						
1.	BAA00103	Scientific Socialism	2	3	3	
2.	BAA00003	Ho Chi Minh's Ideology	2	3	3	
3.	BAA00104	History of the Vietnamese Communist Party	2	3	3	
4.	MTH00040	Probability Statistics	3	4.5	4.5	
5.	PHY00004	Modern Physics (Quantum - Atom - Nucleus)	3	4.5	4.5	
6.	*BAA00005*	*General Economy*	*2*	*3*	*3*	Choose 2 credits
7.	*BAA00007*	*Innovative Methodology*	*2*	*3*	*3*	
8.	*BAA00006*	*General Psychology*	*2*	*3*	*3*	
9.	*GEO00002*	*Earth Science*	*2*	*3*	*3*	Choose 2 credits
10.	*ENV00001*	*General Environment*	*2*	*3*	*3*	
11.	PHY10001	Complex Function	2	3	3	
12.	PHY10002	Labwork on Fundamental Physics	2	4	4	
13.	BAA00013	English 3	3		5	
Sub-Total (excluded English 3)			**23**	**31**	**36**	
4th Semester						
1.	PHY10003	Computational methods	3	5	5	
2.	PHY10004	Theoretical mathematical methods	3	4.5	4.5	
3.	PHY10005	Basic electronics	3	5	5	
4.	PHY10007	Quantum mechanics 1	3	4.5	4.5	
5.	PHY10008	Nuclear physics	3	5	5	
6.	PHY10009	Electrodynamics	3	4.5	4.5	
7.	BAA00014	English 4	3		5	
Sub-Total (excluded English 4)			**21**	**28.5**	**33.5**	
5th Semester						
Nuclear engineering Specialization						
1.	PHY10010	Solid state physics	3	4.5	4.5	
2.	PHY10011	Statistical physics	3	4.5	4.5	
3.	PHY10012	Atomic physics	2	3	3	
4.	NTE10101	Fundamental Physics of Radioactivity	2	3	3	
5.	NTE10102	Radiation detection techniques	3	5	5	
6.	NTE10111	Nuclear Reaction and Structure	3	4.5	4.5	
7.	NTE10112	Reactor Nuclear Physics	4	6	6	

Sub-Total			**20**	**30.5**	**30.5**	
Nuclear Energy and Power Specialization						
1.	PHY10010	Solid state physics	3	4.5	4.5	
2.	PHY10011	Statistical physics	3	4.5	4.5	
3.	PHY10012	Atomic physics	2	3	3	
4.	NTE10101	Fundamental Physics of Radioactivity	2	3	3	
5.	NTE10102	Radiation detection techniques	3	5	5	
6.	NTE10111	Nuclear Reaction and Structure	3	4.5	4.5	
7.	NTE10112	Reactor Nuclear Physics	4	6	6	
Sub-Total			**20**	**30.5**	**30.5**	
Medical Physics Specialization						
1.	PHY10010	Solid state physics	3	4.5	4.5	
2.	PHY10011	Statistical physics	3	4.5	4.5	
3.	PHY10012	Atomic physics	2	3	3	
4.	NTE10101	Fundamental Physics of Radioactivity	2	3	3	
5.	NTE10102	Radiation detection techniques	3	5	5	
6.	NTE10301	Radiobiology for the Radiologist	2	3	3	
7.	NTE10302	Anatomy and physiology	2	3	3	
Sub-Total			**17**	**26**	**26**	
6th Semester						
Nuclear engineering Specialization						
1.	NTE10103	Statistical Analysis for Experimental Data in Nuclear Engineering	3	5	5	
2.	NTE10104	Fundamental Practice in Nuclear Technique	2	4	4	
3.	NTE10105	Radiation safety	3	4.5	4.5	
4.	NTE10106	Informatics Applied in Nuclear Technique	2	4	4	
5.	NTE10114	Nuclear Analytical Technique	3	4.5	4.5	
6.	*NTE10107*	*Principles and Applications of Accelerators*	*2*	*3*	*3*	Choose 2 credits
7.	*MPH10109*	*Physics of Nuclear Medicine*	*3*	*5*	*5*	
Sub-Total			**15**	**25**	**25**	

Nuclear Energy and Power Specialization						
1.	NTE10103	Statistical Analysis for Experimental Data in Nuclear Engineering	3	5	5	
2.	NTE10104	Fundamental Practice in Nuclear Technique	2	4	4	
3.	NTE10105	Radiation safety	3	4.5	4.5	
4.	NTE10106	Informatics Applied in Nuclear Technique	2	4	4	
5.	*NTE10107*	*Principles and Applications of Accelerators*	*2*	*3*	*3*	
6.	NTE10201	Reactors thermal hydraulics	3	4.5	4.5	
Sub-Total			**15**	**25**	**25**	
Medical Physics Specialization						
1.	NTE10103	Statistical Analysis for Experimental Data in Nuclear Engineering	3	5	5	
2.	NTE10104	Fundamental Practice in Nuclear Technique	2	4	4	
3.	NTE10105	Radiation safety	3	4.5	4.5	
4.	*NTE10106*	*Informatics Applied in Nuclear Technique*	*2*	4	4	Choose 2 credits
5.	*NTE10107*	*Principles and Applications of Accelerators*	*2*	*3*	*3*	
6.	MPH10108	Physics of Radiotherapy	4	6.5	6.5	
7.	MPH10109	Physics of Nuclear Medicine	3	5	5	
Sub-Total			**17**	**28-29**	**28-29**	
7th Semester						
Nuclear engineering Specialization						
1.	*NTE10108*	*Nuclear Technique Applied in Industry*	*2*	*3*	*3*	Choose 4 - 6 credits
2.	*NTE10109*	*Nuclear Technique Applied in Environment and Hydrography*	*3*	*4.5*	*4.5*	
3.	*NTE10110*	*Nuclear reactor technology and nuclear power plant*	*2*	*3.5*	*3.5*	
4.	*NTE10118*	*Particle Physics*	*2*	*3*	*3*	
5.	NTE10113	Radiation technology	2	3	3	

6.	NTE10115	Advanced Practice in Nuclear Technique	2	4	4	
7.	NTE10116	Nuclear Technique Applied in Agricultural - Medical - Biology	2	3	3	
8.	NTE10117	Tour for Nuclear Technique	2	4	4	
Sub-Total			**14**	**23.5**	**23.5**	
Nuclear Energy and Power Specialization						
1.	*NTE10108*	*Nuclear Technique Applied in Industry*	*2*	*3*	*3*	Choose 4 – 6 credits
2.	*NTE10109*	*Nuclear Technique Applied in Environment and Hydrography*	*3*	*4.5*	*4.5*	
3.	*NTE10116*	*Nuclear Technique Applied in Agricultural - Medical - Biology*	*2*	*3*	*3*	
4.	*NTE10117*	*Tour for Nuclear Technique*	*2*	*4*	*4*	
5.	*NTE10205*	*Nuclear fuel cycle and Radiochemistry*	*3*	*4.5*	*4.5*	
6.	NTE10110	Nuclear reactor technology and nuclear power plant	2	3.5	3.5	
7.	NTE10202	Nuclear safety	2	3.5	3.5	
8.	NTE10203	Nuclear Power Plant Simulators	2	4	4	
9.	NTE10204	Advanced Practice in Nuclear Energy	2	4	4	
Sub-Total			**14**	**24-25**	**24-25**	
Medical Physics Specialization						
1.	*NTE10108*	*Nuclear Technique Applied in Industry*	*2*	*3*	*3*	Choose 4 credits
2.	*NTE10109*	*Nuclear Technique Applied in Environment and Hydrography*	*3*	*4.5*	*4.5*	
3.	*NTE10110*	*Nuclear reactor technology and nuclear power plant*	*2*	*3.5*	*3.5*	
4.	*NTE10118*	*Particle Physics*	*2*	*3*	*3*	
5.	MPH10110	Medical Imaging and Image Processing	4	6.5	6.5	
6.	MPH10111	Fundamental Practice for Medical Physics	3	6	6	

7.	MPH10112	Advanced Practice for Medical Physics	3	6	6	
Sub-Total			**14**	**24.5**	**24.5**	
8th Semester						
Option 1: Accumulate 10 credits for the graduation thesis						
1.	NTE10995	Graduation thesis	10	20	20	
Sub-Total			**10**	**20**	**20**	
Option 2: Accumulate 10 credits from the following courses						
1.	NTE10980	Nuclear Engineering	3	4.5	4.5	
2.	NTE10981	Problems Simulation in Nuclear Engineering	3	5	5	
3.	NTE10990	Graduation seminar	4	8	8	
Sub-Total			**10**	**17.5**	**17.5**	

For the **Medical Physics Bachelor programme**, the following **objectives** and **learning outcomes (intended qualifications profile)** are presented on the website:

Objective 1. Science knowledge: Having a foundation in natural sciences, economics, society, and ideological politics; learners can grasp the characteristics of nature, economy, and society in practical contexts of science and life.

Objective 2. Knowledge in medical physics foundation and profession: Being able to analyse and solve problems related to their major, and research and apply in production practice, design, manufacture, process formulatation, survey, evaluation, and solutions of specialized problems.

Objective 3. Professional skills: Being able to demonstrate moral qualities, personal and social skills, including independence, critical thinking, creativity, and adaptability to new environments. Utilizing professional knowledge to analyze and solve practical problems; developing communication, teamwork, cooperation, leadership skills, and foreign language proficiency (particularly English) to work effectively and successfully in a modern working environment.

Objective 4. Professional ethics: Forming professional culture, professional ethics, professional responsibility, respecting for diversity, being honest, and committed to serving the community.

PROGRAM LEARNING OUTCOMES

Label	Learning Outcomes
ILO1	Apply fundamental knowledge of natural sciences (mathematics, chemistry, earth sciences, and informatics) and social sciences to solve problems in medical physics.
ILO2	Utilize basic and advanced knowledge of medical physics and mathematics to analyze theories, model, and simulate related processes in medical physic.
ILO3	Apply knowledge of physics and medical physics to address issues in the field of medical physics, specifically diagnostic radiology, nuclear medicine, and radiation therapy.
ILO4	Demonstrate effective professional skills to solve problems in medical physics, including logical thinking, scientific research, practical skills, experimental design, and implementation in radiation safety, medical imaging, and therapy techniques.
ILO5	Apply personal skills such as communication skills, lifelong self-study skills, critical thinking skills, judgment, and decision-making skills.
ILO6	Using specialized English terminology and information technology for scientific research and personal development in medical physics and healthcare sector.
ILO7	Apply physics knowledge and experience to conceptualize, analyze and design new physical situations.
ILO8	Understand organization, leadership, planning, teamwork, and effective communication in science and social interaction, and healthcare settings.
ILO9	Analyze and evaluate experimental results, processes, methods, and research results in a specific discipline or interdisciplinary.
ILO10	Understand the professional culture, professional ethics, professional responsibility, respect themselves, patients and colleagues, be honest, and community service through health education and radiation safety awareness.

The following **curriculum** is presented for **MP**:

No	Code	Course Name	Credit	Accumulated ECTS	ECTS*	Note
1st Semester						
1.	BAA00101	Philosophy Marx- Lenin	3	4.5	4.5	
2.	BAA00102	Marxist-Leninist Political Economy	2	3	3	
3.	MTH00003	Integral Calculus 1B	3	4.5	4.5	
4.	MTH00081	Practice for Integral Calculus 1B	1	2	2	
5.	PHY00001	General Physics 1 (Mechanics - Thermodynamics)	3	4.5	4.5	
6.	MPH00001	Introduction to Medical Physics	3	5.5	5.5	
7.	BAA00011	English 1	3		5	
8.	BAA00021	Physical education 1	2		3.5	
9.	CSC00003	Computer Science 1	3		5.5	
10.	BAA00030	National defense - Security education	4		8	
Sub-Total (excluded English 1, Physical education 1, Computer Science 1, National defense - Security education)			**23**	**24**	**38**	
2nd Semester						
1. 1	CHE00001	General Chemistry 1	3	5	5	
2. 2	BAA00004	Introduction to the Vietnamese Law System	3	4.5	4.5	
3.	MTH00004	Integral Calculus 2B	3	4.5	4.5	
4.	MTH00030	Linear Algebra	3	4.5	4.5	
5.	PHY00002	General Physics 2 (Electromagnetism - Optics)	3	4.5	4.5	
6.	PHY00003	General Physics 3 (Advanced Mechanics - Thermodynamics)	3	4.5	4.5	
7.	PHY00081	Labwork on General Physics	2	4	4	
8.	BAA00012	English 2	3		5	
9.	BAA00022	Physical Education 2	2		3.5	
Sub-Total (excluded English 2, Physical Education 2)			**25**	**31.5**	**40**	

3th Semester						
1.	BAA00103	Scientific Socialism	2	3	3	
2.	BAA00003	Ho Chi Minh's Ideology	2	3	3	
3.	BAA00104	History of the Vietnamese Communist Party	2	3	3	
4.	MTH00040	Probability Statistics	3	4.5	4.5	
5.	PHY00004	Modern Physics (Quantum - Atom - Nucleus)	3	4.5	4.5	
6.	*BAA00005*	*General Economy*	*2*	*3*	*3*	Choose 2 credits
7.	*BAA00007*	*Innovative Methodology*	*2*	*3*	*3*	
8.	*BAA00006*	*General Psychology*	*2*	*3*	*3*	
9.	*GEO00002*	*Earth Science*	*2*	*3*	*3*	Choose 2 credits
10.	*ENV00001*	*General Environment*	*2*	*3*	*3*	
11.	PHY10001	Complex Function	2	3	3	
12.	PHY10002	Labwork on Fundamental Physics	2	4	4	
13.	BAA00013	English 3	3		5	
Sub-Total (excluded English 3)			**23**	**31**	**36**	
4th Semester						
1.	PHY10003	Computational methods	3	5	5	
2.	PHY10004	Theoretical mathematical methods	3	4.5	4.5	
3.	PHY10005	Basic electronics	3	5	5	
4.	PHY10007	Quantum mechanics 1	3	4.5	4.5	
5.	PHY10008	Nuclear physics	3	5	5	
6.	PHY10009	Electrodynamics	3	4.5	4.5	
7.	BAA00014	English 4	3		5	
Sub-Total (excluded English 4)			**21**	**28.5**	**33.5**	
5th Semester						
1.	PHY10010	Solid state physics	3	4.5	4.5	
2.	PHY10011	Statistical physics	3	4.5	4.5	
3.	PHY10012	Atomic physics	2	3	3	
4.	MPH10101	Fundamental Physics of Radioactivity	2	3	3	
5.	MPH10102	Radiation detection techniques	3	5	5	
6.	MPH10106	Radiobiology	2	3	3	
7.	MPH10107	Anatomy and physiology	2	3	3	

Sub-Total			**17**	**26**	**26**	
6th Semester						
1.	MPH10103	Statistical analysis of experimental data in nuclear engineering	3	5	5	
2.	MPH10104	Fundamental Practice in Nuclear Technique	2	4	4	
3.	MPH10105	Radiation safety	3	4.5	4.5	
4.	MPH10108	Physics of Radiotherapy	4	6.5	6.5	
5.	MPH10109	Physics of Nuclear Medicine	3	5	5	
6.	*MPH10118*	*Bio-Medical Electronics*	*2*	*3*	*3*	Choose 2 credits
7.	*MPH10119*	*Biomedical Physics*	*2*	*3*	*3*	
8.	*MPH10114*	*Principles and Applications of Accelerators*	*2*	*3*	*3*	
Sub-Total			**17**	**28**	**28**	
7th Semester						
1.	MPH10111	Fundamental Practice for Medical Physics	3	6	6	
2.	MPH10110	Medical imaging and image processing equipment	4	6.5	6.5	
3.	MPH10112	Advanced Practice for Medical Physics	3	6	6	
4.	*MPH10113*	*Informatics Applications in Nuclear Technique*	*2*	*4*	*4*	Choose 6 credits
5.	*MPH10115*	*Nuclear Technology Applications in Industry*	*2*	*3*	*3*	
6.	*MPH10116*	*Nuclear Technology Applications in Environment and Hydrography*	*3*	*4.5*	*4.5*	
7.	*MPH10117*	*Particle Physics*	*2*	*3*	*3*	
8.	*MPH10120*	*Equipment and Technical Procedures in Diagnostic Imaging*	*3*	*4.5*	*4.5*	
Sub-Total			**16**	**27.5 – 28.5**	**27.5 – 28.5**	
8th Semester						
Option 1: Accumulate 10 credits for the graduation thesis						
1.	MPH10995	Graduation thesis	10	20	20	
Sub-Total			**10**	**20**	**20**	
Option 2: Accumulate 10 credits from the following courses						

1.	MPH10980	Medical Physics	3	4.5	4.5	
2.	MPH10981	Simulation of Problems in Medical Physics	3	5	5	
3.	MPH10990	Graduation seminar	4	8	8	
Sub-Total			**10**	**17.5**	**17.5**	

According to the website, the following objectives and learning outcomes (intended qualifications profile) shall be achieved by the **Bachelor programme Electronic Physics Technology and Informatics**:

Objective 1. Industry knowledge and reasoning: Have basic scientific knowledge of general physics, electronics and technology; Ability to observe, demonstrate, propose methods and apply specialized knowledge to solve industry and related problems.

Objective 2. Professional skills: Ability to research and experiment in the field of physics, electronics and information technology; capable of interdisciplinary applications; Able to analyze and evaluate research and experimental results; Have professional consulting and start-up skills in the industry.

Objective 3. Teamwork and communication skills: Able to work in groups; Able to adapt to modern working environment and solve problems; Able to communicate and use language effectively in science and professional activities; Have perfect working and human development skills.

Objective 4. Attitude: Be cultured, have learning ethics, respect yourself, respect differences and be honest. Have the spirit of self-study, self-research and lifelong learning.

Objective 5. Professional responsibilities: Understand the values of ethics, responsibility, honesty towards the profession and society.

PROGRAM LEARNING OUTCOMES

Label	Learning Outcomes
ILO1	Ability to apply basic mathematics, science, and knowledge specialized knowledge to solve electrophysical technology problems electronics and information technology
ILO2	Ability to design, build systems, and propose responsive solutions Technical specifications for industry and cross-industry applications
ILO3	Possess effective professional skills for technical problem solving technology, electronics, and information technology such as logical thinking, Scientific research, observation, evaluation of results and experimentation.
ILO4	Ability to work in teams; leadership, organization, and planning abilities planning and operations; The ability to flexibly adapt to the learning and working environment. Ability to fluently use English in study, research and communication, especially in specialized fields.
ILO5	Have the spirit of self-study, self-research and lifelong learning; proactively overcome difficulties. Have a culture of standards, respect, and honesty in learning
ILO6	Responsible for developing expertise applied in practice and serving the community. Be responsible and honest with assigned work

The following **curriculum** is presented for **EPTI**:

No	Code	Course Name	Credit	Accumulated ECTS	ECTS*	Note
1st Semester						
1.	BAA00101	Philosophy Marx- Lenin	3	4.5	4.5	
2.	BAA00102	Marxist-Leninist Political Economy	2	3	3	
3.	MTH00003	Integral Calculus 1B	3	4.5	4.5	
4.	MTH00081	Practice for Integral Calculus 1B	1	2	2	
5.	PHY00001	General Physics 1 (Mechanics - Thermodynamics)	3	4.5	4.5	
6.	PET00001	Introduction to Engineering	3	5.5	5.5	
7.	ADD00031	English 1	3		5	
8.	BAA00021	Physical education 1	2		3.5	
9.	BAA00004	Introduction to the Vietnamese Law System	3	4.5	4.5	
10.	BAA00030	National defense - Security education	4		8	
Sub-Total (excluded English 1, Physical education 1, National defense - Security education)			**23**	**28.5**	**37**	
2nd Semester						
1. 1	CHE00001	General Chemistry 1	3	5	5	
2.	MTH00004	Integral Calculus 2B	3	4.5	4.5	
3.	MTH00030	Linear Algebra	3	4.5	4.5	
4.	PHY00002	General Physics 2 (Electromagnetism - Optics)	3	4.5	4.5	
5.	PHY00081	Labwork on General Physics	2	4	4	
6.	ADD00032	English 2	3		5	
7.	BAA00022	Physical Education 2	2		3.5	
8.	CSC00003	Computer science 1	3		5.5	
Sub-Total (excluded English 2, Physical Education 2, Computer science 1)			**22**	**22.5**	**36.5**	
3th Semester						
1.	BAA00103	Scientific Socialism	2	3	3	

2.	BAA00003	Ho Chi Minh's Ideology	2	3	3	
3.	BAA00104	History of the Vietnamese Communist Party	2	3	3	
4.	MTH00040	Probability Statistics	3	4.5	4.5	
5.	PHY00004	Modern Physics (Quantum - Atom - Nucleus)	3	4.5	4.5	
6.	*BAA00005*	*General Economy*	*2*	*3*	*3*	Choose 2 credits
7.	*BAA00007*	*Innovative Methodology*	*2*	*3*	*3*	
8.	*BAA00006*	*General Psychology*	*2*	*3*	*3*	
9.	*GEO00002*	*Earth Science*	*2*	*3*	*3*	Choose 2 credits
10.	*ENV00001*	*General Environment*	*2*	*3*	*3*	
11.	PET10009	Engineering Programming	3	5	5	
12.	ADD00033	English 3	3		5	
Sub-Total (excluded English 3)			**22**	**29**	**34**	
4th Semester						
1.	PHY10005	Basic Electronics	3	5	5	
2.	PHY10007	Quantum Mechanics 1	3	4.5	4.5	
3.	PHY10010	Solid State Physics	3	4.5	4.5	
4.	PET10001	Object-oriented programming	3	5	5	
5.	PET10002	Fundamentals of Semiconductor devices	2	3	3	
6.	PET10003	Python Programming	2	3.5	3.5	
7.	ADD00034	English 4	3		5	
Sub-Total (excluded English 4)			**19**	**21**	**26**	
5th Semester						
1.	PET10004	Modelling and Simulation	3	5	5	
2.	PET10005	Digital systems	4	6.5	6.5	
3.	PET10006	Digital Signal Processing	3	5	5	
4.	PET10007	Data Structures and Algorithms	3	5	5	
5.	PET10008	Sensors and Measurement Techniques	3	5	5	
6.	PHY10003	Computational Mathematics	3	5	5	
Sub-Total			**19**	**31.5**	**31.5**	

6th Semester						
1.	PET10101	Database	3	5	5	
2.	PET10102	Machine Learning	3	5	5	
3.	PET10103	Electric Circuit Analysis	2	3	3	
4.	PET10104	Thin film manufacturing technology	4	7	7	
5.	PET10105	Material Analysis Techniques	3	5	5	
6.	PET10106	Microcontroller	3	5	5	
Sub-Total			**18**	**30**	**30**	
7th Semester						
1.	*PHY10205*	*Optical Properties of Solids*	*3*	*4.5*	*4.5*	Choose 18 credits
2.	*PHY10207*	*Crystal Grown Technology*	*3*	*5*	*5*	
3.	*PHY10211*	*The Mechanical and Thermal Properties of Solids*	*3*	*4.5*	*4.5*	
4.	*PHY10610*	*Java Programming*	*3*	*5*	*5*	
5.	*PHY10612*	*Computer Network*	*3*	*5*	*5*	
6.	*PHY10613*	*Digital Logic Design*	*3*	*5*	*5*	
7.	*PHY10614*	*Internship*	*2*	*4*	*4*	
8.	*PHY10616*	*Programming on Mobile Devices*	*3*	*5*	*5*	
9.	*PHY10620*	*Embedded System and IoT*	*3*	*5*	*5*	
10.	*PHY10621*	*PLC Programming*	*3*	*5*	*5*	
11.	*PHY10623*	*Digital Image Processing*	*3*	*5*	*5*	
12.	*PHY10801*	*Scientific Research Methodology*	*2*	*3*	*3*	
13.	*PET10107*	*Creativity and Innovation*	*2*	*3*	*3*	
14.	*PET10108*	*Crystal Physics*	*3*	*4.5*	*4.5*	
15.	*PET10109*	*Manufacturing Technology SERS sensor*	*3*	*5.5*	*5.5*	
16.	*PET10110*	*Photonics and Semiconductor Materials*	*3*	*5*	*5*	
17.	*PET10111*	*Simulation and Computational Optics and Plasma Physics*	*2*	*4*	*4*	
18.	*PET10112*	*Semiconductor Physics*	*3*	*4.5*	*4.5*	

19.	*PET10113*	*Ultrasonic Technique*	*3*	*4.5*	*4.5*	
20.	*PET10114*	*Introduction of Material Science*	*4*	*6*	*6*	
21.	*PET10115*	*Material Manufacturing Technology*	*3*	*5*	*5*	
22. 5	*PET10116*	*Robot Technology and Applications*	*3*	*5*	*5*	
23.	*PET10117*	*Artificial Intelligence*	*3*	*5*	*5*	
24.	*PET10118*	*Biomedical Electronics*	*3*	*5*	*5*	
25.	*PET10119*	*Big data*	*3*	*5*	*5*	
26.	*PET10120*	*Web Programming*	*3*	*5*	*5*	
27.	*PET10121*	*Fuzzy Logic and Neural Network*	*3*	*5*	*5*	
Sub-Total			**18**	**27**	**27**	
8th Semester						
Option 1: Accumulate 10 credits for the graduation thesis						
1.	PET10995	Graduation thesis	10	20	20	
Sub-Total			**10**	**20**	**20**	
Option 2: Accumulate 10 credits from the following courses						
1.	PET10990	Graduation Project	6	12	12	
2.	PET10991	Specialized Seminar	4	8	8	
Sub-Total			**10**	**20**	**20**	