ASIIN Seal & European Labels

Accreditation Report

Bachelor's Degree Programme

Space Engineering

Provided by

International University – Vietnam National University Ho Chi Minh City

Version: 25 March 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]
Kỹ sư Kỹ thuật Không gian	Bachelor of Engineering in Space Engineering	ASIIN, EUR-ACE® Label	–	02, 05
Date of the contract: 20.07.2023 **Submission of the final version of the Self-Assessment Report:** 28.07.2023 **Date of the audit:** 04.10. – 05.10.2023 **At:** International University – Viet Nam National University Ho Chi Minh City				
Peer panel: Prof. Dr.-Ing. Ralf Müller, University of Erlangen–Nuremberg Prof. Dr.-Ing. Eike Stumpf, RWTH Aachen University Huynh Nguyen, Universal Alloy Corporation Vietnam Nguyễn Thanh Toàn, student at HCMUT				
Representative of the ASIIN headquarter: Dr. Emeline Jerez				
Responsible decision-making committee: Accreditation Commission for Degree Programs				
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2023				

[1] ASIIN Seal for degree programs; EUR-ACE® Label: European Label for Engineering Programs

[2] TC: Technical Committee for the following subject areas: TC 02 – Electrical Engineering/Information Technology; TC 05 – Materials Science, Physical Technologies

Subject-Specific-Criteria of the Technical Committee 02 – Electrical Engineering/Information Technology as of 23.09.2022 and the Technical Committee 05 – Materials Science, Physical Technologies as of 18.03.2022 EUR-ACE® Framework Standards and Guidelines, 2021	

B Characteristics of the Degree Program

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding 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
Ba Space Engineering	Bachelor of Engineering	Space science	EQF-Level 6	Full time	No	4 years	152 credits (243.14 ECTS)	2016

[3] EQF = The European Qualifications Framework for Lifelong Learning

The ASIIN experts acknowledge and consider the contextual framework within which the Bachelor's degree program under review is offered:

The Bachelor of Engineering in Space Engineering program is managed by the Department of Physics, an academic unit of Ho Chi Minh City International University (HCMIU). HCMIU is a member of Vietnam National University – Ho Chi Minh City (VNUHCM), a ministerial-level university in Vietnam.

Established in 2003, HCMIU is the first public university in Vietnam that uses English as the primary language in teaching and researching. With ten schools and two departments (Department of Mathematics and Department of Physics), the university offers various academic programs, including 23 undergraduate, 12 master's and five doctoral degrees, across various fields of study.

HCMIU's vision is to "become one of the leading research universities in Asia, with the aim of nurturing talent and providing high-quality labor for both domestic and international workforces". Its missions are:

"To become an international higher education institution with a Vietnamese cultural identity;
To pioneer in adopting an advanced and autonomous higher education governance model;
To offer higher education programs in a wide range of areas, all accredited by regional and international accreditation organizations;
To enhance internationalization by using English as the medium of instruction. Students are trained to become global citizens with a high self-awareness of their social responsibility for a long-term, sustainable development;
To pursue excellence in basic and applied research in order to meet the demand for innovative and sustainable development of industries, provinces and regions; to promote connectiveness by means of collaboration activities and social services."

HCMIU has established partnerships with international universities and organisations, promoting worldwide exposure and academic exchanges. It actively engages with the local community through various outreach programs, contributing to Vietnam's development.

The Department of Physics

The Department of Physics is responsible for teaching all fundamental Physics courses for other departments across the university. These courses equip students with basic

knowledge and practical skills in areas such as Classical Mechanics, Thermodynamics, Electromagnetism, Optics, Quantum Physics and Physics Laboratories.

In 2016, the Department of Physics introduced the Bachelor's degree in Space Engineering (SE), a 4-year undergraduate program, which is presented with the following profile on the University's website:

Program Objectives

The goals of the SE program are aligned with the vision, mission, and philosophy of education of IU and the national strategy for developing space science and technology. Accordingly, the program objectives (POs) focus on providing graduates capable of being reliable professionals, leaders, and agents of change who have adequate capabilities to be responsive and adaptive to the challenges met. The graduates will have the knowledge, skills, and attitudes as follows:

PO1. Broad fundamental knowledge of Mathematics, Physics, and Informatics to meet the requirements of the SE field and pursuit higher education levels.

PO2. Strong professional knowledge and skills in space science, satellite communication, digital image processing, remote sensing, GNSS, and geolocation-based services to develop applications in space engineering and related fields.

PO3. Solid skills in research, communication, and teamwork suitable for interdisciplinary contexts and multicultural environments.

PO4. Good understanding of socioeconomics and politics to effectively contribute to the sustainable development of society and community.

Job Opportunities

The Bachelor's Program in Space Engineering provides graduates with good political ethics and moral attitudes, professional knowledge and skills, research skills, and creative thinking. The graduates have abilities to flexibly apply knowledge and skills to solve various problems in space engineering and related fields. The graduates can:

1. Work in software, logistics, and telecommunication companies of exploiting big data analysis, remote sensing, global navigation satellite system (GNSS), and geolocation-based services.
2. Work in worldwide organizations of applying satellite data in urban planning, management of the environment, natural resources, forest, land, and territory.
3. Study at a higher education level and work in worldwide institutes or universities in space science, satellite communication, remote sensing, and GNSS applications.

C Accreditation Report for the ASIIN Seal[4]

1. The Degree Program: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree program (intended qualifications profile)

Evidence:

- Self-Assessment Report.
- Program website: https://physics.hcmiu.edu.vn/en/
- Objectives-Module-Matrices as part of the Self-Assessment Report
- Discussions with management, staff, students, graduates and employers during the on-site visit.

Preliminary assessment and analysis of the peers

The International University seeks accreditation for the **Bachelor's Program in Space Engineering**.

The experts analysed the program's objectives and learning outcomes based on the descriptions in the Self-Assessment Report and several supporting documents, such as the Module Handbook and a comprehensive course-level mapping provided by the Department of Physics. The program profile is also presented on the respective website.

The bachelor's program under review can be studied full-time on campus. It has a formal duration of 4 years and requires the successful completion of 152 Vietnamese credit points (243.14 ECTS). HCMIU has defined Program Objectives (POs) and Intended Learning Outcomes (ILOs) to describe the program's profile and goals. While the POs describe the general goals, the ILOs are worded more specifically and describe, in detail, what competencies the students should acquire during their studies. The POs were generated based on the analysis of the University's vision, mission and philosophy and the national strategy for developing space science and technology.

[4] This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

The ILOs are developed based on the POs and a stakeholder process involving teaching and professional staff, current students, alumni, and industry partners. The following ten graduate learning outcomes are formulated:

Graduates from the Space Engineering program should:

Knowledge, skills, and attitudes	**Intended Learning Outcomes**
Generic knowledge	ILO1 - Apply knowledge of mathematics, physics, and informatics for solving space engineering problems.
Specific knowledge	ILO2 - Apply knowledge of physics and space science for solving problems in satellite technology applications. ILO3 - Apply knowledge and skills of digital signal processing for analyzing satellite communication signals. ILO4 - Develop applications using satellite-based positioning and remote sensing in the era of interdisciplinary science and technology.
Specific skills	ILO5 - Perform experiments, analyze data, interpret results, and make conclusions regarding to technical problems in satellite technology applications
General skills	ILO6 - Communicate effectively in career. ILO7 - Work effectively in a team in space engineering and interdisciplinary areas.
Attitudes	ILO8 -Show an understanding of the role and responsibility of an engineer in society. ILO9 - Show abilities of further self-learning and lifelong learning. ILO10 - Recognize the impact of technical solutions and modern technology on the environmental issues and contemporary society.

The experts positively note that the ILOs are regularly reviewed after each graduation cohort to be consistent with the objectives and the competence profile.

During their exchange with the expert group, the industry partners commend the graduates of the Bachelor's program in Space Engineering for their readiness to enter the workforce after completing their studies. They express satisfaction with the graduates' technical skills and affirm that the program aligns well with industry requirements. Overall, the program is a suitable fit for industrial needs.

In addition, the students attending the meeting convey to the experts their satisfaction with the program. They place emphasis on the knowledge they gain in physics and satellites. They also appreciate the benefits of having English as the medium of instruction, which provides them with an international perspective for their future careers.

Based on the feedback from stakeholders, the expert team gains the impression that the imparted qualification profile meets the expectations of students and the industry. This enables students to secure employment that corresponds to their qualifications. **However, the expert group would have liked the opportunity to speak with more external stakeholders in the meetings**. This aspect warrants attention and consideration, as a more extensive and diverse sample would have provided a stronger foundation for the experts' overall impression.

Together with the list of intended learning outcomes, the Department of Physics has used the ASIIN Subject-Specific Criteria (SSC) of the Technical Committees 02 – Electrical Engineering/Information Technology and 05 – Materials Science, Physical Technologies as a point of reference. These field-specific criteria of ASIIN have been instrumental in providing the matrix presented in Appendix I, which lists subject-specific competences and corresponding intended learning outcomes for the Space Engineering program.

The expert team also appreciates that the Department of Physics has engaged in extensive internal exercises, mapping these learning outcomes to the various courses (in the ASIIN terminology modules) offered in the Bachelor's program.

HCMIU also applied for the EUR-ACE® (European Accredited Engineer) label. The EUR-ACE® label is a quality certificate for engineering programs and is recognised Europe-wide. During the accreditation process, the experts verified whether the Bachelor of Engineering in Space Engineering complies with the criteria fixed in the EUR-ACE® Framework Standards. The Technical Committee for Electrical Engineering/Information Technology's Subject-Specific Criteria (SSC) are closely linked to the EUR-ACE® Framework Standards. Consequently, the analysis of the Subject-Specific Criteria encompasses the EUR-ACE® Framework Standards in its various categories (knowledge and understanding, engineering analysis, engineering design, investigations, engineering practice, and transferable/soft skills).

The category ***Knowledge and Understanding*** requires Bachelor's degree graduates at HCMIU to demonstrate knowledge and understanding of mathematics, computing, and other basic sciences related to the field. Additionally, knowledge and understanding of engineering fundamentals, including awareness of current advancements and a broader multidisciplinary perspective.

In ***Engineering Design***, Bachelor graduates are qualified to develop concepts and solutions for fundamentally orientated and partially unusual problems under the broad consideration of other disciplines. They use their creativity to develop new and inventive products, processes and methods.

Regarding ***Investigations,*** HCMIU graduates are to investigate and assess the application of new and emerging technologies in their disciplines, plan and carry out analytic, model and experimental investigations, critically assess data and draw appropriate conclusions. Regarding ***Engineering Practice***, graduates can classify and systematically combine knowledge of different fields and handle complexity, familiarise themselves with the new and unknown, assess applicable methods and their limits and reflect the non-technical effects of the engineering activity. In the area of ***Transferable/Soft Skills,*** graduates have the capacity to function effectively as leaders of a team that may be composed of different disciplines and levels, as well as work and communicate effectively in (inter)national contexts.

In their analysis, the experts find that the subject-specific criteria of ASIIN/ EUR-ACE® criteria are covered in the learning objectives of the program under review. The learning outcomes correspond to the qualification descriptors relevant to level 6 (Bachelor) of the European Qualifications Framework for Lifelong Learning. **In connection with the review of the curriculum (under Criterion 1.3), the experts will decide whether the program matches the SSC of the relevant ASIIN Technical Committee in such a manner that they, at the same time, qualify for the EUR-ACE® Engineering label.**

Criterion 1.2 Name of the degree program

Evidence:

- Self-Assessment Report
- University website: https://hcmiu.edu.vn/
- Sample of Diploma and Diploma Supplement

Preliminary assessment and analysis of the experts:

The degree program under review follows circular No. 24/2017/TT-BGDDT from the Minister of Education and Training (MOET), which promulgates the Level-Four Classification of Education at the Bachelor's Degree Level.

The experts confirm that the English translation and the original Vietnamese name of the bachelor's degree program correspond with the intended aims and learning outcomes.

A student who fulfils all requirements of the program will be awarded the degree of **Bachelor of Engineering in Space Engineering** (**Kỹ sư Kỹ thuật Không gian)**.

Criterion 1.3 Curriculum

Evidence:

- Self-assessment report.
- Program website: https://physics.hcmiu.edu.vn/en/
- Statistical data about the progress of studies of Space Engineering students
- Academic Calendar 2022-2023
- Discussions during the on-site visit.

Preliminary assessment and analysis of the experts:

The expert team examines the structure of the Bachelor's degree program and reflects on the perceptions of interviewed stakeholders.

The Department of Physics offers the Bachelor of Engineering in Space Engineering. It is a 4-year, full-time study program. To complete the program, students must complete at least 152 credit points (equivalent to approximately 243.14 ECTS points). In the academic year 2022-2023, 51 students were enrolled in the program.

At HCMIU, an academic year is divided into two regular and summer semesters. The summer semester is typically reserved for internships. Still, additional courses are also offered during this period, which lasts for eight weeks (seven weeks for teaching and one for final exams). A regular semester consists of 20 weeks (15 weeks for teaching, two weeks for midterm exams, two weeks for final exams and one week for reserve).

Students are expected to complete the study program within four years. They can extend their study time if needed; the maximum time allowed for students to finish the program is seven years.

The program structure is outlined in Appendix II. There are four blocks of knowledge in the curriculum:

1. **General courses** provide basic knowledge of natural science, social science, and humanities. Natural science courses, including mathematics, physics, and informatics, are distributed in the first two years. Social science courses, including political theory, physical education, and military training, spread over the four years.
2. **Core courses** are designed to provide students with essential knowledge and skills in space science and technology. These courses are spread across the first five

semesters and are divided into three groups: earth observation from space, satellite communication technology, and fundamentals of satellite technology applications.

3. **Major courses** provide specific knowledge and skills for developing satellite technology applications. These courses are mainly distributed in the 6th semester and are elective courses in the 7th semester.
4. **Internship, project, and thesis courses** provide working skills and attitudes, such as teamwork, communication, and lifelong learning, essential for space engineering and related areas. These courses help students apply knowledge to practice. The internship is usually done in the summer after the third year, completing at least 135 hours. In the final year, students have to complete their Bachelor's thesis. For both internship and thesis, students must submit their reports and present and defend them in front of a panel.

In their appreciation of the program under review, the expert team comes to the following conclusions:

The experts acknowledge the Department of Physics' commitment to the continuous improvement of the study program curriculum. The new curricula from 2019 include a number of major improvements. They particularly commend the Chair of the department, who is consistently involved and actively driving the program forward.

The expert group can confirm that the study program is regularly updated with the input of both internal and external stakeholders. Feedback is collected through various mediums, such as exit surveys to graduates, annual surveys to alumni and employers, and a school survey to academic staff. The Education and Research Council of the Department of Physics reviews the results of these surveys along with consultation with experts in the field to make recommendations to amend the curriculum. Several minutes are provided to detail these recommendations.

However, upon examining the learning outcomes and course descriptions, the experts see a need for further development in the area of Engineering Design within the program. They recommended extending the scope of this dimension in the curriculum.

The expert team also highlights certain modules in the curriculum where the course titles do not accurately align with the course content (e.g., Big Data Analytics for Remote Sensing). In some instances, the stated learning outcomes do not correspond with the actual course content (e.g., Mathematics for Engineers). They request a revision of the documentation such that it reflects the study program in a consistent manner. This particularly concerns the titles of courses, the content descriptions and the prerequisites (see also Criterion 4.1)**.**

Regarding the students attending the meeting, they appear motivated and convinced that HCMIU is the right place to get their qualifications and graduate. The students seem satisfied with the program's structure and content. They are likely to recommend it to their friends.

During their discussions with industry representatives, the experts learn that they generally value the quality of the Bachelor's graduates and their strong foundation in mathematics, physics, and data sciences. Moreover, industry partners highlight the potential for collaboration between industry and academia through research projects.

The experts conclude that the engineering program under review is designed in a way to develop the competences as exemplified in the Subject-Specific Criteria of ASIIN and the requirements of the EUR-ACE seal.

Internship

As part of the Bachelor's program in Space Engineering, students are required to complete an internship for 6-8 weeks under the instruction of a supervisor. The internship takes place in a research institute or industrial company, allowing students to apply their general, specific, and transferable skills in a practical setting. Students choose an internship topic in consultation with their academic advisor, who collects potential topics from partner departments. Students can also propose topics at organisations that offer them intern positions.

Additionally, students are required to participate in a Research Project where they can contribute to an industrial or academic project. The expert team has access to a list of research projects, and according to their records, 34 students have engaged with national and international institutions to meet this requirement.

During the on-site visit, the experts also examine a selection of internship reports and internship evaluation forms. They commend HCMIU for its array of internship opportunities, demonstrating its commitment to providing real-world experiences for the students.

International Mobility

HCMIU admits international students through a procedure established by the Center for International Mobility at the Office of External and Public Relations. For example, in the academic year 2021-2022, two international students from Germany participated in a course offered by the program.

According to the University's website information, exchange partner institutions for the Bachelor’s program in Space Engineering include universities in the US, Spain and

Indonesia. Credits acquired abroad are recognised at HCMIU if the course is equivalent (70 % or above) to a course at HCMIU regarding content, teaching pedagogy, objectives, and students' workload.

Students interested in studying abroad can receive a scholarship and financial aid if they meet specific requirements. These opportunities are based on the student's academic achievements and social contributions. The Center for International Mobility also collaborates with European Universities to obtain extra financial support for local students who wish to participate in mobility programs under the Erasmus+ program. In addition, excellent students can apply for scholarships directly from the Vietnamese government to study abroad.

HCMIU has established memorandums of understanding with international institutes in the field of space science and technology, such as the Korea Astronomy and Space Science Institute and the Center for Spatial Information Science at the University of Tokyo in Japan, to support students' practice and research. These partners offer annual scholarships to Space Engineering students to support their stay abroad. Their academic or professional staff supervise students during the internship, research project and thesis. The expert group is provided with a list of students who pursued internships, research projects, and thesis abroad. Based on this information, the experts confirm that between 2016 and 2023, a total of 24 internships, seven research projects, and 11 thesis topics have been developed in partnership with institutions located in countries such as the Netherlands, South Korea, Japan, Canada, the United States, Taiwan, and Thailand.

In their discussion with the experts, the students confirm the existence of opportunities for international academic mobility. The experts appreciate the efforts to promote international mobility and encourage HCMIU, as well as the Department of Physics, to continue in this direction. **As an international university, HCMIU should aim to increase the number of incoming and outgoing Space Engineering students. Inviting more international guest lecturers to give classes or seminars in the Space Engineering program would also be beneficial.**

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Program website: https://physics.hcmiu.edu.vn/en/
- University website: https://hcmiu.edu.vn/
- HCMIU Admission Website: https://tuyensinh.hcmiu.edu.vn/

- Discussions during the on-site visit.

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, admission to the Space Engineering program is conducted once a year in September. Information about the admission procedure is available on the University's website and thus accessible to all stakeholders.

The Office of Undergraduate Academic Affairs (OUAA), in cooperation with the Office of Student Services (OSS), are responsible for advertising all academic programs. For example, the OUAA conducts career orientation sessions and campus tours to reach students in various high schools in Vietnam. In addition, HCMIU publishes its new and existing programs in well-established newspapers.

Since the academic year 2017-2018, the admission to HCMIU is based on either one of the following six admission paths:

1. National High School Graduation Exam: based on the score of three subjects, which students have registered for their expected programs.
2. Best Academic Records of students from designated high schools.
3. Direct admission according to the Ministry of Education and Training regulations, candidates who won, for example., the National Excellent Student Prize, the National Science and Technology Prize.
4. Results from the Scholastic Aptitude Exam held by Vietnam National University, Ho Chi Minh City (VNUHCM).
5. Admission for candidates with an International Baccalaureate. International students must pass an interview with the Admission Committee to be admitted to HCMIU.
6. Academic Records during the 10th, 11th and 12th grades of designated high schools.

As the Space Engineering program is taught, learned and communicated in English, students who do not have TOEFL or IELTS certificates will have to take an English placement test, similar to the TOEFL test, offered by the university besides the entrance examination. Based on their English proficiency, they will be placed in different levels: IE0, IE1, IE2, IE3 (Intensive English) and Specialised English AE1 and AE2.

The selection from either path is made by taking the candidates with the highest scores down until the corresponding quota is filled. Most of the students at HCMIU are admitted via the first two paths, but the quota for each scheme varies each year depending on the HCMIU's recruitment strategy.

The Vietnamese Ministry of Education and Training will organise the Annual National High School Graduation Exam every summer. All high school students in Vietnam must take part in this exam. It covers several subjects, such as Mathematics, Foreign Languages, Physics, Chemistry, Literature, and History and lasts 3 - 4 days. Based on the scores on the exam and their preferences, prospective students get admitted to the different universities in Vietnam.

In addition, the two National Universities in Hanoi and Ho Chi Minh conduct their own admission exam, the so-called National University Competency Assessment Test. The National Universities have introduced this test to give high school graduates another chance to get admitted into university studies. It only lasts about 3 - 4 hours and consists of several questions and problems to assess the applicant's knowledge and skills in different subjects.

2017-2022 data for the Space Engineering program show that the number of applicants has exceeded the available places. In the last six years, numbers have ranged from 90 to 198 applications for a maximum of 30 study places Applications in 2020 were significantly lower than before due to the COVID-19 pandemic.

Most students get access to the Bachelor's program under review via paths 1 and 4 (50 – 70 % quota and 10 – 45 % quota, respectively). Although, many students are offered a study place, less than 50 % enrol in the program (the average is 12 new students in the last six years). This is due to the complex admission system in Vietnam and the different admissions pathways. As a result, many students apply to several universities and then decline an offered place. The detailed numbers are shown in the following table:

Table 1: Applications, Offered Places, and Enrolled Students

Intake	Applicants		
	No. Applied	No. Offered	No. Admitted/Enrolled
2017	132	41	17
2018	198	53	10
2019	157	31	8
2020	90	26	9
2021	134	36	12
2022	160	17	14

Source: SAR HCMIU

The tuition fee for the Space Engineering program is about 39 million VNĐ (1,502 €) per year per student. HCMIU is part of the national university system, so it follows national regulations in this matter.

The Academic Affairs Office awards scholarships to students with excellent performance. In addition, students can also receive scholarships from external sources such as companies, non-government organisations, alumni, and individuals.

Among the scholarships available at HCMIU are the Admission Scholarship and the Encouragement Scholarship. Directed to the top 5% of offered applicants in the entrance examination, the Admission Scholarship covers the full or half of the fees of the scholarship holder for four years. Additionally, each semester, the Encouragement Scholarship chooses one of the best students in each class, based on their GPA and the number of credits taken, to receive up to 12 million VNĐ (463 €) per semester.

HCMIU has a policy to award tuition fee waivers for five student groups: (1) students with meritorious services to the revolution or the relatives of people with meritorious services to the revolution; (2) students orphans of both parents; (3) students with disabilities in poor or near-poor households; (4) students of ethnic minorities in poor or near-poor households; (5) students of very few ethnic minorities.

Students during the interview testify that they are informed in detail about the requirements and the necessary steps to apply for admission into the Space Engineering program.

The experts see evidence that the Department of Physics is keeping track of its students' progress and achievements. In this way, an instrument is in place to monitor the performance records of students with various enrolment backgrounds.

In their assessment, the experts find the admission rules to be binding, transparent, and based on HCMIU's written regulations. They confirm that the admission requirements support the students in achieving the intended learning outcomes. Regarding the credit for transfer students, adequate policies are in place.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Study plan
- Module Handbook
- Academic Regulations
- Statistical Data about the progress of studies of Space Engineering students
- Discussions during the on-site visit.

Preliminary assessment and analysis of the experts:
HCMIU uses a credit system to track student progress and achievement. The Bachelor's degree program under review comprises 152 (Vietnamese) credit points, equating to 6702.5 hours of workload (approx. 243.14 ECTS).

According to the HCMIU scheme, each credit is equivalent to 15 periods of theoretical lecture in class or 30 periods of practical laboratory work with an additional 30 periods of self-study. The internship and the Bachelor's thesis are equivalent to 45 periods and 45 periods in the research project. One period equals 1 hour, but the in-class period includes 50 minutes for face-to-face lecturers and 10 minutes for movement. The workload calculation is depicted in the following table:

Table 2: The student workload of study forms for one credit

Study forms	Equiva-lent ECTS	In-clas periods	Self-study periods	Total periods	Total hours
Theoretical lecture (T)	1.54	15	30	45	42.5
Laboratory practice (T)	2.00	30	30	60	55
Internship, project, thesis (P)	1.64		45	45	45

Source: SAR HCMIU

To keep track of the program's workload, the Department of Physics conducts regular surveys of its students and alumni. According to feedback collected in 2022, 60% of alumni from batch 2016 and 2018 believed that the program's workload was sufficient or light, while 40% found the curriculum heavy. Among senior students from batch 2019 and 2020, 78% of the responses indicated that the program was adequate, and only 22% thought that the workload was heavy. During their exchange with the experts, the students validate these perceptions. They indicate that their workload is reasonable, giving them enough time to adapt to growing demands, and are generally satisfied with the distribution of credits between the semesters.

According to statistical data provided by the university, the Space Engineering program has a relatively low percentage of students who complete their degree within four years. In 2017 and 2018, only 29% and 20% of students graduated on time, respectively. According to the program coordinator, many students fail to graduate on time due to difficulties encountered in English courses. The average period for completing the Bachelor's degree is 4.5 years, and the graduation rate ranges from 70% to 80%. Reportedly, the engineering programs' curriculum has been adjusted from 4 years to 4.5 years for the academic year 2023-2024 to better balance the study workload for incoming students.

The Module Handbook for the Space Engineering program can be accessed on the University website. The experts verify that this document outlines the time commitment and distinguishes between credits allocated for various forms of supervised studies and

self-study time. Additionally, the experts consider Announcement No. 54/TB-ĐHQT concerning the conversion of ECTS credits at HCMIU. **Nevertheless, it remains uncertain whether students and other stakeholders have access to clear and easily comprehensible information on how the university converts local credits into ECTS. The experts accentuate the critical importance of transparency and clarity in this conversion process.**

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Program Website: https://physics.hcmiu.edu.vn/en/
- Course Syllabus
- Discussions during the on-site visit.

Preliminary assessment and analysis of the experts:
In its Self-Assessment Report, HCMIU records that appropriate didactical instruments and methods are implemented for the Bachelor's degree program under review. The variations in learning methods and tools are adjusted to the level of knowledge, skills, and competences set in each course.

To enhance the learning experience, structured activities like tutorials, homework, assignments (reading or problem-based exercises), and practical activities are included in the curriculum. Students are encouraged to use different tools, including reading textbooks, referring to documents and scientific papers, taking notes during lectures and doing Internet searches to complete homework and quizzes. Some courses also include group project assignments to help students develop teamwork, communication, and leadership skills. The assignments and exercises enable students to develop abilities in critical thinking, written/oral communication, data acquisition, problem-solving, and presentation of academic work.

HCMIU aims to support the transition from a teacher-centred to a student-oriented and outcome-based education, involving students in learning and developing their thinking and analytical skills.

The most common learning method is the class session, with several courses offering laboratory practice. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic and soft skills. Laboratory work covers collecting and post-processing data, reporting, discussions, and presentations.

Additionally, practical activities should familiarise students with academic research methods. Moreover, students are encouraged to participate in scientific seminars, clubs (i.e., Astronomy Club, English Club and Physical Training Club), workshops and conferences organised by the university or outside institutions. Students participate in a research project led by faculty members or researchers outside the university.

To support teaching and learning activities at HCMIU, all classrooms and laboratories are equipped with computers, projectors, and internet access. To help students achieve the intended learning outcomes and facilitate adequate learning and teaching methods, HCMIU has implemented an e-learning platform (Blackboard) where students and teachers can interact. Through this tool, lectures, textbooks, reading materials, and study documents are uploaded in advance for students. Online quizzes/assignments and group discussions are available via Blackboard, allowing more lecturer-student communication after class hours. In addition, students have full access to the Central Library of HCMIU. The university's e-learning system has helped teachers utilise different instructional strategies, such as flipped classrooms and blended learning.

Since 2016, the Office of Human Resources Management has organised various training sessions on teaching methods and pedagogy for lecturers. Experts from institutes worldwide are invited to conduct these sessions. Lecturers are also given opportunities to participate in training sessions organised by the Vietnamese National University (VNU-HCM). Furthermore, they can attend seminars on sharing experiments in teaching methods and course learning outcome assessments organised by other members of VNU-HCM. Through these sessions or seminars, lecturers can improve their knowledge and skills in pedagogy.

In addition, each student has an Edusoft account, where the academic progress and results can be accessed. Students make course registration every semester through the Edusoft system, which has information on prerequisite courses, courses to study for individual students, and courses available in a particular semester. The score of each course will be displayed at the end of the semester.

In summary, the experts can confirm that a variety of learning methods are used and that they are aligned with the intended learning outcomes. In the discussions with students, the experts learn that they are generally satisfied with the quality of teaching and learning in the program under review.

Gathering systematic feedback on the quality of teaching and learning can be achieved through the course evaluation survey conducted at the end of each semester, which serves as a valuable source of information. **However, as elaborated in more detail under criterion**

5 of this report, there is room for reorganisation and enhancement of this quality assurance instrument to better fulfil its intended purpose.

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

The experts thank the University for the provided statements and additional documentation concerning criterion 1.

Active involvement of external stakeholders

The experts appreciate the University's clarification regarding the low number of external stakeholders in the on-site meeting. They appreciate the University's initiative to keep external stakeholders engaged in future program enhancement processes. The experts believe that there is no need to issue a recommendation in this regard.

Extending the Engineering Design scope in the curriculum

After reviewing the University's provided link to the updated syllabi, the experts acknowledge the inclusion of design aspects in the Satellite Signal and Image Processing Laboratory course. They specifically appreciate using James Wertz's textbooks as a valuable reference throughout this course. Although it seems that a tailor-made approach has been used to modify an existing course without expanding the syllabi, the experts do not see any further need for a recommendation in this regard.

Alignment between course titles and content descriptions

After reviewing the provided links, the experts confirm that some changes have been made to the courses 'Big Data Analytics for Remote Sensing' and 'Big Data Analytics for Remote Sensing Laboratory' to align them with the intended learning outcomes. The course titles were modified to 'Introduction to Big Data Analytics for Remote Sensing'. Additionally, the learning outcomes, course description, and content of 'Differential Equations' and 'Mathematics for Engineers' were updated. The latter course was renamed to 'Fundamental Mathematics for Engineers.

However, based on the provided statement and documentation, it is not unequivocally evident that the main issue has been resolved. The experts observe, for instance, that the course titled ‘Introduction to Big Data Analytics for Remote Sensing’ is not actually a data analytics course with applications in remote sensing, as the title suggests. This course is on remote sensing utilising data analytics. An appropriate title could thus be, for example, ‘Remote Sensing Utilizing Data Analytics’.

Therefore, the experts maintain their requirements as per the applicable criteria in this regard and ask the University to ensure further alignment as part of the University's fulfilment of requirements in due time.

Consistency in all relevant documentation

Addressed under criterion 4.

Strengthened internationalisation activity

The experts commend the University for engaging international experts in lectures, seminars, and thesis supervision. They highlight the organisation of public talks and seminars with experts from institutions such as the East Asian Observatory and the University of Parma, Italy. The expert team supports the university's initiatives to facilitate overseas internships for students and its efforts to develop a plan to attract incoming international students. The experts believe that there is no need to issue a recommendation in this regard.

Accessibility and transparency in the conversion of local credit into ECTS

In regard to the required access to clear and easily comprehensible information on how the university converts local credits into ECTS, the expert panel confirms that the university has published the 'Announcement on the conversion of ECTS credits at International University' on the Department of Physics website. However, the information is not readily accessible through the university's website. The expert group retains its recommendation in this regard and does not see the need for a formal requirement in view of the action undertaken.

Student feedback

Addressed under criterion 5.

Criterion is predominantly fulfilled.

2. Exams: System, Concept and Organization

Criterion 2 Exams: System, concept and organization

Evidence:

- Self-Assessment Report
- Module Handbook

- Student Handbook
- Samples of student's work
- HCMIU's academic calendar

Preliminary assessment and analysis of the experts:
HCMIU presents the general rules for the examination and assessment systems applicable to the Bachelor's program under review. Exams for the Bachelor of Engineering in Space Engineering follow detailed policies by the University.

The final grade of a course is a combination of the midterm and final exams, quizzes, assignments, homework, presentations, and lab exams and reports. Students' overall performance throughout the semester is formally monitored through course grades. Most courses also include practical sessions, allowing students to gain hands-on laboratory experience.

The most common type of evaluation used is written examinations. However, other examination forms may contribute to the final grade. Written examinations typically include short answers, essays, problem-solving or case-based questions, and calculation problems. Some lecturers also give multiple-choice or true-false questions in examinations or quizzes. The grade from laboratory work usually consists of laboratory skills, discussions, reports, and oral exams.

Successfully passed exams are evaluated by lectures with a grading system based on a 100-point scale: Excellent (90 ≤ score ≤ 100), Very-good (80 ≤ score < 90), Good (70 ≤ score < 80), Average good (60 ≤ score < 70) and Fair (50 ≤ score < 60). To pass the course, a student must obtain at least 50 out of 100 points in the course's total score. For mid-term and final exams, the teacher should deliver the grades within two weeks after the test date.

The students learn about mid-term and final exams via the University's academic calendar. The midterm and final exams occur in the 8th-9th and 19th-20th weeks of the semester, respectively. The examination forms are specified in the course descriptions available to the students via the University´s website and the online platform Edusoft.

As described in Criterion 1.3, the internship is conducted through collaboration with industry partners and research centres in the field of space science and technology, nationally and internationally. Students join the course in the summer after the 6th semester; they work for two months, equivalent to 6-8 weeks or 135 hours. The internship is approved and supervised by an academic advisor and an onsite supervisor at the host institution. At the end of the internship, students write a report and present their results to a committee. The evaluation considers the work plan, discipline, teamwork, plan

implementation, and activity report. The internship score is an average of the supervisor's and committee's scores.

For the research project, the course registration, performance, and assessment procedures are like those of the internship. During the project, students will work in a research group and implement their knowledge under the supervision of the project lead. The project score will be an average of the scores given by both the supervisor and the committee.

As stated in the Self-Assessment Report, the Bachelor's thesis is the final assignment for the last year of the program under review. It is considered a crucial assessment of whether the students have achieved the intended learning outcomes. The regulations for thesis examination are communicated to students through the Student Handbook and the department's website. To undertake a thesis, students must have completed at least 117 credits and should not be under any academic admonishment. A supervisor is assigned to students who are working on their thesis, and they assist with the research project.

The Bachelor's thesis consists of three stages: (1) proposal, (2) midterm progressing state, and (3) final thesis. The thesis duration is three months, equivalent to 450 hours. The project is conducted independently under the guidance of one supervisor. The thesis topics focus on satellite technology and satellite application. Its goal is to provide students with a comprehensive understanding of theoretical knowledge and its practical application, as well as to familiarise them with methods of argumentation and the process of making valid points based on research. The thesis also aims to help students develop a more academic perspective.

Both the student and supervisors might decide the topic and content of the project. In many cases, lecturers offer particular topics connected to their research. Students are requested to provide evidence of supervision arrangement to the department through a thesis registration form. In the middle of the thesis implementation period, the department conducts a progress review to verify progress and identify any obstacles or violations. Students present the results to a Graduation Defense Committee formed at the Department of Physics, the reviewer, and their supervisor. Many students conduct their Bachelor's thesis outside HCMIU. In this case, they have a co-supervisor at the host institution and one supervisor at HCMIU.

At the beginning of the semester, students get all course and exam-related information from their academic advisor and can access the course syllabus via the digital platform Blackboard. At the end of the semester, students can also access their grades privately through the platform. Should a student be unable to attend an exam due to unforeseen circumstances such as illness, an accident, or the death of a family member, they must inform the department by the deadline specified in the university's policy. To re-sit the

exam at a later time, the student must submit a form requesting permission along with supporting evidence.

Students who fail a course must attend it again in the next semester. The number of repetitions is unlimited. Students who have passed a course but want to improve their score may also take it again. Students with unsatisfactory academic performance will receive an academic warning. The academic warning is issued if a student violates one of the regulations, such as failing to complete more than 50 % of the registered credits for the semester, finishing the semester with an average grade of less than 35 (out of 100) or less than 40 in the last two consecutive semesters. Students will be suspended when receiving academic warnings more than twice.

As an international university, HCMIU uses English as the medium of instruction. Students have to obtain IELTS 6.0 or equivalent as a graduation requirement. According to the program coordinator, this requirement explains why, for the 2017-2018 cohorts, around 70-80% still have to graduate after four years. Students who still need to meet the required English level can apply for jobs but must prepare to sit for a new upcoming test. According to HCMIU's Academic Regulation, students who fail to graduate are granted certificates for modules accumulated during their study duration.

In their assessment of this criterion, the experts find that appropriate rules and regulations, which govern HCMIU examination systems, are in place. The rules for re-sits are equally written down in the academic guidelines. All rules and regulations are adequately communicated and transparently published.

The experts also confirm that there are adequate forms and rubrics of assessment for each course in place. Lecturers in the discussion report that a variety of exam forms are used to check the attainment of the respective learning outcomes, including a mix of oral and written exams. **However, in the module descriptions, the experts note that some courses need more clarity regarding the type of evaluation (e.g., short-answer questions, exam). They request a thorough review to ensure that clear and precise information regarding examination forms is provided** (more of this under Criterion 4.1)**.**

Students in the interviews confirm that they are aware of all necessary information regarding examination schedules, forms, and grading rules. They are reportedly given sufficient time to prepare for the exams adequately.

The experts also inspect a sample of examination papers and Bachelor's theses and are overall satisfied with the general quality of the samples.

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

The experts thank the University for the provided statements and additional documentation concerning criterion 2.

Clear and precise information on examination forms

Regarding the request for increased clarity on evaluation methods, the experts acknowledge the action implemented. The Syllabus Book, Module Handbook, and Student Handbook have been updated to incorporate more precise information regarding examination forms. Consequently, the experts see no need to propose any further recommendations on this issue.

Without further comments or relevant additional evidence from the University, the experts confirm their above preliminary assessment and see this criterion as fulfilled.

3. Resources

Criterion 3.1 HR Resources, Staff Development and Student Support

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study plan
- Module descriptions
- Decision No.593/QĐ-ĐHQT on the issuance of regulations on standards, duties and working regimes of officials teaching and teaching support staff at the International University
- Discussions during the on-site visit

Preliminary assessment and analysis of the experts:

HR Resources

HCMIU's teaching staff are categorised as professors, associate professors, and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities.

All full-time teaching staff members are expected to be involved in teaching/advising, research, and administrative services. However, the workload can be distributed differently between the three areas from teacher to teacher, depending on the academic position. For example, full professors spend more time on research activities and less on teaching than associate professors or lecturers.

Within the Department of Physics, the permanent teaching staff serving the Space Engineering program comprises one associate professor and five lecturers (3 PhD and 2 Master's degree holders). In addition, permanent lecturers from the School of Engineering teach some core and major courses. On frequent occasions, the program invites guest lecturers from other members of VNU-HCM, the Vietnam National Space Center, and international universities and institutes to teach various core and major courses, as well as to supervise students for their internships, research projects, and thesis. For example, for the academic year 2022-2023, the department recruited seven lecturers for courses in satellite technology, global navigation satellite systems, big data analytics, and iOS programming.

According to the feedback provided by teachers, there is no shortage of staff members to oversee practical lab work for the Space Engineering program. Currently, the students are being assisted by a secretary, a teaching assistant from the Department of Physics, and 166 staff members from other units.

The Vietnamese government has set specific staff-student ratios for universities. The ideal ratio of staff to active students is 1:20. Currently, the Space Engineering program has a ratio of 1:8.5. The experts learn that a plan exists to recruit more academic staff to fulfil the academic requirements across the program, which are expected to increase due to the growing number of students expected for the coming years. To implement a new staff recruitment plan, a formal letter of request must be submitted to the Human Resources Department, along with the proposed recruitment requirements. The Human Resources Department reviews the request and forwards it to the President of HCMIU for approval. Once approved, the vacancy will be advertised on HCMIU's website and other media platforms.

As part of the recruitment process at HCMIU, candidates must give a presentation on their research activities, and their teaching abilities are thoroughly assessed. To be eligible for teaching positions, applicants must hold a PhD degree, and it is frequently required to have post-doctoral research experience from a developed country with relevant expertise. Furthermore, they are required to be accredited in English by a professional committee, consisting of school and university leaders. In addition, candidates for a teaching staff position must have practical scientific research experience demonstrated through scientific

publication records. Several teachers at the department have graduated from international universities (examples include France, the Netherlands, Japan, Korea, the UK and the USA). The experts appreciate this international background.

Job Conditions and Performance Review of Staff

HCMIU has established policies and evaluation methods to review staff performance on the three essential dimensions of teaching, research and service. These dimensions are measured on the basis of the previous year's parameters. Teaching performance parameters include workload (i.e., teaching preparation, giving lectures and supervising research, internship, and thesis projects, updating lectures and teaching methods, and assessing student learning outcomes) and student course feedback. Research performance considers the volume of research conducted, published papers, conferences attended, international cooperation activities on science and technology, and special tasks assigned by the university or the Dean of the school/department. Service performance includes, among others, participation in institutional activities such as educational and scientific management, labour confederation, communist party, and youth union.

HCMIU conducts an annual School Feedback Survey and Service-Quality Survey to gather feedback from its academic staff on their overall tasks and working conditions. Based on the results, it is observed by the experts that the academic staff of the Department of Physics are generally satisfied with their teaching and public outreach tasks **but noted room for improvement in scientific research. During their dialogue with the teaching staff, the experts gain insights into areas where there is a need for increased support to facilitate the pursuit of research ambitions.**

Furthermore, the Service-Quality Survey results reveal that most academic staff is satisfied with the HCMIU's service quality, with an average of 92%. The feedback obtained from the survey is discussed by the Board of Presidents and the Heads of the units in a meeting to determine any corrective measures that may be required.

HR Development

HCMIU encourages the training of its academic staff to improve their didactic abilities and teaching methods. As stated in the Self-Assessment Report, academic staff in the Department of Physics frequently undergo training in pedagogy, research, management, leadership, and quality assurance.

The Office of Human Resources Management is responsible for identifying staff members' training needs, proposing training plans, and carrying out training activities.

Annually, the Board of Presidents holds meetings with heads of schools, departments, and offices to discuss the different units' training needs. The Office of Human Resource Management plans year-round training courses and workshops based on feedback from academic and non-academic units.

Together with training activities, faculty members are encouraged to present their research papers at national and international conferences. The university recently issued a policy on short-term study and research abroad for the academic staff for 4-6 months through training courses and staff exchanges.

Newly recruited lecturers are encouraged to take some teaching training courses. Faculty members are also trained occasionally to ensure they stay updated with the latest technologies and methodologies when it comes to teaching.

The experts discuss the various opportunities available for personal skill development with the teaching staff members. The teachers express their satisfaction with the internal qualification program and willingness to improve their didactic skills. Additionally, they can attend conferences, workshops, and seminars abroad.

The experts also inquire about the promotion mechanisms in place at HCMIU. Through this dialogue, they learn that teachers are required to submit applications to the government, which employs a complex evaluation system. This system includes factors such as research publications and the supervision of students to determine a teacher's eligibility for promotion.

Support and assistance for students

HCMIU offers a range of support services for its student population. At the start of the first semester, every student is assigned an academic advisor. These advisors are members of the academic staff and are responsible for approximately 10 to 15 students from their classes. Their academic advisor is the first port of call if a student needs advice or support on academic or personal issues. They also offer suggestions regarding relevant careers and skills development and help if there are problems with other teachers.

Before the start of the semester, the advisors help students plan for their next courses. Students register for courses through Edusoft, the online platform that allows advisors to look through all registered courses and make adjustments in alignment with the student's progress and abilities. The platform is also used by advisors to monitor the academic performance of their students. They arrange at least two meetings per semester to discuss issues affecting the student's academic achievement. During the discussion with the experts, the students confirm that they all have an academic advisor.

After class hours, the lecturers organise additional consultations for at least one hour per week to reinforce learning of the subject material. Students can then ask about exercises or revisit class content.

In general, during their interaction with the experts, students highlight the approachability of teachers, which contributes to building a fruitful interaction.

The fourth-year students who prepare their thesis have one or more supervisors selected based on the topic of the final project. One supervisor could be external if the student performs the research outside HCMIU. At the Department of Physics, each lecturer supervises up to five students and organises weekly meetings with them. The role of the thesis supervisor is to guide students in completing their final project, which includes finishing their research and the final project report.

In 2021, HCMIU established the Student Advisor Program to counsel students on issues regarding psychology, health, laws, and career planning. The Office of Student Services (OSS) manages this program by employing psychologists, medical doctors, lawyers, and educators as counsellors. The counselling is performed online, face-to-face, and via seminars.

OSS also helps students look for career orientations and job opportunities. Every year, OSS organises the Career Orientation Day to connect current students, alumni, and industry. In addition, specialised seminars invite alumni and people from the industry to present the needs of the labour market and share their working experiences. At the same time, industry talks are organised at the department level so that companies can introduce their line of business as well as learn more about the students on this occasion. Moreover, OSS has a separate website (https://oss.hcmiu.edu.vn/) providing information on job opportunities, internships, enterprise programs, seminars, networking events, and industrial field trips.

Finally, there are several student organisations at HCMIU; these include student-led clubs, which are divided into arts, sports, religious and other non-curricular activities.

In their appreciation of this criterion, the experts come to the following conclusions:

The teaching staff's composition, scientific orientation and qualifications, as specified in the Staff Handbook, are suitable for successfully implementing and sustaining the Bachelor's program under review. **The experts, nevertheless, have an observation regarding the delivery of general courses by visiting lecturers. Their evaluation is that basic courses should be ideally entrusted to the institution's internal staff, while industry professionals can contribute with their expertise in applied courses. Within this context, they recommend increasing the number of full-time teaching staff.**

The experts commend the programs' teaching staff for their openness to adapting to new ideas. All interviewed staff demonstrate high motivation and attachment to the institution. HCMIU offers sufficient support mechanisms and opportunities for teaching staff members who wish to strengthen their professional and teaching skills. In the expert's eyes, the option of successfully applying for short-term study and research abroad for 4-6 months through training courses and staff exchanges is an attractive tool for keeping up motivation.

Associate professors or lecturers can apply for promotion to associate professor or full professor, respectively. The candidates are considered based on three main criteria: the extent of the work experience, hours of teaching graduate students and quantity and quality of publications. **However, the experts maintain that the existing government-regulated promotion scheme prevents the career advancement aspirations of the teaching staff. They strongly advocate for proactive dialogue between university administration and the Ministry of Education and Training on the possibility of liberalising the promotion procedures for teachers. Furthermore, the experts note that there is room for improvement in the support available to teachers for pursuing their research ambitions.**

Concerning the quality of student services and counselling, the experts positively note the good and trustful relationship between the students and the teaching staff. Enough resources are available to provide individual assistance, advice and support for all students. The support system helps the students achieve the intended learning outcomes and complete their studies successfully. The students, in general, have access to sufficient information about the program and are well-informed about the services available. The comprehensive support and advisory system is one of the strengths of HCMIU.

Criterion 3.2 Funds and equipment

Evidence:

- Self-Assessment Report
- Discussion during the audit
- Guided tour through the University's facilities and laboratories

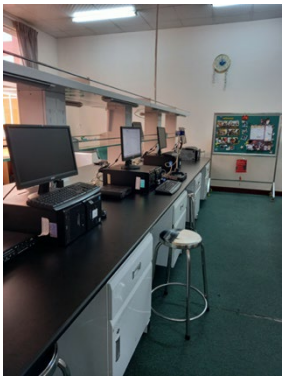
Preliminary assessment and analysis of the experts:

HCMIU provides basic funding and facilities for the Bachelor of Engineering in Space Engineering. HCMIU or the Vietnamese government can provide additional funds for research activities, but the teachers have to apply for them. In addition, there are several cooperation agreements with industry partners. On the university level, the Office of Finance and Planning is responsible for planning the budget and assigning the funds to the

schools and departments. The main sources of income are the students' tuition fees and the funds provided by the Vietnamese government (mostly for salaries).

The Office of Facilities and Planning (OFP) and the Office of Procurement Services (OPS) are responsible for planning and maintaining the university's facilities. This includes evaluating, maintaining and improving the physical facilities and infrastructure of the university, such as teaching and learning facilities, laboratories, equipment, and tools, to meet the needs of education, research, and service. Students in the Space Engineering program have access to laboratories at the Department of Physics, which serve experimental physics lecturers and satellite data processing. They also have access to the signal and communication system laboratories of the Electrical Engineering School.

During the on-site visit, the expert group visits the following facilities in order to assess the quality of infrastructure and technical equipment:



1. Library;
2. Mechanics and Thermodynamics Laboratory;
3. Satellite Signal and Image Processing Laboratory;
4. iOS App Development and Big Data Analytics Laboratory.

The experts value the students' presentation of their practical work in the laboratories. They judge the facilities, including teaching labs, as adequate for teaching. If students require additional resources to conduct their research, the Space Engineering program offers various partnerships with national and international institutes.

The experts find no severe bottlenecks due to missing equipment or infrastructure. In the discussion with the expert group, the students confirm that they are generally satisfied with the available equipment. The basic technical equipment for teaching students at the Bachelor level is available in sufficient numbers.

The teaching staff emphasise that from their point of view, the Space Engineering program receives sufficient funding for all teaching and learning activities. Of course, there is limited funding to modernise or add laboratory equipment, but there are sufficient resources for adequately teaching the classes.

The students are satisfied with the library and the literature it offers. They can access international literature, scientific journals, and publications through ScienceDirect and Springer Online. Students have sufficient access to current international literature and databases, and they can access them remotely. Additionally, students can access all the resources of all member universities of the Vietnam National University Ho Chi Minh City.

This means that if HCMIU does not have the required books, they can be obtained from other universities.

In summary, the expert group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms, etc.) to comply with the requirements for adequately sustaining the degree program.

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

The experts thank the University for the provided statements and additional documentation concerning criterion 3.

Increasing the number of full-time teaching staff

Regarding the proposed increase in the number of full-time teaching staff within the Bachelor's program in Space Engineering, the experts welcome the intended efforts to attract new staff. However, the expert panel stands by its recommendation as the University's statement only mentions future developments and no concrete steps have been taken yet.

Liberalisation of promotion procedures for teachers

Concerning the suggested discussions between the university administration and the Ministry of Education and Training on potentially liberalising teacher promotion procedures, the experts consider the University's additional statement. They appreciate that the topic is being considered by the University's Board of Presidents as a preliminary step. No additional recommendations are deemed necessary by the experts in this matter.

In summary, setting aside the aforementioned recommendation, the experts see this criterion as fulfilled.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-Assessment Report
- Program website: https://physics.hcmiu.edu.vn/en/
- Module Handbook
- Student Handbook

Preliminary assessment and analysis of the experts:
The Module Handbook for the Bachelor's program under review is available through the HCMIU's website. It is thus accessible to the students and interested stakeholders. **However, upon examining and contrasting the information presented in electronic and printed formats, the experts see the need to analyse and make consistent all relevant documentation, including the website, module handbook, and student handbook.**

After studying the module descriptions, the expert team observes that the entries contain most of the necessary information, including the person responsible for each module, the workload, the credit points awarded, the intended learning outcomes, the examination requirements, and details explaining how the final grade is calculated.

Nonetheless, it has come to the experts' attention that several module descriptions need more precision regarding the examination form. The experts highlight the importance of providing more detailed information on assessment methods. Additionally, a number of module descriptions need to name prerequisites. The experts request a review of this in order to ensure that at least recommendations are given.

As discussed in criterion 1.3, the experts also remark upon the need to verify that titles and course designations align with the respective content descriptions.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Transcript of Records
- Sample Diploma/Degree Certificate
- Sample Diploma supplement

Preliminary assessment and analysis of the experts:
According to the information provided in the Self-Assessment Report, students from the Space Engineering program receive a Diploma Certificate, accompanied by an Academic Transcript and a Diploma Supplement after graduation.

The Diploma Supplement is an official statement letter issued by the Office of Undergraduate Academic Affairs. It contains all necessary information about the degree program, including learning outcomes, acquired soft skills and student achievement in academic, co-curricular, extracurricular, or non-formal education.

The ASIIN experts are provided with samples of these documents. The experts confirm that the students of the Bachelor's degree program under review are awarded a Diploma

Certificate, a Transcript of Records and a Diploma Supplement. The Transcript of Records lists all the courses the graduate has completed, the achieved credits, grades, and cumulative GPA.

Criterion 4.3 Relevant rules

Evidence:

- Self-Assessment Report
- University's website
- All relevant regulations as published on the university's website

Preliminary assessment and analysis of the experts:
The experts confirm that the rights and duties of both HCMIU and the students are defined clearly and bindingly. All rules and regulations are published on the University's website and, therefore, available to all relevant stakeholders. In addition, the students receive all relevant course material at the beginning of each semester.

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

The experts thank the University for the provided statements and additional documentation concerning criterion 4.

Consistency in all relevant documentation

The experts confirm that the University has sought consistency in the descriptions of all documentation, including the course syllabus book, module handbook, and student handbook. The experts, however, emphasise the importance of ensuring that any future modifications are consistently reflected in all available documentation accessible to stakeholders, such as potential applicants or industry partners.

Clear and precise information on examination forms

Addressed under criterion 2.
Naming prerequisites

The experts take note of the University's comments and appreciate the Department of Physics' efforts to revise the prerequisites of some courses. These courses include 'Earth Observation and the Environment', 'Satellite Technology', 'Navigation Systems', 'Introduction to Digital Image Processing', 'Fundamentals of Surveying', 'Geographic

Information Systems (GIS) and Spatial Analysis'. The updated program curriculum will be implemented from the academic year 2023-2024.

This being said, the experts continue to see merit in their request, noting that the course 'Differential Equations' is listed as a course without prerequisites, which seems not entirely accurate. In reality, it requires a basic understanding of math. The same applies to other courses. The expert group, hence, retains its requirement in this regard.

Alignment between course titles and content descriptions

Addressed under criterion 1.

The criterion is predominantly fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Academic Handbook
- Plans for the assessment/accreditation of training programs at International University, term 2021-2025
- Quality Assurance Guidelines, October 2022
- Surveys' reports
- Discussion during the on-site visit

Preliminary assessment and analysis of the experts:
As described in the Self-Assessment Report, the Office of Quality Assurance and Testing (QATO) manages quality assurance plans involving internal and external activities. QATO analyses data, writes reports, and offers suggestions to the Board of Presidents, the highest academic council at HCMIU. The Board of Presidents reviews and revises the suggestions from QATO and makes decisions on all HCMIU's academic concerns.

In their exchanges with the program coordinator, students, and industry partners, the experts discuss HCMIU's quality management system. All parties confirm that the university implements a continuous process to enhance the program's quality. As part of this process,

HCMIU regularly reviews and improves the curriculum. While the Office of Academic Affairs may approve minor changes, any significant curriculum improvements require the approval of the Academic Committee and Board of Presidents in accordance with the university's regulations. Usually, the review is initiated based on the stakeholders' feedback obtained through the annual surveys from the labour market, alumni, graduates, teachers, and professionals.

Several mechanisms are in place to collect student feedback across the student lifecycle. These include an exit survey conducted before students' graduation to gather perceptions of the overall quality of programs and services. Exit survey data for 2021 and 2022 revealed that the Space Engineering students' satisfaction with course objectives and content was above the neutral point (3) and tended to be positive, with 4.38 and 3.7 points, respectively, on a scale of one to five.

At the end of the semester, lecturers and courses are evaluated by students, faculty, and the university; lecturers will receive their teaching performance reports. Based on the report results and study performance of the current class compared with the previous years, further changes would be made to the course specification or syllabus.

As part of its commitment to staying up-to-date with the constantly evolving labour market and emerging technologies, HCMIU conducts annual employer surveys. These surveys seek feedback from employers on how well HCMIU alumni are able to apply fundamental and professional skills in real-world settings. Employers are asked to evaluate the level of expectation they have for graduates with respect to each skill and to comment on how well these expectations are being met. QATO uses this feedback to modify or update the degree program and teaching methods in order to ensure that students receive the most current knowledge and are equipped to adapt to various working environments in their future careers.

QATO also conducts annual surveys to gather feedback from alumni at the time of graduation and one year after graduation. The surveys collect responses from alumni regarding their employment status and adaptability to the working environment. The collected data is analysed and transferred into reports, which can be used to improve the program and enhance the training quality. According to the 2021 Alumni Survey, 100% of respondents reported a positive perception of their ability to apply academic knowledge in practice.

During the on-site visit, the experts learned that the program under review engages with employers by gathering feedback through surveys and inviting them to give lectures. The experts acknowledge the significance of the employers' input for the program's

improvement and appreciate the existing quality assurance culture that involves employers in the process.

At the end of each semester, QATO conducts an online student survey on the teaching quality of lecturers for each course. Responding to the questionnaire is compulsory as they cannot access their accounts on Blackboard otherwise. QATO analyses the data and sends the results to the Department of Physics and relevant lecturers to help lecturers adjust teaching methods and improve the teaching quality. If the results show that a lecturer still needs to meet the teaching quality requirements, the lecturer is reminded by the Dean to improve the teaching quality.

In addition, a survey for first-year students is annually conducted. The objectives of this survey are to ensure the quality of transition activities and to understand the needs of new students.

The experts consider that HCMIU and the Department of Physics conduct a sufficient number of evaluations to survey the opinions of students, stakeholders, and staff on a regular basis. **However, the experts suggest that teachers should have the opportunity to discuss the end-of-semester course survey results with their students before the semester ends. This will enable them to identify corrective actions for the benefit of the cohort.**

Students feel that their insights into teaching methods and content, given through end-of-semester surveys, need to be taken into account in a timely manner. Teachers often use student inputs to enhance their didactics and content for the next semester. The students' feedback is essential for further improving the program, and it is likewise important to inform the students about the results and possible improvements. Teachers must have direct discussions with their students about the feedback results and what changes need to be made in the respective course. **The feedback cycles need to be closed. Therefore**, **in order to allow for feedback and improvement before the course has been terminated, the experts recommend conducting the course evaluation earlier in the semester.**

External quality assurance focuses on international accreditations. For this reason, the Space Engineering program at HCMIU is seeking the current ASIIN accreditation.

In summary, the expert group confirms that the quality management system is suitable for identifying weaknesses and improving the degree program. However, they recommend paying attention to the heightened need to close student feedback cycles to ensure continuous improvement.

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

The experts thank the University for the provided statements and additional documentation concerning criterion 5.

Student feedback

In regard to the advised approach to the student feedback cycle, the experts acknowledge the University's comments and take note on the 'Plan for collecting feedback of stakeholders for IU'. However, since the plan's dissemination refers to an intended future development, the expert group retains its initial recommendation. They requests the University to provide clear evidence that the issue has been addressed and that course evaluations are being used as an instrument to gather feedback and improve the course before it has been terminated.

Aside the above, the experts confirm their preliminary assessments and see this criterion as fulfilled.

D Additional Documents

Before preparing their final assessment, the panel ask 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:

E Comment of the Higher Education Institution (20.12.2023)

The institution provided the following additional documents:

1. Revised Syllabi
2. Course Syllabus
3. Module Handbook
4. Student Handbook
5. Curriculum overview of Space Engineering program 2023-2024
6. Stakeholder survey plan for the year, Office of Quality Assurance and Testing

The institution also provided the following statement:

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

In the draft report, on **p.9, line 3**, it is stated, "The expert group would have liked the opportunity to speak with more external stakeholders in the meetings."

Response: "The number of external stakeholders is limited because of a small number of our graduated students since the establishment of the new training program, in 2016.

We have 17 students of the 2016, 2017, and 2018 cohorts of the program graduated from 2020 to 2022. Nine of them have worked in 5 companies, and the rest have studied abroad at higher levels. We had contacted all the five companies to invite their managers for the interview. However, three of them couldn't participate in the meetings with the experts due to their business schedule.

We have already noted the experts' comment. We will invite external stakeholders as many as possible in the next cycles of the ASIIN accreditation."

Criterion 1.3 Curriculum

On **p.12, line 26,** it is noted, " …upon examining the learning outcomes and course descriptions, the experts see a need for further development in the area of Engineering Design within the program. They recommended extending the scope of this dimension in the curriculum."

Response: "a) Yes, we agree with the experts. We updated the course syllabus of Satellite Signal and Image Processing Laboratory (1 theoretical credit and 2 practical credits), in which we edited the theoretical content to provide knowledge of satellite system design,

verification, operation, and evaluation processes, and supplementary skills of Printed Circuit Board Design to improve students' design skills.

Please see the revised syllabus at the following link: [Additional document 1: https://drive.google.com/file/d/1cG6zWwvRkfREYVnx0LqINC86H4_VlXT0/view (page 10-14)]"

Criterion 1.3 Curriculum

On **p.12, line 29**, the expert team also highlighted that "certain modules in the curriculum where the course titles do not accurately align with the course content (e.g., Big Data Analytics for Remote Sensing)."

Response: "b) We corrected the content of the courses 'Big Data Analytics for Remote Sensing' and 'Big Data Analytics for Remote Sensing Laboratory' to be consistent with their intended learning outcomes and renamed the title 'Big Data Analytics for Remote Sensing' to 'Introduction to Big Data Analytics for Remote Sensing'.

Please see the revised syllabi at the following link: [Additional document 1: https://drive.google.com/file/d/1cG6zWwvRkfREYVnx0LqINC86H4_VlXT0/view (page 15-22)]"

Criterion 1.3 Curriculum

On **p.12, line 31**, the experts noted that "in some instances, the stated learning outcomes do not correspond with the actual course content (e.g., Mathematics for Engineers)."

Response: "c) We revised the learning outcomes, description, and content of the courses 'Mathematics for Engineers' and 'Differential Equations'.

Additionally, to be more consistent with the content, the name of the course 'Mathematics for Engineers' is changed to 'Fundamental Mathematics for Engineers'.

Please see the revised syllabi at the following link: [Additional document 1: https://drive.google.com/file/d/1cG6zWwvRkfREYVnx0LqINC86H4_VlXT0/view (page 2-9)]"

Criterion 1.3 Curriculum

On **p.12, line 32**, the expert team requested "a revision of the documentation such that it reflects the study program in a consistent manner. This particularly concerns the titles of courses, the content descriptions, and the prerequisites (see also Criterion 4.1)."

Response: "d) We revised and made consistent all the descriptions of all course syllabi in the course syllabus book, module handbook, and student handbook.

Please see the revised documents at the following links.

Course Syllabus: [Additional document 2: https://drive.google.com/file/d/1Ok-JeP25LylW6clwjW4_p3Qyum7pkgxpi/view]

Module Handbook: [Additional document 3: https://drive.google.com/file/d/16Nh29FAuNMQtDXVtdvzSYmjVNVImWxgA/view]

Student Handbook: [Additional document 4: https://drive.google.com/file/d/1Ku8--JN6mHdAVq_4oinUOLsgj_u6QNtE/view]"

Criterion 1.3 Curriculum

On **p.14, line 22**, the experts wrote, "In their discussion with the experts, the students confirm the existence of opportunities for international academic mobility. The experts appreciate the efforts to promote international mobility and encourage HCMIU, as well as the Department of Physics, to continue in this direction. As an international university, HCMIU should aim to increase the number of incoming and outgoing Space Engineering students. Inviting more international guest lecturers to give classes or seminars in the Space Engineering program would also be beneficial."

Response: "e) The university has consistently supported us to invite international experts to give lecture, seminars or supervise thesis students. On the side of the Department of Physics, the international mobility is one of our major goals in training students. In Dec 2023, we had organised one public talk "Pursuing the Study of Black Hole Shadow from the Arctic Region" given by Prof. Paul Ho from East Asian Observatory on Dec 6th and one seminar "Network science: theory and applications" given by three experts from University of Parma, Italy on Dec 7th. In 2024, we will have at least 5 abroad internships for students

Many thanks for your suggestion, we will have a plan to attract incoming international students."

Criterion 1.5 Workload and Credits

On **p.18, line 30**, the experts stated that "The Module Handbook for the Space Engineering program can be accessed on the University website. The experts verify that this document outlines the time commitment and distinguishes between credits allocated for various forms of supervised studies and self-study time. Additionally, the experts consider Announcement No. 54/TB-ĐHQT concerning the conversion of ECTS credits at HCMIU. Nevertheless, it remains uncertain whether students and other stakeholders have access to clear and easily comprehensible information on how the university converts local credits into ECTS. The experts accentuate the critical importance of transparency and clarity in this conversion process."

Response: "Following your comment, the Announcement No. 54/TB-ĐHQT concerning the conversion of ECTS credits at the university has immediately been published on the websites of QATO and the Department of Physics.

Please see the following links:

Website of QATO: https://qlcl.hcmiu.edu.vn/en/homepage/ (Please choose Tabs: Reference Materials/Quality Assurance/QA/ Announcement on Conversion of ECTS)

Website of Department of Physics:

https://physics.hcmiu.edu.vn/academics/educational-operation/ "

Criterion 1.6 Didactic and Teaching Methodology

On **p.20, line 33** of the report, it is mentioned "gathering systematic feedback on the quality of teaching and learning can be achieved through the course evaluation survey conducted at the end of each semester, which serves as a valuable source of information. However, as elaborated in more detail under criterion 5 of this report, there is room for reorganisation and enhancement of this quality assurance instrument to better fulfil its intended purpose."

Response: "We agree with you. We answered your comment in Criterion 5 (please see below)"

Criterion 2 Exams: System, concept and organization

On **p.24, line 6** of the report, the experts noted concerning the module descriptions "…that some courses need more clarity regarding the type of evaluation (e.g., short-answer questions, exam). They request a thorough review to ensure that clear and precise information regarding examination forms is provided (more of this under Criterion 4.1)."

Response: "We revised all the types. We replaced the type of 'short-answer questions' or 'exam' with 'written examination'. The Syllabus Book, Module Handbook, and Student Handbook are updated.

Please see the revised documents at the following links.

Course syllabus: [Additional document 2 - https://drive.google.com/file/d/1Ok-JeP25LylW6clwjW4_p3Qyum7pkgxpi/view]

Module handbook: [Additional document 3: https://drive.google.com/file/d/16Nh29FAuNMQtDXVtdvzSYmjVNVImWxgA/view]

Student handbook: [Additional document 4: https://drive.google.com/file/d/1Ku8--JN6mHdAVq_4oinUOLsgj_u6QNtE/view]"

Criterion 3.1 HR Resources, Staff Development and Student Support

On **p.26, line 35** of the report, the expert panel paid attention to "the delivery of general courses by visiting lecturers. Their evaluation is that basic courses should be ideally entrusted to the institution's internal staff, while industry professionals can contribute with their expertise in applied courses. Within this context, they recommend increasing the number of full-time teaching staff."

Response: "a) We have made a lot of efforts in recruiting more professional full-time lecturers. However, the field of Space Engineering is new in Vietnam. So, the number of experts in Space Engineering in Vietnam is really small.

Our long-term vision is to attract our students, after getting a PhD degree abroad, to come back and actively contribute to our Space Engineering program."

Criterion 3.1 HR Resources, Staff Development and Student Support

On **p.19, line 14,** it is mentioned that "the experts maintain that the existing government-regulated promotion scheme prevents the career advancement aspirations of the teaching staff. They strongly advocate for proactive dialogue between university administration and the Ministry of Education and Training on the possibility of liberalising the promotion procedures for teachers. Furthermore, the experts note that there is room for improvement in the support available to teachers for pursuing their research ambitions."

Response: "b) Thank you very much for your comments. The opinions from external experts are always important to make a significant change. We will discuss your recommendation with Board of Presidents of the University."

Criterion 4.1 Module Descriptions

On **p.31 line 26** of the report, it is highlighted that "upon examining and contrasting the information presented in electronic and printed formats, the experts see the need to analyse and make consistent all relevant documentation, including the website, module handbook, and student handbook."

Response: "a) We revised all the descriptions of all course syllabi in the syllabus book, module handbook, student handbook, and the website. We already answered this comment on Criterion 1.3, subsection d."

Criterion 4.1 Module Descriptions

On **p.32, line 1,** it came to the experts' attention "that several module descriptions need more precision regarding the examination form. The experts highlight the importance of providing more detailed information on assessment methods."

Response: "b) We replaced the terms 'short-answer questions' or 'exam' with 'written examination'. We made all the syllabus books, module handbooks, student handbooks, and the website consistent. (See also Criterion 1.3)"

Criterion 4.1 Module Descriptions

On **p.32, line 3**, the expert panel noted that "a number of module descriptions need to name prerequisites. The experts request a review of this in order to ensure that at least recommendations are given."

Response: "c) We updated the prerequisites of the following courses: Earth Observations and the environment, Satellite Technology, Navigation Systems, Introduction to Digital Image Processing, Fundamentals of Surveying, and Geographic Information Systems

(GIS) and Spatial Analysis. The revised program curriculum will be applied from 2023-2024.

Please see the revised overview curriculum. [Additional document 5: https://drive.google.com/file/d/1hm2TwzFb1HdqSQO-PCp_BUi6xSJhfCX_/view]"

Criterion 4.1 Module Descriptions

On **p.32, line 6**, it is stated, "As discussed in criterion 1.3, the experts also remark upon the need to verify that titles and course designations align with the respective content descriptions."

Response: "d) We revised the intended learning outcomes, descriptions, and contents of the following courses: Mathematics for engineers, Differential equations, Big Data Analytics for Remote Sensing, and Big Data Analytics for Remote Sensing Laboratory. Please see also Criterion 1.3."

Criterion 5 Quality management: quality assessment and development

On **p.35 line 23**, it is stated that "in order to allow for feedback and improvement before the course has been terminated, the experts recommend conducting the course evaluation earlier in the semester."

Response: "a) Since 2022, QATO has been conducting the course survey after the midterm exam. Students are reminded to do the survey several times in the semester: after the midterm, and before the final exam [Additional document 6: Plan for collecting feedback of stakeholders for IU]. Thus, lecturers can receive students' feedbacks before the end of each semester."

Criterion 5 Quality management: quality assessment and development

On **p.35 line 13**, the experts suggested "that teachers should have the opportunity to discuss the end-of-semester course survey results with their students before the semester ends. This will enable them to identify corrective actions for the benefit of the cohort."

Response: "b) As we mentioned above, QATO has performed the course survey before the end of semester since 2022. Therefore, lecturers and students have an opportunity to discuss the results. Nevertheless, this survey plan has not been officially disseminated to all lecturers. QATO will perform this official dissemination soon, and they will remind students and teachers about the goals of the course survey every semester."

F Summary: Expert recommendations (30.01.2024)

Taking into account the additional information and the comments given by the University the experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Space Engineering	With requirements for one year	30.09.2029	EUR-ACE®	30.09.2029

Requirements

A 1. (ASIIN 1.3 and 4.1.) Revise the documentation such that it reflects the study program in a consistent manner. This particularly concerns the titles of courses, the content descriptions and the prerequisites. Concerning prerequisites, at least recommendations should be given.

Recommendations

E 1. (ASIIN 1.5) It is recommended to ensure that the conversion of local credit into ECTS is transparent and comprehensible.

E 2. (ASIIN 3.1) It is recommended for the program to increase the number of full-time teaching staff.

E 3. (ASIIN 5) It is recommended to conduct end-of-semester student satisfaction surveys regarding the quality of the courses at an earlier stage during the semester to allow for feedback and improvement before the course will have been terminated.

G Comment of the Technical Committees

Technical Committee 02 – Electrical Engineering/Information Technology (01.03.2024)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the accreditation procedure and follows the assessment of the experts without change.

Assessment and analysis for the award of the EUR-ACE® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme does comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 02 – Electrical Engineering/Information Technology.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Space Engineering	With requirements for one year	30.09.2029	EUR-ACE®	30.09.2029

Technical Committee 05 – Materials Science, Physical Technologies (08.03.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accreditation procedure and suggests that the recommendation E1 should be upgraded to a requirement.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Space Engineering	With requirements for one year	30.09.2029	EUR-ACE®	30.09.2029

Requirements

A 1. (ASIIN 1.3 and 4.1.) Revise the documentation such that it reflects the study pro-gram in a consistent manner. This particularly concerns the titles of courses, the content descriptions and the prerequisites. Concerning prerequisites, at least recommendations should be given.

A 2. (ASIIN 1.5) Ensure that the conversion of local credit into ECTS is transparent and comprehensible. (before **E1**)

Recommendations

~~E 1.~~ ~~(ASIIN 1.5) It is recommended to ensure that the conversion of local credit into ECTS is transparent and comprehensible~~. (upgraded to **A2**)

E 2. (ASIIN 3.1) It is recommended for the program to increase the number of full-time teaching staff.

E 3. (ASIIN 5) It is recommended to conduct end-of-semester student satisfaction surveys regarding the quality of the courses at an earlier stage during the semester to allow for feedback and improvement before the course will have been terminated.

H Decision of the Accreditation Commission (22.03.2024)

Assessment and analysis for the award of the ASIIN seal:

The commission discusses the accreditation procedure and follows the assessment of the experts and the suggestion of TC 05 to convert recommendation E1 to the requirement A1. They propose, however, to change the wording and to align it with the ASIIN standard wording of this requirement.

Assessment and analysis for the award of the EUR-ACE® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programmes do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 02.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation*
Ba Space Engineering	With requirements for one year	30.09.2029	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Requirements

A 1. (ASIIN 1.3 and 4.1.) Revise the documentation such that it reflects the study program in a consistent manner. This particularly concerns the titles of courses, the content descriptions and the prerequisites. Concerning prerequisites, at least recommendations should be given.

A 2. (ASIIN 1.5) Verify the students' total workload and award the ECTS points accordingly. Define how many hours of students' workload is required for one ECTS point.

Recommendations

E 1. (ASIIN 3.1) It is recommended for the program to increase the number of full-time teaching staff.

E 2. (ASIIN 5) It is recommended to conduct end-of-semester student satisfaction surveys regarding the quality of the courses at an earlier stage during the semester to allow for feedback and improvement before the course will have been terminated.

I Fulfilment of Requirements (25.03.2025)

Analysis of the experts and the Technical Committees (07.03.2025)

Requirements

For all degree programmes

A 1. (ASIIN 1.3 and 4.1.) Revise the documentation such that it reflects the study program in a consistent manner. This particularly concerns the titles of courses, the content descriptions and the prerequisites. Concerning prerequisites, at least recommendations should be given.

Initial Treatment	
Peers	Fulfilled Justification: HCMIU states that it has revised and made consistent all descriptions, learning outcomes and prerequisites of all course syllabi in the Programme Specification, Module Handbook and Student Handbook. The institution provides evidence of these documents. The experts agree that the documents have been extensively revised and now accurately reflect the programme.
TC 02	fulfilled Justification: The TC follows the vote of the experts.
TC 05	fulfilled Justification: The TC follows the vote of the experts.

A 2. (ASIIN 1.5) Verify the students' total workload and award the ECTS points accordingly. Define how many hours of students' workload is required for one ECTS point.

Initial Treatment	
Peers	Fulfilled Justification: HCMIU has revised its credit system so that the conversion of Vietnamese credits to ECTS is now standardized. The module descriptions and curricula indicate that 1 ECTS is equivalent to 27.5 hours in all cases (regardless of the type of teaching). In addition, the workload, class hours and self-study hours, is now recorded in evaluations and thus regularly reviewed. HCMIU has also submitted the questionnaires and the results.
TC 02	fulfilled Justification: The TC follows the vote of the experts.

TC 05	fulfilled Justification: The TC follows the vote of the experts.

Decision of the Accreditation Commission (25.03.2025)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Space Engineering	All requirements fulfilled	EUR-ACE®	30.09.2029

Appendices

I. Learning Outcomes between ASIIN SSC and Space Engineering Program

- **ASIIN SSC-2**

Objectives	SSC-2's learning outcomes	ILOs
Knowledge and understanding	Graduates have, in particular ● gained a broad fundamental knowledge in mathematics, natural sciences, and engineering, enabling them to deal with complex problems in electrical engineering/information technology. ● gained an understanding of the broad multidisciplinary context of Engineering Sciences.	ILO1, ILO2, ILO8, ILO10
Engineering analysis	Graduates can ● select and apply suitable modelling, calculating, and testing methods concerning their field of specialization. ● research technical literature and other sources of information relating to given problems. ● conduct experiments and computer simulations and explain results. ● consult database systems, information on norms, guidelines ("codes of good practice"), and safety regulations for these purposes.	ILO3 ILO4 ILO5
Engineering design	Graduates ● can design works using modeling, simulation, testing, and integration in a problem-oriented way. ● develop products for the global market.	ILO3, ILO4, ILO5
Engineering practice and product developmen	Graduates ● can acquire practical skills in problem solving, research tasks, and system and procedure design. ● have experience concerning possibilities and limits of materials applications, computational model designs, systems, processes, and tools when solving complex problems, ● can search technical literature and other information sources. ● demonstrate the awareness of health, safety, and legal issues, the responsibilities of engineering practice, and the impact of engineering solutions on the environment and society, ● commit to professional ethics, responsibilities, and norms of engineering practice, ● employ appropriate scientific methods and new findings in engineering and science for their practical work while taking into consideration of the economic, ecological, technical, and social requirements, ● recognize the nontechnical effects of engineering activities, ● develop marketable products for the global market.	ILO3, ILO4, ILO5, ILO8, ILO10
Transferable skills	Graduates can ● analyze and present technical contexts understandingly in their field and related fields. ● operate on technical tasks in a team and to coordinate them if necessary. ● show the ability of self-learning and lifelong learning.	ILO6, ILO7, ILO9

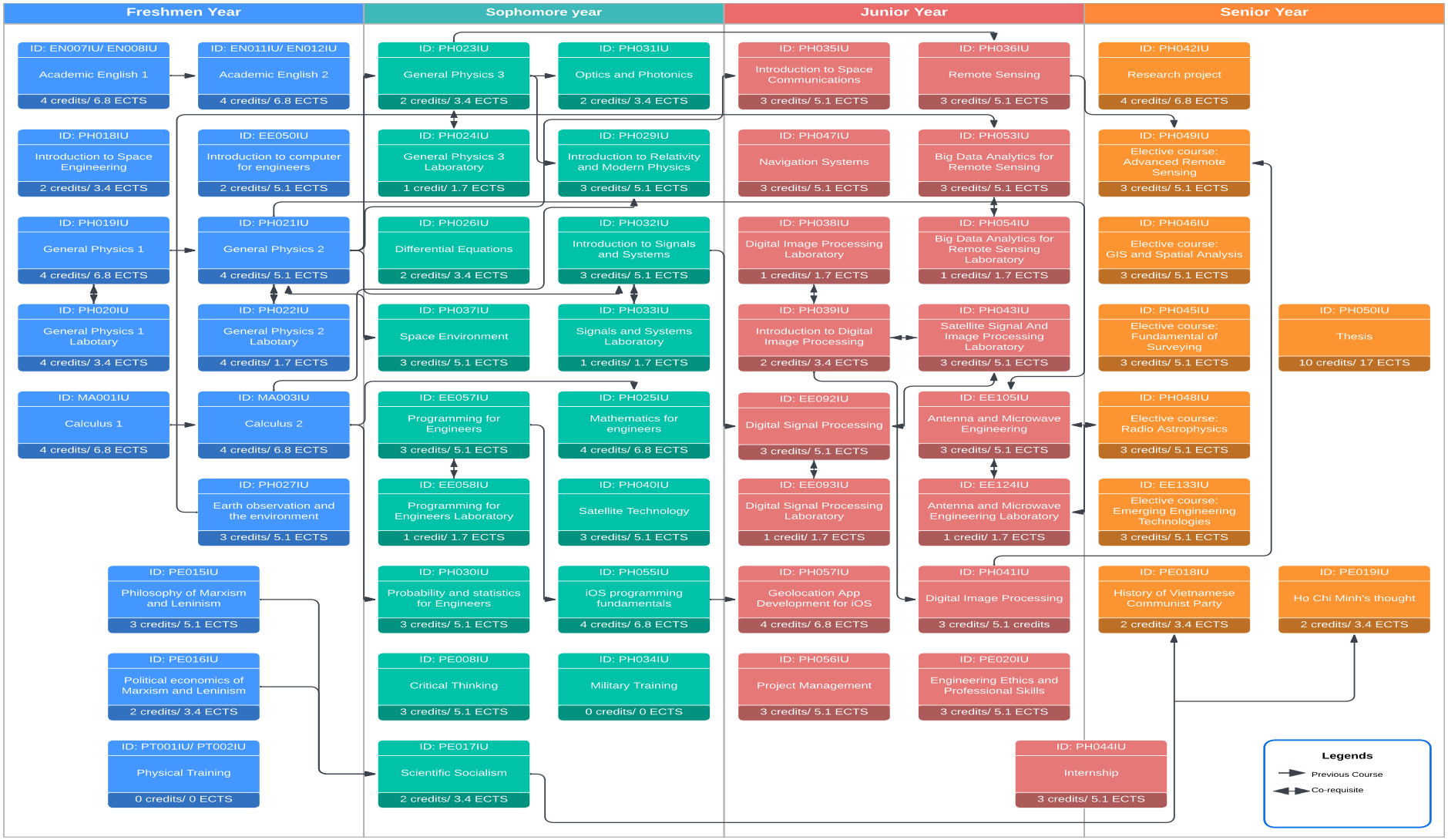
- **ASIIN SSC-5**

Objectives	SSC-2's learning outcomes	ILOs
Subject-specific competences		
Knowledge, comprehension, and application	Graduates ● know and comprehend the principles of natural sciences, engineering, technology, and mathematics that are the basis of the subject area of their focal studies,	ILO1, ILO8, ILO10

Objectives	SSC-2's learning outcomes	ILOs
	● have a systematic comprehension of the central elements and concepts of the subject area of their focal studies, ● possess interdisciplinary (coherent) knowledge on the subject areas of their focal studies, ● know additional aspects of subject-related sciences, ● can apply their knowledge and comprehension to conduct developments according to predefined and specific requirements, to realize results and do this in collaboration with a team of engineers, scientists, and representatives of other subject areas, ● have learned fundamental development and planning methods and possess the competency to apply these systematically, ● know the relationship between their discipline and the general expectations of society.	
Research, analysis, problem solving and evaluation	Graduates ● can carry out literature and data research and using databases and other sources of information, ● have a solid command of methods and procedures to document research results, ● can conduct a comparative analysis between their findings and results from theory and relevant literatures and to draw conclusions relevant to their interest, ● possess the necessary knowledge and comprehension to identify, formulate, and to solve problems, including aspects outside of their area of specialization, using established or newly developed methods, ● can transform generally formulated tasks into feature-oriented requirement profiles and conduct a scientifically based analysis by applying learned methods, ● can apply their knowledge and competencies to analyze developments (material characteristics, products, processes, methods), advance these developments, and communicate these to others, ● are able to apply various methods – mathematical analysis, computer-aided designs or systematic experimental research – to conduct task-specific investigation and/or independently resolve issues of development tasks, ● can select and apply suitable analysis and modelling techniques	ILO2, ILO3, ILO4, ILO5
General and social competences		
	Graduates ● can work in teams and can constructively contribute as an individual and as a team member, ● can apply various methods to communicate effectively with the engineering or scientific community and with any community in general, ● are aware of the health, safety, and legal implications and responsibilities of the engineering practice, as well as the implications resulting from technical-scientific solutions within a social and natural environment. Graduates also commit to appropriately act according to professional ethics, accountability, and norms set by the technical-scientific practice, ● are aware of the methods and limitations of project management and business practice, such as risk and change management, ● acknowledge the need and have the ability for independent and lifelong further learning.	ILO6, ILO7, ILO8, ILO9, ILO10

II. Program structure and curricular overview

Knowledge Block	Number of Credits	ECTS	Percentage (credits)
General courses (G)	65	102.4	43.3%
Core courses (C)	33	52.2	36.5%
Major courses (M)	37	60.66	24.9%
Internship, project, thesis (P)	17	27.88	11.5%
Total	**152**	**243.14**	**100%**


Freshmen Year
Sophomore year
Junior Year
Senior Year
ID: EN007IU/ EN008IU
Academic English 1
4 credits/ 6.8 ECTS
ID: EN011IU/ EN012IU
Academic English 2
4 credits/ 6.8 ECTS
ID: PH023IU
General Physics 3
2 credits/ 3.4 ECTS
ID: PH031IU
Optics and Photonics
2 credits/ 3.4 ECTS
ID: PH035IU
Introduction to Space Communications
3 credits/ 5.1 ECTS
ID: PH036IU
Remote Sensing
3 credits/ 5.1 ECTS
ID: PH042IU
Research project
4 credits/ 6.8 ECTS
ID: PH018IU
Introduction to Space Engineering
2 credits/ 3.4 ECTS
ID: EE050IU
Introduction to computer for engineers
2 credits/ 5.1 ECTS
ID: PH024IU
General Physics 3 Laboratory
1 credit/ 1.7 ECTS
ID: PH029IU
Introduction to Relativity and Modern Physics
3 credits/ 5.1 ECTS
ID: PH047IU
Navigation Systems
3 credits/ 5.1 ECTS
ID: PH053IU
Big Data Analytics for Remote Sensing
3 credits/ 5.1 ECTS
ID: PH049IU
Elective course: Advanced Remote Sensing
3 credits/ 5.1 ECTS
ID: PH019IU
General Physics 1
4 credits/ 6.8 ECTS
ID: PH021IU
General Physics 2
4 credits/ 5.1 ECTS
ID: PH026IU
Differential Equations
2 credits/ 3.4 ECTS
ID: PH032IU
Introduction to Signals and Systems
3 credits/ 5.1 ECTS
ID: PH038IU
Digital Image Processing Laboratory
1 credits/ 1.7 ECTS
ID: PH054IU
Big Data Analytics for Remote Sensing Laboratory
1 credits/ 1.7 ECTS
ID: PH046IU
Elective course: GIS and Spatial Analysis
3 credits/ 5.1 ECTS
ID: PH020IU
General Physics 1 Labotary
4 credits/ 3.4 ECTS
ID: PH022IU
General Physics 2 Labotary
4 credits/ 1.7 ECTS
ID: PH037IU
Space Environment
3 credits/ 5.1 ECTS
ID: PH033IU
Signals and Systems Laboratory
1 credits/ 1.7 ECTS
ID: PH039IU
Introduction to Digital Image Processing
2 credits/ 3.4 ECTS
ID: PH043IU
Satellite Signal And Image Processing Laboratory
3 credits/ 5.1 ECTS
ID: PH045IU
Elective course: Fundamental of Surveying
3 credits/ 5.1 ECTS
ID: PH050IU
Thesis
10 credits/ 17 ECTS
ID: MA001IU
Calculus 1
4 credits/ 6.8 ECTS
ID: MA003IU
Calculus 2
4 credits/ 6.8 ECTS
ID: EE057IU
Programming for Engineers
3 credits/ 5.1 ECTS
ID: PH025IU
Mathematics for engineers
4 credits/ 6.8 ECTS
ID: EE092IU
Digital Signal Processing
3 credits/ 5.1 ECTS
ID: EE105IU
Antenna and Microwave Engineering
3 credits/ 5.1 ECTS
ID: PH048IU
Elective course: Radio Astrophysics
3 credits/ 5.1 ECTS
ID: PH027IU
Earth observation and the environment
3 credits/ 5.1 ECTS
ID: EE058IU
Programming for Engineers Laboratory
1 credit/ 1.7 ECTS
ID: PH040IU
Satellite Technology
3 credits/ 5.1 ECTS
ID: EE093IU
Digital Signal Processing Laboratory
1 credit/ 1.7 ECTS
ID: EE124IU
Antenna and Microwave Engineering Laboratory
1 credit/ 1.7 ECTS
ID: EE133IU
Elective course: Emerging Engineering Technologies
3 credits/ 5.1 ECTS
ID: PE015IU
Philosophy of Marxism and Leninism
3 credits/ 5.1 ECTS
ID: PH030IU
Probability and statistics for Engineers
3 credits/ 5.1 ECTS
ID: PH055IU
iOS programming fundamentals
4 credits/ 6.8 ECTS
ID: PH057IU
Geolocation App Development for iOS
4 credits/ 6.8 ECTS
ID: PH041IU
Digital Image Processing
3 credits/ 5.1 credits
ID: PE018IU
History of Vietnamese Communist Party
2 credits/ 3.4 ECTS
ID: PE019IU
Ho Chi Minh's thought
2 credits/ 3.4 ECTS
ID: PE016IU
Political economics of Marxism and Leninism
2 credits/ 3.4 ECTS
ID: PE008IU
Critical Thinking
3 credits/ 5.1 ECTS
ID: PH034IU
Military Training
0 credits/ 0 ECTS
ID: PH056IU
Project Management
3 credits/ 5.1 ECTS
ID: PE020IU
Engineering Ethics and Professional Skills
3 credits/ 5.1 ECTS
ID: PT001IU/ PT002IU
Physical Training
0 credits/ 0 ECTS
ID: PE017IU
Scientific Socialism
2 credits/ 3.4 ECTS
ID: PH044IU
Internship
3 credits/ 5.1 ECTS
Legends
Previous Course
Co-requisite