ASIIN Seal & Euro-Inf® Label

Accreditation Report

Bachelor's Degree Programme
Data Science

Provided by
International University – Viet Nam National University Ho Chi Minh City

Version: 6 December 2024

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Cử nhân khoa học Khoa học Dữ liệu	B.Sc. in Data Science	ASIIN, Euro-Inf® Label	-/-	04
Date of the contract: 28.04.2022 **Submission of the final version of the self-assessment report:** 24.07.2023 **Date of the onsite visit:** 04. – 05.10.2023 **at:** International University – Viet Nam National University Ho Chi Minh City				
Expert panel: Prof. Dr. Bettina Harriehausen-Mühlbauer, Hochschule Darmstadt University of Applied Sciences Prof. Dr. Sascha Alda, Hochschule Bonn-Rhein-Sieg University of Applied Sciences Dang Ngoc Hai, Branch Director at Axon Active Tong Vo Anh Thuan, student at Ho Chi Minh City University of Information Technology				
Representative of the ASIIN headquarter: David Witt				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023				

[1] ASIIN Seal for degree programmes; Euro-Inf®: Label European Label for Informatics
[2] TC: Technical Committee for the following subject areas: TC 04 - Informatics/Computer Science..

Subject-Specific Criteria of Technical Committee 04 – Informatics/Computer Science as of March 29, 2018	

B Characteristics of the Degree Programme

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
Data Science	B.Sc.		6	Full time	-/-	8 Semester	132 Credits / 212.81 ECTS	2018

For the Bachelor's degree programme Data Science the institution has presented the following profile in the degree program specification:

„a) *Vision*

The School of Computer Science and Engineering is one of the schools of International University, Vietnam National University, Ho Chi Minh City. Therefore, the Vision of the School is under the Vision of the University (University will become a top research-oriented university of Vietnam, which has strong collaborations with worldwide prestigious universities, institutes, industries, local provinces and society).

b) *Mission*

- Offering high-quality graduate and undergraduate education in multi-disciplinary. All educational programs are accredited/assessed in accordance with regional and international standards (AUN, ASIIN or ABET).
- Offering excellent research including basic and applied research to meet the needs of industry, local provinces, society, and international standard.
- Taking the pioneer role in Vietnam by practicing management excellence, inspiring and assisting other VNU members in the advancement toward the development of Vietnam National University – HCMC as a whole.

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

c) *Objectives*

- Apply effectively their knowledge and skills as data scientist within the industry as well as the state and federal agencies dealing with analysis and design of modern computing systems and processes;
- Work and communicate effectively with others on multi-disciplinary teams to develop practical, technically-sound, cost-effective solutions to complex and diverse data processing problems;
- Maintain an active program of lifelong learning and continuing education while practicing data science in an ethical and professional responsible manner;
- Seek leadership roles as practitioners and become active members within professional and technical societies.“

C Expert Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, Content & Implementation

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

Evidence:

- Self-Assessment Report
- Program Specification of the Degree programme
- Diploma Supplement
- Module descriptions
- Objective-module-matrix
- Webpage HCMIU
- Webpage School of Computer Science and Engineering (SCSE)
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The experts base their assessment of the learning outcomes on the information provided in the module descriptions and in the Self-Assessment Report of the Bachelor's degree programme under review. For Bachelor's degree programme in Data Science, HCMIU has described Programme Objectives (PO), Intended Learning Outcomes (ILO), and Qualification Profiles. The PO and ILO are published on the programme's website. and easily accessible for students as well as other stakeholders. Furthermore, there are regular revision processes in place that take into account feedback by external and internal stakeholders.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committee Informatics/Computer Science and use the objective-module-matrix and the module descriptions as a basis for judging whether the intended learning outcomes correspond with the competences as outlined by the SSC.

[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 experts note that the relationship between PEOs and PLOs has been established in a comprehensible and logical manner. The development of PLOs of the study programme involves both internal and external stakeholders so that the curricula can be adapted and modified according to the needs of the industry and the graduates on a regular basis. For example, HCMIU regularly conducts surveys, through which the different stakeholders get the chance to assess the programmes and their main objectives and adapt them if necessary. Internal stakeholders include all of HCMIU members (students, teaching staff, and non-academic employees), while the external stakeholders include the industry, alumni, the government, and society. A major revision including consultations of stakeholders takes place every two years.

The University formulates and publishes the following intended learning outcomes:

- ILO1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- ILO2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- ILO3: Communicate effectively in a variety of professional contexts.
- ILO4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- ILO5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- ILO6: Apply data science theory and software development fundamentals to produce computing-based solutions."

Accordingly, HCMIU has established the following objectives for the Bachelor's degree programme in Data Science:

- "PO1: Have a basic and advanced knowledge of the data science field.
- PO2: Have solid working skills and systematic mindset to solve practical problems.
- PO3: Work efficiently, ethically and creatively as data experts.
- PO4: To be able to pursue lifelong learning and professional development."

Regarding graduates' job opportunities, HCMIU describes in the program specification for the Bachelor's degree programme in Data Science that graduates "can participate in analysis, design, and development of software and information systems in professional software companies such as DXC, FSOFT, IBM, TMA Solutions, TPS Solutions, Robert Bosch, Microsoft, or government agencies, research institutes, science and technology institutes. Furthermore, the students can continue their higher education in the information technology field."

In the experts' opinion, the intended qualification profiles of the programme are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of HCMIU are much sought after in the labor market. The representatives of industry emphasize the high quality of the graduates of this programme under review and students as well as graduates are satisfied with and well aware of their good job perspectives.

In summary, the experts confirm that the Bachelor's degree programme in Data Science adequately reflects EQF level 6. The programme learning outcomes are consistent with the respective ASIIN Subject-Specific Criteria of the Technical Committees of Informatics/Computer Science. They aim at the acquisition of specific competences and are well-anchored and binding.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Diploma Supplement

Preliminary assessment and analysis of the experts:
The experts confirm that the English name of the degree programme under review correspond with the intended aims and learning outcomes as well as the main course language (English).

Criterion 1.3 Curriculum

Evidence:

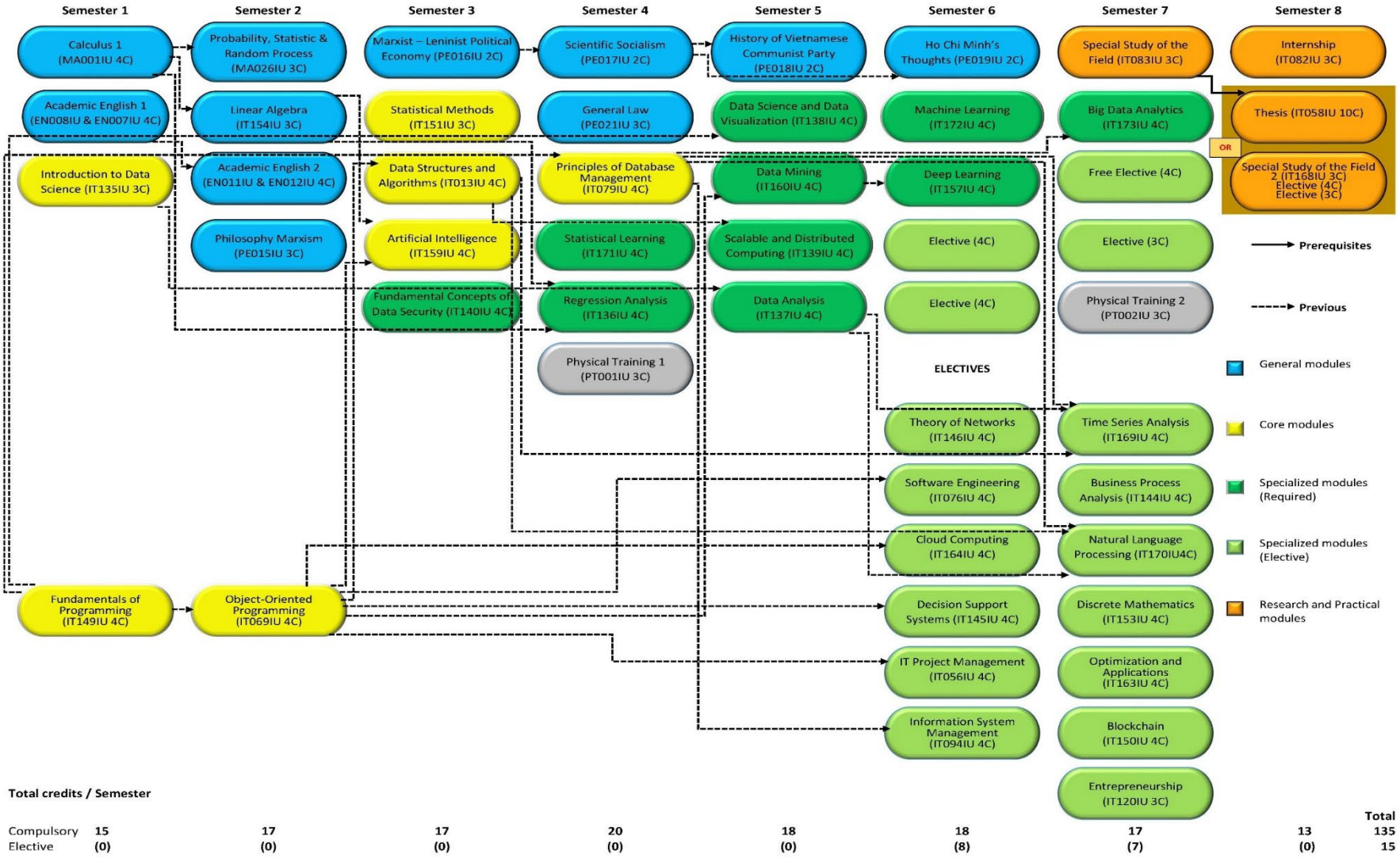
- Self-Assessment Report
- Study plan
- Module descriptions
- Program Specification
- Webpage HCMIU
- Webpage SCSE
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The Bachelor's degree programme Data Science is managed by the School of Computer Science and Engineering (SCSE). The curriculum of the study programme is reviewed by the experts in order to identify whether the described programme objectives and learning out-

comes can be achieved by the available modules. Course descriptions as well as overviews and competence-subject matrices matching the general learning objectives and the module contents were provided for a thorough analysis. As the module descriptions are still based on the outdated curricula of the programme from 2022, the experts urge HCMIU to submit the complete and latest version of the module descriptions (from 2023) and make them accessible for students and teaching staff. In the Self-Assessment Report, the university gives a detailed overview of how the competences acquired with the presented curricula match the SSC 04 learning outcomes.

The curriculum is structured for eight semesters and 132 Vietnamese credits (equivalent to 212,81 ECTS) need to be achieved by the students. 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 courses of the Bachelor's degree programme in Data Science are divided into four blocks: General modules, Core modules, Specialized modules (consisting of required and elective courses) and Research and Practical modules. The General modules cover topics as Natural Science and Technology, Social Science and Humanity, and Foreign Language. The core modules include, for example, courses as "Introduction to Data Science", "Statistical Methods", "Fundamentals of Programming" and "Object-Oriented Programming". The specialized modules are used to deepen knowledge. As these consist of compulsory and elective subjects, students also have the opportunity to specialise personally. The Thesis as well as the internship are assigned to the Research and Practical modules. HCMIU provides the following curricular overview:



Total credits / Semester

								Total
Compulsory	**15**	**17**	**17**	**20**	**18**	**18**	**17**	**13**	**135**
Elective	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(8)**	**(7)**	**(0)**	**15**

The expert group is very convinced of the structuring of the submitted curriculum and the corresponding content level of the Bachelor's degree programme in Data Science. This is also matched by the impressive research activities of the professors and students, which also find influence in the individual modules.

In summary, the experts gain the impression that the content and the structure of the curriculum ensure that the intended learning outcomes of the degree programme can be achieved and that the students are well prepared for entering the labour market and can find adequate jobs.

Internship

As part of the Bachelor's program in Data Science, students are required to complete an internship for at least 10 weeks under the instruction of a supervisor. The internship takes place in an industrial company, a research institute, or at the labs of the SCSE allowing students to apply their general, specific, and transferable skills in a practical setting or in a research environment respectively. 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.

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. According to the Self-Assessment Report, "CIM has successfully connected to 60 partner universities and created a network facilitating mutual mobility, enabling space for inclusion along with equality." According to the University's website information, exchange partner institutions for the University and the School of Computer Science & Engineering include universities in the US, Canada, Australia, Japan, South Korea, Thailand, Austria, Denmark, France, Germany, Ireland, Spain, and Sweden.

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.

The experts recognise that the university has created a good formal framework that simplifies the recognition of external achievements. In general, they believe that the university is well equipped with the CMI to deal with student and teaching staff mobility matters. However, the current number of students taking advantage of a semester abroad is very low. For the degree programme under review, no figures on outgoings in recent years could be provided, but this is also due to Covid 19. In discussions with the students, the experts learn that the low outgoing numbers are partly due to financial reasons, as only the best students are able to receive (full) scholarships. On the other hand, students state that they do not want to spend a semester abroad until their Master's degree at the earliest, as they want to learn the basics in their home country in order to be prepared for continuing their studies abroad afterwards. In principle, students also feel well supported by the university with regard to planning and realising a stay abroad.

In Summary, the experts appreciate the efforts to promote international mobility and encourage HCMIU, as well as the School of Computer Science & Engineering, to continue in this direction. However, as an international university, HCMIU should focus more on the international perspective in order to increase the number of incoming and outgoing Data Science students and to raise the level of oral English. Inviting more international guest lecturers to give classes or seminars in the Data Science programme would also be beneficial.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- University website
- Admission regulations
- Curriculum
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the Self-Assessment Report, admission to the Bachelor’s degree programme Data Science 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 programmes. 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 programmes 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 degree programme under review 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 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.

HCMIU provides the following statistics on intakes of First-year Students for the last five academic years and on the total number of students in the last five academic years:

Intake of First-year Students

Academic Year	Applicants		
	No. Applied	No. Offered	No. Admitted/Enrolled
K.18	88	27	30
K.19	398	98	42
K.20	442	131	64
K.21	705	130	79
K.22	979	53	46

Total number of students

Academic Year	Students					
	1st Year	2nd Year	3rd Year	4th Year	>4th Year	Total
K.18	30	30	30	28	22	
K.19	42	40	40	38	N/A	
K.20	64	64	62	N/A	N/A	
K.21	79	77	N/A	N/A	N/A	
K.22	46	N/A	N/A	N/A	N/A	

The tuition fees for programmes awarded by the International University are about 45 – 50 million VNĐ (1,673 € - 1859 €) 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 degree programme under review.

The experts see evidence that the SCSE 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
- Curriculum
- Module handbook
- Academic Regulations
- Student handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the legal requirements, the total credit load is 132 Vietnamese credits (equivalent to 212.81 ECTS) for the Bachelor's degree programme Data Science. The workload is spread relatively evenly over the semesters. 14 to 20 Vietnamese credits must be achieved per semester. Only the eighth semester consists of just ten credits, as this only includes the thesis. The workload of the last two semesters in the Bachelor's degree programme are markedly reduced to give the students enough time for their theses as well as to already start looking for a job. This mechanism is supposed to ensure that the students can realistically handle the workload. It also means that theoretically, students can finish their studies in less than eight semesters, although this is relatively rare due to the high workload in general. Furthermore, HCMIU describes in the Self-Assesment Report that "[t]he total workload per semester is about 16.5 IU credits on average. For each student, the amount of workload in any given semester is no less than two-thirds (2/3) of the standard workload for a semester but also no more than three-halves (3/2) of the standard workload."

"According to IU's academic regulation, each credit is equivalent to 15 hours in-class study and 30 hours of self-study, each hour in-class is in 50 minutes. […] Each credit is equivalent to 15 periods of theoretical lecture in class or 30-45 periods of practice in the laboratory with 30 periods of self-study. In the internship, each credit is equivalent to 45-90 periods. Meanwhile, a credit regarding projects, such as a thesis is equivalent to 45-60 periods. One period lasts for 50 minutes." This distribution is illustrated in the following table:

Form of study for 1 credit	In-class periods	Self-study hours	Total hours
Theoretical lecture	15	30	42.5
Practice in a Laboratory	30-45	30	55-75

Quizzes in class	30-45	30	55-75
Assignment	30-45	30	55-75
Project, Thesis	45-60		45-60
Internship	45-90		45-90

According to the ECTS credit system, 1 ECTS equals 25-30 hours of students' workload. As a result, there cannot be the same conversion rate between Vietnamese credits and ECTS points for all courses. HCMIU assumes that 1 ECTS is equal to 27.5 hours. For theoretical lectures, the rate would be 1.54 and for practical work 2. Moreover, HCMIU specifies a range of possible applicable periods for laboratory work, quizzes in class, assignments, project work, internships and thesis. These can therefore vary from student to student and are not fixed.

During the discussions with the programme coordinators and the students, the experts learn that so far there has been no specific survey asking the students to evaluate the amount of time they spend outside the classroom for preparing the classes and studying for the exams. Since this is necessary according to the ECTS framework, the experts suggest asking the students directly about their experiences. This could be done by including respective questions in the course questionnaires. The experts point out that the School should follow the ECTS Users' Guide, while determining the students' total workload. This is the time typically required by students to complete all learning activities (such as lectures, seminars, projects, practical work, self-study and examinations).

In other words, a seminar and a lecture may require the same number of contact hours, but one may require significantly greater workload than the other because of differing amounts of independent preparation by students. Typically, the estimated workload will result from the sum of:

- the contact hours for the educational component (number of contact hours per week x number of weeks),
- the time spent in individual or group work required to complete the educational component successfully (i.e. preparation beforehand and finalising of notes after attendance at a lecture, seminar or laboratory work; collection and selection of relevant material; required revision, study of that material; writing of papers/projects/dissertation; practical work, e.g. in a laboratory),
- the time required to prepare for and undergo the assessment procedure (e.g. exams).

Since workload is an estimation of the average time spent by students to achieve the expected learning outcomes, the actual time spent by an individual student may differ from this estimate. Individual students differ because some progress more quickly, while others progress more slowly. Therefore, the workload estimation should be based on the time an "average student" spends on self-study and preparation for classes and exams. The initial estimation of workload should be regularly refined through monitoring and student feedback.

As the statistical data provided by HCMIU shows, the average length of study was between 4 and 4,5 years in the last 5 years. According to the SAR, the lack of English certificates (which are one of the graduation requirements) is a common issue. Therefore, the faculty puts a lot of effort into motivating the graduating students to take the English proficient certification in advance to meet the requirement. In addition, other co-curricular or extra-curricular programmes have been organized to help students improve their English skills, especially English for their specializations. To what extent the English training for both students and teachers could still be improved is discussed in more detail under criterion 1.3. Additionally, the experts see that almost all students complete the degree programme because, on average, there have only been 6,67 %, and 4,76 % of the Data Science students for the batches 2018 and 2019 who dropped out of the degree programme.

The experts positively emphasise these low quotas and see them as a confirmation of the feasibility of studying with a reasonable workload, a good selection of students and good support during the degree programme. In addition, during the audit, the students emphasise that they consider the workload high but manageable and that it is possible to finish the degree programmes within the expected four years.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Student handbooks
- Module Handbook
- Curriculum
- Course evaluations
- Discussions during the audit

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 programme in Data Science. 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), seminars, labs, projects and internships are included in the curricula. 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 group works. 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 and workshops (i.e. soft skill talkshow, English Club and IU start up) as well as 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 programmes 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.

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

Criterion 1.3:

Regarding the recommendation to increase the efforts to further internationalise HCMIU by establishing more international cooperations, conferences and publications as well as exchange programmes, HCMIU explains that enhancing international academic mobility, including international articulation programs, student exchanges, and research cooperation, is among their core development strategies. With regard to the Data Science programme, an enormous amount of information about international internship scholarships is available on the SCSE website and Webpage of IU student exchange & Study Abroad Programme. These opportunities support a significant number of Computer Science students from IU to pursue short- and long-term studies abroad. The students are provided various supports, including incoming mobile participants with special needs, finding accommodation, securing visas for incoming and outbound mobile participants, and insurance. As an international university, HCMIU is aware of the value of international cooperation and has made significant efforts. Hence, the SCSE school is optimistic that international cooperation and study abroad opportunities, as well as welcoming international students to SCSE school will improve in the future. The experts appreciate the numerous efforts that HCMIU is making in the area of mobility and support the continued pursuit of these efforts. Since HCMIU

is an international university, these plans should be prioritised. Therefore, the experts continue to adhere to this recommendation.

The experts consider criterion 1 not to be fully fulfilled.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report
- Module handbook
- Exam regulations
- Cooperation agreements with industry
- Thesis guidelines
- Sample of exams and theses
- Discussions during the audit

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

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.

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.

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 to 9th and 19th to 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 typical and appropriate for the study programme, nationally and internationally. 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 similar to 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 Bachelor's programme 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. A supervisor is assigned to students who are working on their thesis, and they assist with the research project.

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 respective School, the reviewer, and their supervisor.

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. During the discussions, the students express satisfaction with the level of information provided. They confirm being informed about exam dates at the beginning of the semester. Additionally, they appreciate receiving reminders weeks before exams and having access to revision courses one week prior, which facilitates discussion on potential questions and concerns.

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 more than two academic warnings.

As an international university, HCMIU uses English as the medium of instruction. Students have to obtain IELTS 5.5 or equivalent as a graduation requirement. 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.

During the on-site visit, the experts had access to a selection of exams and final projects. They confirm that these represent an adequate level of knowledge as required by the EQF level 6 for the two Bachelor's programmes. The experts even come to the conclusion that the theses submitted are of a very high level, which corresponds to the general impression that lectures are taught at a high level and that students are involved in research work at an early stage.

During the discussion rounds, the experts learn from the students that there is a high density of exams, especially in the first semester. They describe how they once had to write eight exams within two weeks, six of which took place in one week. This has already been addressed by the students, but no adjustments seem to have been made yet. The experts therefore recommend distributing the exams more evenly over the exam period in future.

The experts also note that written examinations make up the majority of examinations and that few other forms are used in practice. This is discussed in the various rounds of discussions, with the lecturers noting in particular that the number of students per course means that they are sometimes limited to written examinations. Although the experts can understand this, they suggest that there are good opportunities to choose other forms of examination, especially in the elective modules in the higher semesters, as there are also smaller

course groups. The students also state that they would like to see a greater variety of examinations. The experts therefore recommend varying the types of examinations chosen more and, for example, using more oral examinations.

In summary, the forms of exams are oriented in-line with the envisaged learning outcomes of the respective courses, and the workload is allocated in an acceptable way. However, the experts recommend to distribute the exams more evenly across the examination period and to avoid scheduling six exams in one week as described above. Furthermore, the experts recommend increasing the variety of exams as oral examinations are currently used in most cases.

The experts conclude that the criteria regarding the examinations system, concept, and organization are fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not.

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

The experts consider criterion 2 to be fulfilled.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff handbooks for both degree programmes including CVs of all teachers
- Recruitment plan
- Training course plan for academic staff
- Discussions during the audit

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 differ-

ently 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.

The following table shows the composition of the teaching staff and the ratio of teaching staff to students in the years 2018 to 2023:

	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Number of professors	0	0	1	1	0	0
Number of Associate Professors	0	1	3	3	4	4
PhD degree holders	9	10	8	10	10	10
PhD candidates	2	2	2	2	1	1
Master's degree holders	6	5	5	6	5	5
Bachelor's degree holders	4	5	4	4	4	4
Number of students in School/ Department	30	72	64	79	46	
Student-to-Staff ratio	0.7	0.31	0.3	0.28	0.43	

The Vietnamese government has set specific staff-student ratios for universities. The ideal ratio of staff to active students is 1:20. As shown in the table, this regulation is complied with consistently. The experts learn that a plan exists to develop the School's human resources to fulfil the academic requirements across the programmes, to take higher degrees, recruit more PhD holders in the future and invite more visiting lecturers. 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. In the Self-Assessment Report, HCMIU states that "[a]t present, 100% lecturers in the Department of Data Science graduated from foreign countries such as Poland, France, and Australia […]. The percentage of Ph.D holders graduating from oversea universities remained 100% in the past 3 years." The experts appreciate this international background.

The experts conclude that 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.

During the discussions with the students, the experts ask to what extent HCMIU invites experts from industry and integrates them into the curricula. From the students they learn that guest lecturers mostly come from national and international universities. Some lecturers also regularly invite industry experts who take on certain topics within courses and appear as guest speakers once a month, for example. The industry representatives confirm that they are being invited by HCMIU to give short seminars about subject-specific topic.

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 both Schools are generally satisfied with their teaching and public outreach tasks. Furthermore, the Service-Quality Survey results reveal that most academic staff is satisfied with the HCMIU's service quality, with an average of 95%. 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 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 programme 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.

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.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Staff handbook including CVs of all teachers
- Recruitment plan
- Training course plan for academic staff
- Discussions during the audit

Preliminary assessment and analysis of the experts:

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. 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. 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 Programme to counsel students on issues regarding psychology, health, laws, and career planning. The Office of Student Services (OSS) manages this programme 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 School 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 programmes, 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 summary, 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 programmes and are well-informed about the services available. The comprehensive support and advisory system is one of the strengths of HCMIU.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- Annual school budget plan
- List of lab equipment
- On-site visit of participating institutes and laboratories
- Discussions during the audit

Preliminary assessment and analysis of the experts:

HCMIU provides basic funding and facilities for the Bachelor's degree programme Data Science. 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 Data Science programme have access to the following laboratories at the School of Computer Science and Engineering: Computer Vision Image Processing Lab, Database System Lab, Computer Network Lab, Operating Systems Lab, Software Engineering Lab, Laboratory of Interdisciplinary Center.

The experts find no severe bottlenecks due to missing equipment or infrastructure. The basic technical equipment for teaching students at the Bachelor level is available in sufficient numbers. In the discussion with the expert group, the students confirm that they are generally satisfied with the available equipment. The experts conclude that the School is well-equipped and adequately financed. They note that this provision extends opportunities for students to engage with research, even at the Bachelor's level. This infrastructure reflects the high standard of the curriculum and the significant research component embedded within the Bachelor's degree, as indicated in Criterion 1.3.

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 programme.

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

The experts consider criterion 3 to be fulfilled.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Module handbook

Preliminary assessment and analysis of the experts:
The experts review the module descriptions for the programme and find that they mostly provide adequate information about all relevant and required aspects: module identification code, respective content, learning outcomes, examinations, credit points and workload distribution, grading, person responsible for the module, teaching methods, admission requirements, recommended literature, and the date of last amendment made. The students confirm during the discussions that information about the courses is always available online and that details concerning examinations and contents are provided at the beginning of each course by the teaching staff.

However, as the module descriptions are still based on the outdated curriculum of the programme, the experts urge HCMIU to submit the complete and latest version of the module descriptions (from 2023) and make them accessible for students and teaching staff. In this context, it is necessary to align the information in the module descriptions with the information given in the study plan. In addition, the module handbook should also be revised again for missing information. For example, some module descriptions do not have complete information on the content (weight and level), e.g. IT159IU - Artificial Intelligence. In addition, “Multiple-choice questions, short-answer questions” is given as examination forms for the module Thesis and no written thesis and defence.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Diploma Supplements
- Transcript of Records

Preliminary assessment and analysis of the experts:
The experts confirm that the students of the degree programme are awarded a Diploma and a Diploma Supplement upon graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA. The Diploma Supple-

ment contains almost all the necessary information about the degree programme. However, it does not provide information on statistical data about the distribution of the final grade. Therefore, the experts ask the university to include this point in its Diplomas.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- 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 clearly defined and binding. All rules and regulations are published on the university's website and hence available to all stakeholders. In addition, the students receive all relevant course material at the beginning of each semester.

The experts appreciate that the English and Vietnamese websites of the programmes include sufficient information about the intended learning outcomes, study plans, module descriptions and academic guidelines of the degree programme and are made available to all relevant stakeholders.

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

The experts consider criterion 4 not to be fully fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

- Self-Assessment Report
- Student handbooks
- Plans for the assessment/accreditation of training programmes at International University, term 2021-2025
- Quality Assurance Guidelines
- 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 programme coordinators, 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 programme's quality. As part of this process, HCMIU regularly reviews and improves the curricula. While the Office of Academic Affairs may approve minor changes, any significant curricula 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 labour markets, 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 programmes and services. The survey data for 2021, 2022 and 2023 reveal that the Data Science students are satisfied regarding aspects as the general information provided by the university, decision making, aspects of registration, financial issues, time distribution, study goals, intellectual skills, and learning needs and supports.

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 programmes 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 programmes under review engage with employers by gathering feedback through surveys and inviting them to give short workshops or speeches. The experts acknowledge the significance of the employers' input for the programme's improvement and appreciate the existing quality assurance culture that involves employers in the process. To what extent the experts encourage industry experts to teach entire lectures about applied topics that are relevant for the degree programmes has been discussed in detail under criterion 3.1.

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 students won’t be able to access their accounts on Blackboard otherwise. QATO analyses the data, sends the results to the respective School and relevant lecturers and suggests improvements to the individual programmes.

Furthermore, the industry partners confirm that their suggestions are generally adopted by HCMIU. The experts appreciate that HCMIU has a close relationship with the industry partners and regularly collects feedback from them.

In the audit, the experts inquire whether the results of the surveys are also shared and discussed with the students. The students state that they are not informed about the

results. Although they do have the feeling that their feedback is taken seriously and acted upon, they would also be interested in having the evaluation results mirrored in order to gain an impression of how their fellow students perceive the teachers and courses. The experts understand this and support the students' wish to be informed about the results.

In summary, the experts consider that the quality management circles at HCMIU are well established and work under participation of all stakeholders except for the communication of the evaluation results to the students. The experts therefore come to the conclusion that the university must ensure that the feedback loop is closed.

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

The experts consider criterion 5 not to be fully fulfilled.

D Additional Documents

No additional documents needed.

“

E Summary: Expert recommendations

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 Data Science	With requirements for one year	30.09.2029	Euro-Inf®	30.09.2029

Requirements

A 1. (ASIIN 1.5) Verify the students' total workload and award the ECTS points accordingly.

A 2. (ASIIN 4.1) Submit the complete and latest version of the module descriptions and make them accessible for students and teaching staff.

A 3. (ASIIN 4.2) The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

A 4. (ASIIN 5) The feedback loop has to be closed.

Recommendations

E 1. (ASIIN 1.3) It is recommended to focus more on the international perspective; e.g. in order to increase the number of students going abroad and to raise the level of oral English.

E 2. (ASIIN 2) It is recommended to distribute the exams more evenly.

E 3. (ASIIN 2) It is recommended to increase the variety of exams.

F Comment of the Technical Committee 04 - [Informatics/Computer Science]

Assessment and analysis for the award of the ASIIN seal:

The TC follows the assessment of the experts without any changes.

Assessment and analysis for the award of the Euro-Inf® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme do comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

The Wählen Sie ein Element aus. recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Data Science	With requirements for one year	30.09.2029	Euro-Inf®	30.09.2029

G Decision of the Accreditation Commission

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

The AC discusses the procedure and is in favour of an addition to condition 1 in order to make a coherent decision on the various clusters. Apart from that, the AC follows the assessment of the experts and the Technical Committee without any changes.

Assessment and analysis for the award of the Euro-Inf® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programme do comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

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 Data Science	With requirements for one year	30.09.2029	Euro-Inf®	30.09.2029

Requirements

A 1. (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.

A 2. (ASIIN 4.1) Submit the complete and latest version of the module descriptions and make them accessible for students and teaching staff.

A 3. (ASIIN 4.2) The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

A 4. (ASIIN 5) The feedback loop has to be closed.

Recommendations

E 1. (ASIIN 1.3) It is recommended to focus more on the international perspective; e.g. in order to increase the number of students going abroad and to raise the level of oral English.

E 2. (ASIIN 2) It is recommended to distribute the exams more evenly.

E 3. (ASIIN 2) It is recommended to increase the variety of exams.

H Fulfilment of Requirements (06.08.2024)

Analysis of the experts and the Technical Committee (21.11.2024)

Requirements

For all degree programmes

A 1. (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	
Experts	Not fulfilled. Justification: The calculation of HCMIU as given in the document is still unclear and inconsistent as it lists 1 ECTS equivalent to 42.5, 55 or even 67.5 depending on the type of course. 1 ECTS should always have a clear equivalent number. For time-consuming courses, the number of credit points should then be increased. Therefore, the experts consider the requirement to be not fulfilled yet.
TC 04	Fulfilled. Justification: The TC follows the experts' assessment without any changes.

A 2. (ASIIN 4.1) Submit the complete and latest version of the module descriptions and make them accessible for students and teaching staff.

Initial Treatment	
Experts	Fulfilled. Justification: The university provides updated and complete module descriptions. The module descriptions are available on the university's website. However, the experts would like to state some further recommendations regarding the module descriptions. • First of all, the module descriptions are online available now, but they are not easy to find. The experts recommend to consider to put the specifications under the

	menu “Programs>Undergraduate>IU Programs> Bachelor of”. • Furthermore, the experts find that there are hardly any books or readings from 2020 decade listed in the descriptions. Therefore, they recommend to consider updating the reading list with more recent publications or more recent version. • Moreover, there are still some phrases taken from the ASIIN template, e.g. the following passage marked in red regarding workload: “*(Estimated) Total workload: 182.5 hours* *Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture: 37.5 hours + Laboratory: 25 hours.”*
TC 04	Fulfilled. Justification: The TC follows the experts’ assessment without any changes and support the supposed recommendations.

A 3. (ASIIN 4.2) The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users’ Guide.

Initial Treatment	
Experts	Fulfilled. Justification: The university provides an updated Diploma Supplement including information on statistical data about the distribution of final grade according to the ECTS Users’ Guide. Therefore, the experts consider the requirement to be fulfilled.
TC 04	Fulfilled. Justification: The TC follows the experts’ assessment without any changes.

A 4. (ASIIN 5) The feedback loop has to be closed.

Initial Treatment	
Experts	Fulfilled. Justification: The university now includes student representatives in the Quality Assurance Team, annual meeting with school leaders are hold and the results of the course evaluation surveys is accessible for the students. Therefore, the experts see a clear improvement as the feedback loop is implemented by means of various measures. This is why, the experts consider the requirement to be fulfilled.
TC 04	Fulfilled.

	Justification: The TC follows the experts' assessment without any changes.

Decision of the Accreditation Commission (06.12.2024)

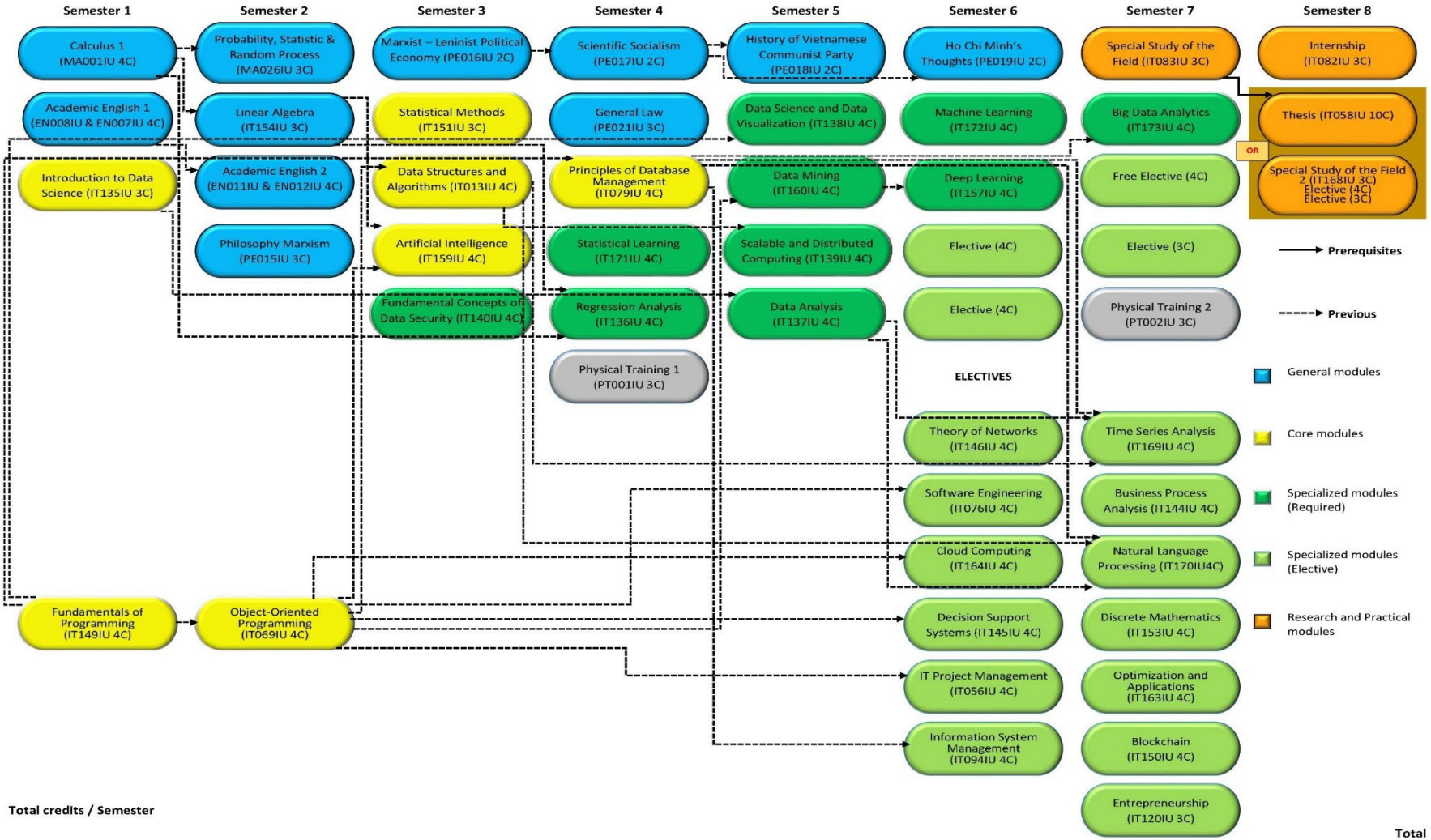
Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Data Science	Requirement 1 not fulfilled	Euro-Inf®	6 months prolonga-tion

Appendix: Programme Learning Outcomes and Curricula

According to the Diploma Supplement the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Data Science:

(1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
(2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
(3) Communicate effectively in a variety of professional contexts.
(4) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
(5) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
(6) Apply data science theory and software development fundamentals to produce computing-based solutions.

The following **curriculum** is presented:



Total credits / Semester

Compulsory	**15**	**17**	**17**	**20**	**18**	**18**	**17**	**13**	**Total** **135**
Elective	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(8)**	**(7)**	**(0)**	**15**