



ASIIN Seal

Accreditation Report

Bachelor's Degree Programme
Biotechnology

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

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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 Công nghệ Sinh học	Bachelor of Science in Biotechnology	ASIIN	-	10
<p>Date of the contract: 10.01.2022</p> <p>Submission of the final version of the self-assessment report: 23.09.2022</p> <p>Date of the audit (online): 07.02. – 09.02.2023</p>				
<p>Peer panel:</p> <p>Prof. Dr. Matthias Mack, University of Applied Sciences Mannheim</p> <p>Prof. Dr. Joachim Fensterle, University of Applied Sciences RheinWaal</p> <p>Dr. Ngo Vy Thao, Nong Lam University</p> <p>Le Minh Tri, University of Science and Technology (UST), Korea, student</p>				
<p>Representative of the ASIIN headquarter:</p> <p>Rainer Arnold</p>				
<p>Responsible decision-making committee:</p> <p>Accreditation Commission</p>				
<p>Criteria used:</p> <p>European Standards and Guidelines as of 15.05.2015</p> <p>ASIIN General Criteria as of 28.03.2014</p> <p>Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 28.06.2019</p>				

¹ ASIIN Seal for degree programmes;

² TC: Technical Committee for the following subject areas: TC 10 – Life Sciences

B Characteristics of the Degree Programme

a) Name	Final degree (original)	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
Bachelor Biotechnology	Cử nhân khoa học Công nghệ Sinh học / Bachelor of Science in Biotechnology	-	6	Full time	no	8 Semester	137 Credit Hours (232.9 ECTS)	2004, Once a year (August)

³ EQF = The European Qualifications Framework for lifelong learning

For the Bachelor's degree programme Biotechnology, International University – Viet Nam National University Ho Chi Minh City (HCMIU) has presented the following profile in the Self-Assessment Report:

“The undergraduate program in the Department of Biotechnology provides students with a solid science and engineering foundation with emphasis on scientific research, practical skills and a multidisciplinary approach. It is based on the needs and demands in Vietnam for human resources in the bioscience field in the areas of research and development, quality systems, production, clinical testing, and diagnostic work. The graduates must be equipped with proper knowledge and skills in Biological Science, Engineering as well as professional integrity. Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behaviour, societal needs and forces, and the dynamics of human efforts and their effects on human health and that of our environment.”

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Self-Assessment Report
- Study plan
- Module descriptions
- Webpage School of Biotechnology: <https://bt.hcmiu.edu.vn/en/>
- Webpage Ba Biotechnology: <https://bt.hcmiu.edu.vn/en/programs/undergrads/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The auditors base their assessment of the learning outcomes as provided on the websites and in the Self-Assessment Report of the Bachelor's degree programme Biotechnology.

The auditors refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Biotechnology as defined by HCMIU correspond to the competences as outlined by the SSC. They come to the following conclusions:

HCMIU has defined Programme Educational Objectives (PEOs) as well as Intended Learning Outcomes (ILOs) to describe the profile and the goals of the Biotechnology programme. While the PEOs describe the general goals, the ILO are worded more specific and describe in detail, what competencies the students should acquire during their studies. The PEO were generated based on the analysis of the vision and mission of the University and the demand from industry. They were discussed and determined by the School's Scientific Committee (which includes the members of Management Board, Representatives of Stakeholder and Lecturers). Therefore, the PEOs reflect the requirements of the University and the needs of regional and nationwide companies in the area of biotechnology. The PEO are documented both on the programme's webpage and in the Student Handbook.

While the PEO define the overall goals, the ILO interpret the PEO in more detail with respect to the students' abilities upon graduation. In order to assure the globally competitive quality of the students as stated in the vision and mission of HCMIU, the School of Biotechnology has aligned the ILO with international standards e.g. the criteria from the Asian University Network.

With the ongoing industrialisation of Vietnam and the growth of its economy, the demand for highly educated human resources has been constantly increasing within the last years. The need for graduates who have a broad range of generic and specific competencies is also rising, specifically in agriculture and medical science. The Biotechnology programme at HCMIU was designed to equip students with the basic and professional skills and knowledge that can be applied for improving agricultural production (plant and animals) e.g. by using microorganisms or genetic methods. As a cross-sectional discipline, biotechnology is dedicated to the technical use of biological methods and the development of processes based on renewable raw materials. The programme under review focuses on biology-relevant knowledge of mathematics and the natural sciences, molecular, cell and organismic biology. It equips students with basic and professional technologies that can be applied to improve plants and animals, using microorganisms for industrial production or studying human genetic problems. The programme covers a range of fields in biotechnology, such as pharmaceutical biotechnology, stem cell biotechnology, assisted reproductive biotechnology, agriculture, healthcare, and medicine.

Graduates from the Biotechnology programme should have generic knowledge of mathematics and the natural sciences, molecular, cell and organismic biology. Students should acquire methodological competences with the manipulation of living and non-living materials to be able to carry out practical work in laboratories, and gain specific knowledge in genetics, molecular biotechnology, analytical chemistry, and biostatistics. In addition, students should obtain relevant knowledge of safety, environmental and ethical issues as well as the associated legal fundamentals. Furthermore, they should be able to apply modern techniques to produce biotechnological products. During their studies, students should also acquire communicative skills, learn to work in a team, and have developed a strategy for life-long learning. With respect to social competences, the students are trained in conceptual, analytical and logical thinking for a professional career. In addition to the subject-related qualification objectives, graduates of the Biotechnology programmes should be capable of working autonomously as well as in a team-oriented manner, and be able to conduct research activities. Furthermore, they should be able to solve subject-relevant problems, can present their results, have trained their analytical and logical abilities, and have an awareness of possible social and ethical effects of their actions.

The Bachelor's degree programme Biotechnology has a special focus on living systems (molecules, cells, tissues, and organisms) as agents for making bio-products. The interdisciplinary qualification profile of graduates combines natural and engineering sciences from the fields of chemistry, biochemistry, micro- and molecular biology as well as reaction, process and bioprocess engineering. Employment is in companies, authorities and associations, preferably for the production and quality assurance of food, food supplements, cosmetics, biocatalysts, cellulose, bioplastics, pharmaceuticals, agrochemicals and fine chemicals. Most of the graduates (70 to 80 %) get a job after finishing the Biotechnology programme. The rest continues their academic education and join Master's programmes either in Vietnam or abroad.

For the award of the subject-specific ASIIN label, Bachelor's programmes must achieve learning outcomes that are divided into the categories "subject-specific competences" and "generic competences". The Subject-Specific Criteria (SSC) of ASIIN are the result of a regular assessment by the ASIIN Technical Committees, which summarise what is understood as good practice in higher education or demanded as future-oriented training quality in the labour market supported equally by academia and professional practice.

Based on the Self-Assessment Report and the discussions during the online audit, the peers see that the graduates of the Biotechnology programme acquire the subject-specific competences defined in the SSC of the Technical Committee 10 – Life Sciences.

The peers are convinced that the intended qualification profile allow the graduates to take up an occupation, which corresponds to their qualification. The objectives and intended learning outcomes of the Biotechnology programme are reasonable and well founded.

The peers conclude that the objectives and intended learning outcomes of the Biotechnology programme adequately reflects the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the peers:

The peers confirm that the English translation and the original Vietnamese name of the Biotechnology programme correspond with the intended aims and learning outcomes.

A student who fulfils all requirements of the Biotechnology programme will be awarded the degree of Bachelor of Science in Biotechnology.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plan
- Module descriptions
- Webpage School of Biotechnology: <https://bt.hcmiu.edu.vn/en/>
- Webpage Ba Biotechnology: <https://bt.hcmiu.edu.vn/en/programs/undergrads/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The Biotechnology programme is offered by the School of Biotechnology (SBT) and the Department of Biotechnology (DBT). It is designed for four years, and at least 137 credit hours (this is equivalent to approximately 232.9 ECTS points) need to be achieved by the students. The Department of Biotechnology is one of five departments of the School of Biotechnology and was established in 2004 and started enrolling in 2005. The Department of Biotechnology is the largest department of the School of Biotechnology and offers three levels of education: BSc, MSc, and PhD in biotechnology. The total number of students studying in the Department of Biotechnology is over 700 undergraduate students and over 100 graduate students.

There is an Academic and Scientific Committee (ASC) and a Quality Assurance Team (QAT) at the School of Biotechnology, which are responsible for designing the curriculum and monitoring all teaching and learning processes. The ASC reviews and revises the suggestions made by QAT and submits the final suggestions to the Dean for approval. After that, the Head of the Department will present the results to the Academic and Scientific Committee of HCMIU (ASCIU). The final decision of ASCIU needs to be approved by the President of HCMIU.

An academic year at HCMIU consists of two semesters and a short summer term. The summer term is normally used for conducting the internship. Some additional courses are offered in the summer term, which lasts for ten weeks. A regular semester consists of 15 weeks for learning and teaching, one week for mid-term tests, and two weeks for final exams. The mid-term tests are normally given at the 7th or the 8th week of a semester. The

odd semester starts in August and ends January of the following year, while the even semester lasts from February to July.

Two main semesters are offered a year. Upon request, a few course works can be opened for the short summer semester. The majority of students can complete the study programme within four years. The rest can extend their study time if needed and the maximum length of time allowed for students to finish the programme is six years.

In the first year, students mainly take general courses such as mathematics, natural sciences, and English. From the second year, students can take part in core courses and specialized courses. Students must gain specific knowledge in genetics, molecular genetics, molecular biotechnology, analytical chemistry, and biostatistics. The biotechnology program covers a range of some fields related to biotechnology such as pharmaceutical biotechnology, stem cell biotechnology, assisted reproductive biotechnology, agriculture, healthcare and medicine. Furthermore, students can select electives according their personal interests and after consultation with their academic advisors. During their studies, all Biotechnology students must spend at least eight weeks to study and work in companies, factories, institutes, etc. during their internship. The internship is usually done in the summer after the third year with completing at least 90 credits hours. In the final year, students have to complete their Bachelor's thesis. For both internship and thesis, students have to submit their reports, present and defend it in front of a panel.

The programme structure is depicted in the table below:

Modules	Fields	Freshmen			Sophomore			Junior			Senior			Total			
		Credits			Credits			Credits			Credits			Credits		%	
		Compulsory	Elective	Total	Compulsory	Elective	Total	Compulsory	Elective	Total	Compulsory	Elective	Total	Lecture	Practice (Lab, Internship, Thesis)		Total
(I)	Political Education	5	–	5	2	–	2	4	–	4	–	–	–	11	0	11	8
	Fundamental Core	22	–	22	–	–	–	–	–	–	–	–	–	20	2	22	16
	English Proficiency	8	–	8	–	–	–	–	–	–	–	–	–	8	0	8	6
	Physical Training and Military Education																
(II)	Foundation Course	2	–	2	28	–	28	4	12	16	–	–	–	41	5	46	34
(III)	Professional Course	3	–	3	–	–	–	11	3	14	3	16	19	30	6	36	26
(IV)	Internship	–	–	–	–	–	–	2	–	2	–	–	–	0	2	2	1
	Thesis	–	–	–	–	–	–	–	–	–	12	–	12	0	12	12	9
Total		40	–	40	30	–	30	21	15	36	15	16	31	110	27	137	100

Table 1: Structure Bachelor's degree programme Biotechnology; Source: SAR HCMIU

The peers gain the impression that the curriculum of the Biotechnology programme is well designed and the graduates well prepared for entering the labour market and can find adequate jobs in Vietnam.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Webpage School of Biotechnology: <https://bt.hcmiu.edu.vn/en/>
- Webpage Ba Biotechnology: <https://bt.hcmiu.edu.vn/en/programs/undergrads/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Report, admission for the Biotechnology programme is conducted once a year in September. Information about the admission procedure is available on the university's website and thus accessible for all stakeholders.

The Office of Undergraduate Academic Affairs (OUAA) in cooperation with the Office of External and Public Relations are responsible to advertise 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, the HCMIU publishes its new and existing programmes in major 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 Achievement Exam: based on the score of three subjects, which students have registered for at their preferred.
- (2) Best Academic Records of students from designated high schools.
- (3) Direct admission according to the regulations of the Ministry of Education and Training, candidates who won e.g. 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 International Baccalaureate. International students need to pass an interview with the Admission Committee in order to be admitted to HCMIU.
- (6) Academic Records during the 10th, 11th and 12th grades of designated high schools.

As the Biotechnology programme is taught in English, students who do not have TOEFL or IELTS certificates will have to take an English placement test, which is similar to the TOEFL test, offered by the university besides the entrance examination. They will then be placed

in different levels IE0, IE1, IE2, IE3 (Intensive English) and Specialized English AE1 and AE2 based on their English proficiency.

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 recruitment strategy of HCMIU.

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

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

The number of applicants usually exceeds by far the number of available places. Within the last five years, there between 547 and 1746 applications for the maximum of 200 study places. Most students get access to the Bachelor's programme under review via paths 1 and 2 (30 – 60 % quota and 30 – 70 % quota, respectively). However, many students are offered a study place but less than 50 % actually enrol in the Biotechnology programme (there is an average of 126 new students every year). This is due to the complex admission system in Vietnam and the different admissions paths. As a result, many students apply to several universities and then decline an offered place. The detailed numbers are shown in the following table:

Intake Year	Applicants		
	No. Applied	No. Offered	No. Admitted/Enrolled
2017	800	290	130
2018	1270	317	158
2019	1746	441	117
2020	1041	255	113
2021	547	459	113

Table 2: Applications, Offered Places, and Enrolled students; Source: SAR HCMIU

Applications in 2020 and 2021 were significantly lower than before, because of the Covid-Pandemic.

The tuition fee for the Biotechnology programme is approximately 2.300 USD (2.140 €) per year per student (equivalent to 58 USD/credit). 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, faculty alumni, and individuals.

There are some scholarships available at HCMIU. 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 Encouraging Scholarship Programme chooses one of the best students in each class, based on their GPA and the number of credits taken, to receive 600 USD (560 €) per semester.

In general, HCMIU has a policy to award tuition fee waivers for five different groups of students. (1) students with meritorious services to the revolution or the relatives of people with meritorious services to the revolution; (2) students who are orphaned by 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.

In summary, the peers find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

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

HCMIU agrees with the findings of the peers.

The peers consider criterion 1 to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report

- Study plan
- Module descriptions
- Academic Handbook
- Webpage School of Biotechnology: <https://bt.hcmiu.edu.vn/en/>
- Webpage Ba Biotechnology: <https://bt.hcmiu.edu.vn/en/programs/undergrads/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The curriculum of the Bachelor's degree programme Biotechnology is designed for eight semesters. Students can extend their study time if needed and the maximum length of time allowed for students to finish the programme is six years

The courses in the first two semesters (including the short summer semester) of the Bachelor's programme convey basic knowledge of natural sciences, mathematics and English. In addition, courses on social and political sciences as well as physical education have to be covered. The English courses are designed to help students to improve their English proficiency and achieve the required level equivalent upon graduation. When looking at the study plan, the peers pay attention to the summer term and, in particular, the courses in political education offered after the first semester. The programme coordinators explain that the Ministry of Education and Training decides on these courses, which are delivered by external lecturers. These courses are not just for the Biotechnology programme but for all the different departments across the university.

All courses are taught entirely in English except three courses (Philosophy Marx - Lenin, Marxist – Leninist Political Economy, History of Vietnamese Communist Party, and Ho Chi Minh Thought's). Each student, regardless of the specialization chosen, is required to take eight credits in English.

Courses (foundation courses) on the different areas of biotechnology including molecular biotechnology, industrial biotechnology, medical biotechnology, and environmental biotechnology are offered from the third to the sixth semester. The specialized modules (professional courses) consist of both compulsory and elective courses and are designed to impart the necessary competences in specific fields of biotechnology. Elective courses can be chosen by the students in accordance with their areas of interest and after consultation with their academic advisor. In addition, all students have to conduct an internship. During the seventh and eighth semester, students must prepare and complete the Bachelor's thesis. While the internship requires students to spend two months working in a professional environment, the thesis involves the long term investigation on a designed topic for nor-

mally four months. The modules “Internship”, and “Bachelor’s thesis” are intended to provide students with opportunities to apply their theoretical knowledge in a professional way, to learn about the requirements of the job market, and to show their proficiency with scientific work. In addition, HCMIU annually organises a job fair for students from all majors.

The internship is usually conducted during the summer time after the 6th semester. At the end, students have to write a progress report and give a presentation. The employers are also required to give feedback and comments about the students. The course “Experimental Design” is a compulsory course, where students are required to design a proposal for their Bachelor’s thesis with the supports of an adviser. The result should be presented and defended in front of a panel, which consists of two lecturers. The Bachelor’s thesis is a capstone project that requires a student to apply all during the programme acquired knowledge and skills. A thesis is done in two stages (1) proposal and (2) final thesis. In the final stage, the thesis is reviewed by a lecturer and the results need to be presented in front of a panel.

The general structure of the Bachelor’s programmes under review is depicted in the following diagram:

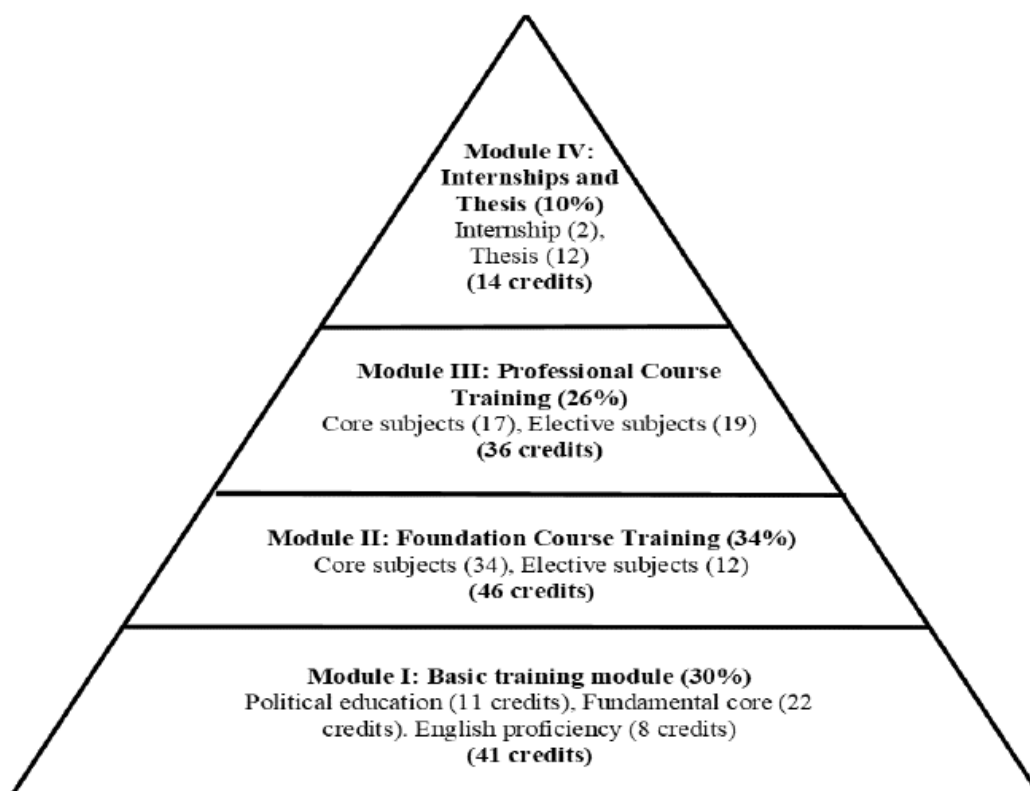


Diagram 1: General structure of the Curriculum; Source: SAR HCMIU

The programme appears to have a focus on animal and plant biotechnology as well as on

medical biotechnology and topics related to agriculture and infectious diseases; the technical and engineering aspects of biotechnology (e.g. bioreactors and sterile technology, bio-reaction technology, chemical engineering, down-stream processing) are mostly missing. As engineering is also mentioned in the programme's objectives, "The undergraduate program in the Department of Biotechnology provides students with a solid science and engineering foundation with emphasis on scientific research, practical skills and a multidisciplinary approach." the peers emphasise that there only a few electives are offered in these areas such as "Bioprocess Engineering" and "Introduction to Business Administration", but students are not required to take them. In addition, the employability of the graduates will be even higher, if they also have competencies in engineering and economics. For this reason, the peers recommend putting a stronger focus on engineering and economics aspects in the curriculum. Some compulsory courses on engineering (e.g. process engineering, chemical engineering) and additional electives in economics should be offered. At the same time, the number of non-subject-specific courses could be reduced.

During the audit, students and alumni express their satisfaction with the organisation of the degree programme as it covers several disciplines, which helps them acquire knowledge about different fields and, from that, identify specific areas of interest. The peers draw attention, however, to the 2020 Alumni Survey, which shows that only 36.3 % of respondents had a positive view of the Career Orientation item. This low percentage suggests further assessment, identification of causes and a plan to address them.

The peers also point out that it would be useful to introduce Biotechnology students to programming languages and software such as R, which is a free programming language for statistical calculations and graphics; it was newly developed in 1992 by statisticians for users with statistical tasks, Python, which is a universal, commonly interpreted, high-level programming language, or Matlab, which is a commercial software for solving mathematical problems, especially for numerical calculations using matrices. This software could be used for courses in statistics and bioinformatics. According to the students, the course "Bioinformatics" already includes an introduction to Python. The peers appreciate this offer but stress that there should be a stronger focus on introducing students to programming languages.

During the discussion with the peers, the employers and HCMIU's partner from the industry highlight that biotechnology graduates from HCMIU work professionally, are willing to learn, perform well, and can work in a team. However, they point out that the students' English proficiency with respect to speaking and reading is good, but that the English writing skills could be improved. Biotechnology. To this end, the employers suggest offering a summer school on economics for students. Nevertheless, this comment not only applies to

the Biotechnology programme but to graduates from Vietnamese universities in general. In addition, the employers mention that HCMIU should provide the companies with a guideline about the possible content and scope of the internship and what the students are supposed to learn and what their tasks should include. Otherwise, HCMIU's partners are very satisfied with the qualification profile of the Biotechnology graduates.

In summary, the peers gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

International Mobility

Since 2011, 18 international students have been enrolled in the Biotechnology programme at the undergraduate level. Most of the international students come to study and get a degree in biotechnology at HCMIU are from Korea and Laos. In addition, there are some international students (e.g. from Canada, Germany, and Japan) who stay for a short-term exchange and some courses in biotechnology, which are similar to the courses at their home university.

In the Biotechnology programme, there is the opportunity for students to take part in a double degree programme. In this 2+2 programme, students take courses of the first two years of the Bachelor of Biotechnology at HCMIU. The credits will then be recognised by the partner university so that students can continue to study the last two years of the programme at the partner university. After completing the four years of study, students will be granted a Bachelor's degree by the partner university. The Department of Biotechnology has two 2 + 2 programmes, one with the University of Nottingham and one with the University of the West of England. The number of incoming students from Nottingham in 2017, 2018, 2019, 2020 and 2021 year was 19, 19, 9, 5, 16 students, and 14, 13, 8, 2,7 students from West of England University.

Credits acquired abroad are recognized at HCMIU if the course is equivalent (70 % or above) to a course at HCMIU in terms of content, teaching pedagogy, objectives, and students' working load.

Students who want to study abroad study can receive a scholarship and financial support, if they meet specific requirements in terms of academic merits and social contribution. In addition, the Center for International Mobility at HCMIU collaborates with European Universities regarding the Erasmus+ programme with the aim of obtaining further financial support for local students to take part in mobility programmes. Every year, HCMIU will spend about 1.5 million USD to provide scholarships to students who achieve high entrance

exam scores (5 %) both for programmes at HCMIU and for international partner universities. Moreover, very good students can directly apply for scholarships from the Vietnamese government for studying abroad.

The peers acknowledge that HCMIU participates at the ERASMUS+ programme and has around 60 international partner universities. This results in approximately 400 incoming and 210 going students. However, most of these students are from the business major, the academic mobility among science and engineering students is significantly lower.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist. However, they also point out that they wish for more places and better endowed scholarships for long and short-term stays abroad. The number of available places in the exchange programmes is still limited and there are restrictions due to a lack of sufficient financial support. HCMIU can provide only a limited amount of scholarships, while the demand from students is rising.

The peers understand these problems; however, they recommend increasing the efforts to further promoting the academic mobility by establishing more international co-operations and exchange programmes and by offering more and better-endowed scholarships for Biotechnology students.

In order to increase the numbers it would be necessary to provide more scholarships, because financial restrictions and high living costs are the biggest obstacles that keeps students from studying abroad. The peers support these plans and encourage HCMIU to increase the efforts and to establish more international cooperations in the area of biotechnology. Especially as an international university, HCMIU should strive to further increasing the number of incoming and outgoing biotechnology students. It would also be useful to invite more international guest lecturers to give classes or seminars in the biotechnology programme.

In summary, the peers appreciate the efforts to foster international mobility and support both HCMIU and the School of Biotechnology to further pursuing this path.

Criterion 2.2 Work load and credits
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Evidence:

- Self-Assessment Report
- Study plan
- Module descriptions

- Academic Regulations
- Discussions during the audit

Preliminary assessment and analysis of the peers:

In the Vietnamese system, each credit is equivalent to 15 periods of theoretical lecture in class or 30 – 45 periods of practical laboratory work with additional 30 periods of self-study. In the internship and the Bachelor’s thesis it is equivalent to 45 – 60 periods and 45 – 90 periods in the experimental design project. One period lasts for 50 minutes. The workload calculation is depicted in the following table:

Form of study for 1 credit	In-class periods	Self-study hours	Total hours
Theoretical lecture	15	30	45
Practice in a Laboratory	30-45	30	60-75
Quizzes in class	30-45	30	60-75
Assignment	30-45	30	60-75
Project, Thesis	45-60		45-60
Internship	45-90		45-90

Table 3: Workload Calculation, Source: SAR HCMIU

According to the Self-Assessment Report and the module descriptions, one ECTS point is awarded for 30 hours of students’ workload. As a result, there cannot be the same conversion rate between Vietnamese credits and ECTS points for all courses. For theoretical lectures, the rate would be 1 to 1.5 and for practical work 1 to 2 (at least). However, HCMIU calculates with fixed conversion factor of 1.7 between Vietnamese credit hours and ECTS points.

The module descriptions reveal where there problem lies with the workload. For example, the module description for “Biology” mentions a total workload of 135 hours and three Vietnamese credits (5.1 ECTS points) are awarded. However, 5.1 ECTS points would mean 153 hours. As a result, the conversion from Vietnamese credit hours to ECTS points is faulty and inconsistent. Another example is the internship. According to the Self-Assessment Report, students usually spend eight weeks with a workload of 160 hours. However, only 2 CH and 3.4 ECTS points are awarded. It should be significantly more.

The peers point out that it is necessary to eliminate the inconsistencies in the workload and credit calculation of the Vietnamese as well as the ECTS system. HCMIU should follow the ECTS Users’ Guide and define how many hours of students’ total workload are required for one ECTS point. This is the time students typically need 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 students” spends on self-study and preparation for classes and exams. The initial estimation of workload should be regularly refined through monitoring and student feedback.

During the discussions with the programme coordinators and the students, the peers learn that so far there has been no 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 in the ECTS framework, the peers suggest asking the students directly about their experiences. This could be done by including a respective question in the course questionnaires.

The programme coordinators explain during the audit that on average, 60 % of the students of the Biotechnology programme finish within four years, several students take longer. This is mostly due to the need to pass all the English courses, which is a problem for many students. The total graduation quota is between 80 and 85 %.

During the audit, the students basically confirm that their workload is adequate and that it is possible to finish the degree programme within the expected four years.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report

- Study plan
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented in the Biotechnology programme. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Students are encouraged to use various tools for learning activities, including reading textbooks, giving references to documents and scientific papers, taking notes during lectures, and doing Internet searches to fulfil homework and quizzes. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

HCMIU has the goal to support the transition from a teacher-centred to a student-oriented and outcome-based education in order to involve all students in the learning process and to develop their thinking and analytical skills.

The most common method of learning is 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 as well as their soft skills. Laboratory work covers laboratory preparation, pre or post-tests, laboratory exercises, reports, discussions, and presentations. Additionally, practical activities should enable students to be acquainted with academic research methods. Moreover, students are encouraged to participate in scientific seminars, journal clubs, workshops and conferences organised by the university or outside institutions. Students can take part as research project volunteers in research projects run by faculty members or researchers outside the university.

As described in the Self-Assessment Report, biotechnology students are expected to be familiar with experimental designs and scientific research methods. During their studies, students are encouraged to participate in scientific seminars, journal clubs, workshops and scientific conferences. Students also have the opportunity to take part as research project volunteers in research projects, which are run by teachers at HCMIU or by researchers from outside our university. Moreover, students also have to conduct thesis research. They are

also encouraged to publish their work, which can increase their chances of getting scholarships for their further academic education.

To support teaching and learning activities at HCMIU, all classrooms and laboratories are equipped with computers, projectors, and internet access. To help students achieving the intended learning outcomes and to facilitate adequate learning and teaching methods, HCMIU has developed 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 discussion can be made 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 utilising different teaching methods such as flipped classroom and blended learning. During the COVID-pandemic, faculty members have adapted and used some online teaching platforms including MS-TEAM, ZOOM, and GOOGLE MEET.

Since 2019, HCMIU has invested in different online teaching platforms to cope with the COVID situation. Lecturers can opt for either Zoom or Microsoft Teams for teaching online according to their preference. All these platforms allow lecture recording, group discussion and blackboard functions to create a virtual classroom experience that is very close to the real one. Besides, the Center of Information Service has conducted many training sessions for using these online platforms and provided supporting training documents.

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 of 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 peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all three undergraduate programmes comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format. It actively involves students in the design of teaching and learning processes (student-centred teaching and learning)

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report

- Student Handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:

HCMIU offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. Each academic advisor is a member of the academic staff and is responsible for approximately 10 to 15 students from her/his classes. He/she is a student's first port of call for advice or support on academic or personal matters.

Before a new semester starts, the advisors help students plan for their next courses. Students register for courses through an online platform (Edusoft), which allows advisors to look through all registered courses and make adjustments in consistency with the student's ability to meet educational goals. The advisors also access this platform to monitor the academic performance of their students and organise at least two meetings with them each term to discuss any issues that may influence their achievement. During the discussion with the peer group, 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.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. The students confirm during the discussion with the peers that they all have an academic advisor.

In general, students stress that the teachers are open minded, communicate well with them, take their opinions and suggestions into account, and changes are implemented if necessary.

The fourth-year students who prepare their final project have one or more supervisors, who are selected based on the topic of the final project. One supervisor could be an external supervisor, if the student performs the research outside HCMIU. Each lecturer supervises not more than eight students during the Bachelor's thesis and organises weekly meetings with them. The role of the final project supervisor is to guide students in accomplishing their final project, e.g. to finish their research and complete the final project report.

In 2012, HCMIU has 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.

The Office of Student Services also helps students to look for career orientations and job opportunities. Every year, OSS organises the Career Orientation Day to connect current students, alumni, and enterprises. In addition, specialised seminars are organized to 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 organized 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 providing information on job opportunities, internships, enterprise programmes, seminars, networking events, and industrial field trips.

Finally, there are several student organizations at HCMIU; they include student's activity clubs, which are divided into arts, sports, religious and other non-curricular activities.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well informed about the services available to them. The comprehensive support and advisory system is one of the strengths of HCMIU and the Biotechnology programme.

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

The peers appreciate that HCMIU has followed their advice to put a stronger focus on engineering and economic aspects in the curriculum. To this end, HCMIU has changed the Bioprocess Engineering course from an elective to a compulsory course and added bioreactors and sterile technology as well as down-stream processing content to the syllabus of the Bioprocess Engineering course. In order to improve the students economic competences, the School of Biotechnology has decided to add three more credits in the electives. However, the peers point out that this is not sufficient, there should be more engineering courses e.g. in chemical engineering in the curriculum.

The peers acknowledge that the School of Biotechnology has recommended to the lecturer in charge of the subject to add to the course's syllabus an introduction to programming

languages and software used in bioinformatics such as Bash script, Python, and R. The peers hope that the syllabus will be adjusted accordingly.

As English is the “lingua franca” in sciences, the peers support the plan to improve students’ English writing skills by notifying all faculty members to increase the proportion of English essays in homework assignments. In addition, it might be a good idea to offer a “journal club” where students can present and discuss current scientific publications in English with other interested students and teachers.

In response to the comment of the employers with respect to a missing guideline for the internship, the School of Biotechnology will send the syllabus of the internship to the onsite advisors and companies. The peers hope that this will be sufficient and recommend to ask the employers to comment on this.

The peers confirm that HCMIU has signed MOUs with several universities and research institutes e.g. in Japan, Taiwan, and the UK. In addition, these programmes need to be promoted and equipped with a sufficient amount of scholarships for Biotechnology students.

The peers point out that the students’ total workload, including time needed for self-studies, needs to be verified for every course and the respective information (in hours per semester) and the awarded ECTS points should be included in all module descriptions (syllabus). In addition, HCMIU needs to define how many hours of students’ total workload are required for one ECTS point. In the current calculation scheme, this number still varies!

The peers consider criterion 2 to be mostly fulfilled.

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Academic Handbook
- HCMIU Academic Calendar

Preliminary assessment and analysis of the peers:

The final grade of the course is a combination of the midterm and final exam, quizzes, assignments, homework, presentations, and lab exams and reports. Students’ overall performance throughout the semester is formally monitored through course grades, which are at least 50/100 in order to pass the course. Besides the theoretical courses, the majority of

the courses in the curriculum also includes practical sessions, which allow students to acquire hands-on experience in the laboratories.

The most common type of evaluation used are written examinations; however, other exams 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 to 100), Very-good (80 to near 90), Good (70 to near 80), Rather good (60 to near 70) and Fair (50 to near 60). The maximum score for each course is 100 points, and 50 points are required to pass the course. For mid-term and final exams, the teacher should deliver the grades within two weeks after the test date.

The criteria to assess students' performance are stated in the assessment plan of each course syllabus. To ensure transparency and fairness for all students, the assessment components, their weights, and schedules are introduced to the students from the first class of the course. The course syllabus is also available on Blackboard for enrolled students to assess. In addition, students and teaching staff can also find the information related to the course specifications and assessment criteria in the Programme Specification that has been published on the department's website.

The internship is conducted through collaboration with manufacturing factories, hospitals, research institutes or other external institutions connected to pharmaceutical biotechnology, plant biotechnology, animal biotechnology, medical biotechnology, assisted reproductive technology, stem cell technology, micro-biotechnology and regenerative biomedicine. To join the course, students must have accumulated at least 90 credits, and then, they work for two months, equivalent to eight weeks or 160 hrs. The internship is approved and supervised by a faculty instructor and an onsite supervisor at the host institution. At the end of the internship, students write a report and present their results to a panel. The evaluation considers the work plan, discipline, teamwork, plan implementation, and activity report. The final grade derives from the assessment of the onsite supervisor, faculty instructor and committee members.

The Bachelor's thesis is a major part of the Biotechnology programme and considered as a final assessment if the intended learning outcomes have been achieved. Regulations about thesis assessment is made known to students via the student handbook and the department's website. All students need to complete at least 113 credits and have IELTS of at least 5.5 or equivalent to be qualified for conducting the thesis. Students enrolled in

thesis work, are assigned a supervisor, who helps the students undertaking their research project.

The final project (Bachelor's thesis) consists of two stages (1) proposal and (2) final thesis. The thesis last four months, equivalent to 720 hrs. In the final stage, the thesis should be reviewed by a lecturer. The two stages are assessed by a panel with a presentation. This project is conducted independently under the guidance of one or more supervisors. It consists of a literature review, practical research, and data analysis. 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 who are interested in a specific topic are able to volunteer in the lab from the second year, which allows them to collect preliminary research data. Students are requested to provide evidence of supervision arrangement to the SBT through a thesis registration form. About eight weeks after starting the research, students must submit a progress report certified by the supervisor to the school. Students present the results to five members of the scientific committee of the Department of Biotechnology, the reviewer, and their supervisor. Some students, approximately 10 %, 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.

In case that students cannot attend the exam due to unavoidable reasons such as illness, accident, death of family members, etc., they need to inform SBT by the deadline specified in the university's policy by submitting a form asking for permission to re-sit the exam another time, 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 if receiving academic warnings more than twice. It is worth noticing that the student's academic advisor receives the notifications during the course as well. Consequently, help and support would be given to improve the student's academic performance. However, students can request to postpone the final exam due to important reasons (such as accidents, health

problems, etc.). In these cases, students will take the final exam in the next semester without repeating the whole course.

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 programme coordinators, this requirement explains why, for the last five cohorts, around 60 % still have to graduate after four years. Those students who do not meet the required English level can still apply for jobs but have to get prepared 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.

The peers discuss with the students how many and what kind of exams they have to take each semester. They learn that for each course there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or oral tests. The final grade is the sum of the sub-exams. The students confirm that they are well informed about the examination schedule, the examination form, and the rules for grading.

The peers point out that there is a discrepancy between the intended learning outcomes as mentioned in the module descriptions and the actual examination methods used. They need to be matched and the exams need to be competency oriented. With respect to the exams, the peers are convinced that it would be useful to put more emphasis on questions related to transfer skills and critical thinking. The mid-term and final exams should not only verify that the students have learned the content by heart but that they understand the context and the reasoning behind it and are able to apply the acquired knowledge to new areas. In general, the examinations focus on learning by heart and too little on the ability to solve problems by self-determined application of what has been learnt. This easily can be improved but it requires more effort and open minded thinking from the teachers to design such exams and handle/accept even "unusual" solutions given by the students. The students should be motivated to think freely and to be brave to present own results which cannot be found directly in a textbook. The peers point out that this is especially relevant for mid-term and final exams. Students should be trained in critical and analytical thinking and not only learn facts by heart; this should be reflected in the written exams. In addition, the share of exam questions dealing with transfer skills should be increased in the course of the degree programmes and should be highest in the latest semesters.

The peers 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 peers after the comment of the Higher Education Institution regarding criterion 3:

The peers acknowledge, that the School of Biotechnology has informed all lecturers that 30 – 40 % of the questions in midterm and final exams must open questions that assess the students' ability of critical thinking. The peers expect HCMIU to verify this changes e.g. by providing sample exams, in the further course of the procedure. In addition, the currently existing discrepancy between the intended learning outcomes in the module descriptions and the actual examination methods need to be solved.

The peers consider criterion 3 to be mostly fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study plan
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

At HCMIU, the staff members have different academic positions. There are 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 fulltime members of the teaching staff are obliged 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 and also depends on the academic position. For example, full professors spend more time on research activities and less on teaching than associate professors or lecturers.

According to the Self-Assessment Report, the teaching staff at the Department of Biotechnology consists of 27 fulltime teachers (18 Associate Professors, 8 Assistant Professors, 3

PhD candidates, and 6 with a Master's degree) who are supported by 5 non-academic staff members.

PhD and Master's students work as lab assistants in the laboratories, so there is no shortage in staff members to supervise practical lab work, according to the feedback of the teachers during the audit.

Associate professors, assistant 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.

The peers discuss with HCMIU's management how new staff members are recruited. They learn that when a department in the School of Biotechnology wants to recruit new staff members, the Head of Department will send an official letter to the Dean of the School. If the Dean approves, an official letter of request will be sent to the Human Resources Department along with the recruitment requirements proposed by the department. The Human Resources Department will check the request and then propose it to the President of HCMIU. If approved by the President, the vacancy will be announced on HCMIU's website and other media.

Candidates have to do a presentation on their research activities, and their teaching abilities are verified. Recruited teaching staff must hold a PhD degree and post-doctoral research experience from a developed country with suitable expertise. They must be accredited in English by a professional committee comprised of school leaders 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 the UK, Germany, USA, Australia, Japan and Korea). The peers appreciate this international background.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes.

Criterion 4.2 Staff development
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Evidence:

- Self-Assessment Report
- Staff handbook

- Discussions during the audit

Preliminary assessment and analysis of the peers:

HCMIU encourages training of its academic staff for improving their didactic abilities and teaching methods. As described in the Self-Assessment Reports, faculty members regularly participate in training or workshops.

The Office of Human Resources Management is responsible for identifying training needs of staff members, developing training plans, and carrying out training activities. Annually, the Board of Presidents holds meetings with heads of schools, departments, and offices to discuss on the training needs of staff of different units. Based on the feedback of academic and non-academic units, the Office of Human Resource Management makes plans to organise training courses or workshops for the whole year.

Faculty members can also further develop their competencies through several activities such as post-doctoral programmes, training, workshops, joint research, etc. Moreover, they are encouraged to present their research papers in national and international conferences, and to collaborate with colleagues from international universities. However, no sabbatical leave is possible by national regulation from MOET because other teachers would have to cover for the teachers on leave and absent teachers cannot be paid by the government.

Newly recruited lecturers are encouraged to take some teaching training courses. Faculty members are also trained from time to time to make sure they stay updated with the latest technologies and methodologies when it comes to teaching. The most recent workshops are how to use Zoom, and other online teaching platforms.

The peers discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme at HCMIU, their opportunities to further improve their didactic abilities and to spend some time abroad to attend conferences, workshops or seminars.

In summary, the auditors confirm that HCMIU offers sufficient support mechanisms and opportunities for members of the teaching staff who wish for further developing their professional and teaching skills.

Criterion 4.3 Funds and equipment
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Evidence:

- Self-Assessment Report
- Live video presentation of the facilities

- Discussions during the audit

Preliminary assessment and analysis of the peers:

Basic funding of the Bachelor's degree programme Biotechnology and the facilities is provided by HCMIU and the School of Biotechnology. Additional funds for research activities can be provided by HCMIU or the Vietnamese government, but the teachers have to apply for them. In addition, there are several co-operations with industrial partners. On 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 source of income are the students' tuition fees and the funds provided by the Vietnamese government (mostly for salaries).

To maintain, evaluate, and improve the physical facilities and infrastructure such as teaching and learning facilities, laboratories, equipment, and tools to meet the needs of education, research, and service, the Office of Procurement Services (OPS) and the Office of Finance and Planning (OFP) are responsible for planning and maintaining the university facilities. SBT has 17 laboratories supporting diverse specialties in the programme, including laboratories for cell biotechnology, biomedical and molecular biotechnology, plant biotechnology, pharmaceutical biotechnology, marine biotechnology, cell reprogramming, cell and stem cell banking, microbiology, and the central research lab (e.g. for conducting the Bachelor's theses).

The teaching staff emphasise that, from their point of view, the programme receives sufficient funding for teaching and learning activities. It appears that the Department of Biotechnology does not face any financial shortages. HCMIU is currently building new facilities for SBT with new laboratories, which will increase the capacity for education and research. The new building should be available in 2024 and will include an area of approximately 7.000 m² to develop modern laboratories and increase practical learning areas.

During the live video presentation, the peers can observe that the laboratories are furnished with the necessary safety measures (e.g. fire extinguishers, appropriate furniture, personal protective equipment, and lab safety regulations) and audio-visual teaching devices. In addition, the peers see that the laboratories are equipped with the necessary equipment and instruments in addition to the basic equipment required and that there are enough workplaces for all students. They are particularly impressed by the good technical equipment and the extensive laboratory facilities.

One student from Germany, who did his Master's thesis at the School of Biotechnology, points out during the audit that his experience was very good. He worked in the cell and stem cell laboratory and learned a lot about embryology. In addition, he confirms that the technical equipment is amazingly good, some of the instruments are better than at his university in Germany.

The programme coordinators emphasise that from their point of view, the Biotechnology programme receives sufficient funding for all teaching and learning activities. Hence, the Department of Biotechnology does not face any financial shortages. Of course, there is limited funding to modernise or add laboratory equipment, but there are sufficient resources for adequately teaching the classes and conducting research activities. During the discussion with the teachers, the peers learn that the disbursement process for project funds should be simpler and easier e.g., for hiring additional personnel. This would facilitate the research activities of the staff members.

The students express their satisfaction with the library and the available literature. The library offers direct access to international literature, scientific journals, and publications e.g. via ScienceDirect and Springer Online. From the students' point of view, there is sufficient access to current international literature and databases and a remote access is possible. In addition, it is possible to access all resources of all member universities of the Vietnam National University Ho Chi Minh City so that it is possible to get books from other universities if HCMIU does not have them.

In summary, the peer 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 peers after the comment of the Higher Education Institution regarding criterion 4:

The peers thank HCMIU for clarifying that when lecturers or researchers go to a conference for a week or a short course, they are also paid during that time and may be provided with extra funds for travel and living expenses. Lecturers and researchers, who study abroad for a doctoral degree for 2 - 4 years, receive a scholarships from the Vietnamese government or from partner universities. In addition, HCMIU pays them 40 % of their basic salary according to HCMIU's regulations.

The peers consider criterion 4 to be fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions
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Evidence:

- Self-Assessment Report

- Module description
- Webpage School of Biotechnology: <https://bt.hcmiu.edu.vn/en/>
- Webpage Ba Biotechnology: <https://bt.hcmiu.edu.vn/en/programs/undergrads/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The students, as all other stakeholders, have access to the module descriptions via the programme's homepage.

After studying the module descriptions, the peers confirm that they include most of the necessary information about the persons responsible for each module, the teaching methods, the intended learning outcomes, the content, the applicability, the admission and examination requirements, and the forms of assessment.

However, they point out that the awarded ECTS points are not mentioned in the module descriptions. Moreover, the conversion from students' total workload in ECTS points is not done correctly (see criterion 2.2). Moreover, the module description for the Bachelor's thesis does not include any information on the students' total workload and does not make transparent how the oral presentation and the written report contribute to the course's final grade. In addition, the module descriptions should describe in more detail the course's content and the content needs to match the intended learning outcomes and competencies aimed for. For this reason, it is necessary to update the module descriptions.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Diploma
- Sample Diploma Supplement

Preliminary assessment and analysis of the peers:

The peers confirm that the students of the Bachelor's degree programme Biotechnology are awarded a Diploma and a Diploma Supplement upon graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Diploma Supplement contains all necessary information about the degree programme. The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA. However, the Transcript of Records should also include information about the number of awarded ECTS points for each course.

Criterion 5.3 Relevant rules

Evidence:

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

Preliminary assessment and analysis of the peers:

The auditors 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 peers appreciate that the English website of the Biotechnology programme has been updated in advance of the audit and now includes information about the intended learning outcomes, study plan, and module descriptions.

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

As pointed out before (see criterion 2), the peers stress that that the students' total workload, including time needed for self-studies, needs to be verified for every course and the respective information (in hours per semester) and the awarded ECTS points should be included in all module descriptions (syllabus). In addition, HCMIU needs to define how many hours of students' total workload are required for one ECTS point. In the current calculation scheme, this number still varies!

The peers expect HCMIU to update the module descriptions accordingly.

The peers consider criterion 5 to be mostly fulfilled.

6. Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Academic Handbook

- Discussions during the audit

Preliminary assessment and analysis of the peers:

The Biotechnology programme is managed by the School of Biotechnology (SBT), which is part of the Ho Chi Minh City International University (HCMIU). Ho Chi Minh City International University is a member of Vietnam National University – Ho Chi Minh City (VNUHCM), which is a ministerial-level university. The School of Biotechnology has an Academic and Scientific Committee (ASC), a Quality Assurance Team (QAT), and on university level there is the Office of Quality Assurance and Testing (QATO), which analyses the data, write reports, and offers suggestions to the Board of Presidents, which is the highest academic council at HCMIU. The Board of Presidents reviews, revises the suggestions from QATO, and makes the final decisions to all academic concerns at HCMIU.

The peers discuss the quality management system at HCMIU with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external quality assurance. Minor revisions in the curriculum are implemented every year, while major changes are carried out every five years.

In order to further improve its degree programme, HCMIU conducts several surveys, such as a stakeholder surveys for work related issues, a lecturer survey, an alumni survey (one year after graduation, a final year students survey (on the overall quality of programmes and services), and a students' survey (every semester). At the end of the semester, lecturers and the 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.

2017-2021 data from the Student Exit Survey show that, on a scale from one to five, satisfaction with course objectives and content is relatively high at graduation time, with an average of 4.15 points. Moreover, the 2020 Alumni Survey indicate that 93 % of those who responded report a positive perception of their professional ability compared to the competency achieved after graduation.

As HCMIU and SBT are aware of the diversity of the labour market and the fast development of new technologies, employer surveys are conducted annually. Employers are asked about the ability of alumni to apply fundamental and professional skills into practice. For each skill, employers are asked about their level of expectation for graduates and how these expectations are met. The employers' feedbacks is considered by the QAT to modify or update the degree programme and teaching methods in order to providing students

with current knowledge, so that they can adapt themselves to different working environments in their future career.

The Office of Quality Assurance and Testing annually conducts surveys to receive feedback from alumni at the time of graduation and one year after graduation using questionnaires. The responses of the alumni on their employment status as well as their adaptability to the working environment are collected, analysed, and transferred into reports. The survey results can be used for further improving of the programmes and continuously enhancing the training quality

The peers learn during the audit that some employers are invited to give their feedback on the content of the degree programme by taking part at the surveys. In addition, partners from the industry are invited to give lectures and to donate money for grants. As the peers consider the input of the employers to be very important for the further improvement of the degree programme, they appreciate the existing culture of quality assurance with the involvement of employer in the quality assurance process. Nevertheless, they recommend establishing an advisory boards with external stakeholders at the School of Biotechnology. They should meet regularly with the Department Heads and programme coordinators to discuss with them the needs of the job market and how the School of Biotechnology can accommodate these needs.

At the end of each semester, the Office of Quality Assurance and Testing conducts an online students' survey about the teaching quality of lecturers for each course. Participation at the questionnaires is compulsory for the students, otherwise they cannot access their account on Blackboard. QATO analyses the data and sends the results to SBT and relevant lecturers, which should help lecturers adjusting their teaching methods and improving the teaching quality. If the results shows that a lecturer has not met the teaching quality requirements, the lecturer is reminded by the Dean to improve the teaching quality. If a lecturer, who has already been reminded before, does not meet the teaching quality again, SBT may stop assigning the course to the lecturer. In addition, a survey for first-year students is annually conducted through questionnaires. The objectives of this survey are to ensure the quality of welcome services and to understand the needs of new students.

However, teachers should get the aggregated results of the questionnaires and have the opportunity to talk with their students about the results and what could be improved, the students' feedback is essential for further improving the programme and it is likewise important to inform the students about the results and the possible improvements. It is necessary that the teachers discuss directly with the students about the results of the course questionnaires and what could be improved in the respective course. The feedback cycles need to be closed.

External quality assurance focuses on international accreditations. For this reason, the Biotechnology programme at HCMIU has been accredited by the ASEAN University Network Quality Assessment (AUN-QA).

The peers discuss with the programmes coordinators and students, if students are represented in HCMIU's boards. They learn that students are not members of the Quality Assurance Teams and are only invited sometimes to the Academic and Scientific Committee meetings. The peers are convinced that it would be very useful to have students' representatives as official members of the Academic and Scientific Committee on school level and to include them in the Quality Assurance Teams. This way, students will be actively involved in the decision-making processes for further developing the degree programme.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programme, but there is still room for improvement.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The peers appreciate that the School of Biotechnology will follow their suggestion to make student representatives members of the Quality Assurance Teams and to include them in the meetings of the Academic and Scientific Committee.

The peers consider criterion 6 to be mostly 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:

- none

E Comment of the Higher Education Institution (20.04.2023)

HCMIU provides the following statement:

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

On behalf of the school of Biotechnology, we sincerely thank the comments of the ASIIN evaluation Committee. We are delighted that the ASIIN committee has concluded that the objectives and intended learning outcomes of the Biotechnology programme adequately reflects the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences.

1.2 Name of the degree programme

We sincerely thank the ASIIN Review committee for confirming that the English translation and the original Vietnamese name of the Biotechnology programme correspond with the intended aims and learning outcomes.

1.3 Curriculum

We are truly delighted that the ASIIN Review Board judged our biotechnology curriculum is well designed so that graduates are perfectly prepared to enter the Labour market in Vietnam.

1.4 Admission requirements

We sincerely thank the ASIIN committee for the assessment of the terms of admission requirements of the School of Biotechnology and conclude that the terms of admission are transparent and support students in achieving the learning outcomes.

2.1 Structure and modules

We sincerely thank the ASIIN committee for the valid evaluation of Criterion 2.1 Structure and modules of Biotechnology programme. Based on the evaluation of the ASIIN committee, the academic members of Department of Biotechnology and the Scientific Research and Training Committee of the School of Biotechnology have discussed and came to the following conclusions:

1. We changed Bioprocess Engineering course from elective to compulsory subject; add Bioreactors and sterile technology, down-stream processing content in syllabus of Bioprocess Engineering.

2. In order to improve the economic knowledge of the students in the curriculum, as suggested by the ASIIN Committee, the Scientific Council of the School of Biotechnology has decided to add 3 more credits in the electives. Thus, the total number of free electives is 06 credits (9.2 ECTS) [*Additional document 1: MOM on Revision of Biotechnology major training program*].

3. In 2020, due to the Covid 19 pandemic, the alumni survey process was limited and only 36.3% responded positively to the Career Orientation item. We have now re-established the alumni association, especially admitting new graduates to the association and nominating the homeroom lecture of that student batch to keep in touch with the alumni. The Office of Quality Assurance and Testing of HCMIU has also developed an online survey system to make it easier for alumni to receive the survey and send the survey back to HCMIU more conveniently. We will also take note of sending back the survey results to alumni.

4. Based on the comments of ASIIN committee about the need to increase the content of programming languages and software in the subject of bioinformatics, the scientific council of the School recommended to the lecturer in charge of the subject to add to the syllabus about introduction to programming languages and software used in bioinformatics such as Bash script, Python, and R [*Additional document 2: Practice in Bioinformatics Syllabus*]

5. Based on the comments of ASIIN committee on the need to improve English writing skills, the School of Biotechnology has notified to all faculty members to increase the proportion of essays in homework assignments. In addition, the proportion of free response questions in mid-term and final examinations needs to be increased by 30-40%.

6. Based on the comments of the ASIIN committee and the employers mention about the internship guideline needs to be provide to the internship site, the School of Biotechnology has notified the secretariat of the School office and advisor of Biotechnology programme must send the syllabus of the internship to the site advisor and companies. We are very grateful to the ASIIN committee and employers for these valuable comments [*Additional document 3: Biotechnology Internship syllabus*].

7. Based on the comments of the ASIIN committee and the employers to further promote academic mobility, the School of Biotechnology has signed MOUs with a number of Universities and researching institutes on student exchange programmes accompanied with scholarships such as paid research internships. The School will continue to expand the opportunities for student to study abroad by establishing more international co-operations and exchange programme with scholarship.

8. To accurately assess students' self-study time to prepare for classes and exams, we have added the question "**Is the amount of time for self-study and pre-exam appropriate with the student studying plan?**" in the course evaluation form and will apply since semester 2, academic year 2022-2023 [*Additional document 4: Revised Course Evaluation form*].

International Mobility

We sincerely thank the ASIIN committee and employers for the valid comments of the International Mobility, the School board of Biotechnology discussed and came to the following answers:

Based on the comments of the ASIIN committee and employers to further promote academic mobility, the School of Biotechnology and International University have signed MOUs with a number of universities and research institutes on exchange programs accompanied with scholarships such as paid research internships. Recently, HCMIU signed MOUs with Japan's RIKEN institute (a world class institute), Tsukuba university, and Kobe University in Japan. In addition, a number of universities in Taiwan (College of Health Science and Technology, National Central University), as well as the UK (Nottingham University and University of West of England) to increase the chance to receive scholarship for Biotechnology programme students to study abroad. HCMIU will continue to expand the opportunities for student to study abroad by establishing more international co-operations and exchange programme with scholarship [*Additional document 5: MOU with Japan's RIKEN institute*].

2.2 Work load and credits

We sincerely thank the ASIIN committee and for the valid comments of Criterion 2.2 Work load and credits, especially comments on the inconsistent conversion between HCMIU credits and ECTS, the International University board and school of Biotechnology board have discussed and HCMIU has issued Decision No. 54/TB-DHQT dated March 2, 2023 on the conversion of ECTS credits at International University as follows:

For theoretical courses or practical courses with experiments, to earn 1 credit, students must spend at least 30 hours for preparation [*Additional document 6: Announcement on the conversion of ECTS credits at International University*].

The conversion for Biotechnology programme is as follows:

1. For theoretical courses: 1 ECTS at International University = (15 periods x 50 minutes) /60 minutes + 30 hours of preparation = **42.5 hours = 1.54 ECTS**).

2. For practical courses with experiments: 1 ECTS at International University = (30 periods x 50 minutes) /60 minutes + 30 hours of personal preparation = **55 hours = 2 ECTS**);

3. For internship: 1 ECTS at **International** University = 90 hours = (Contact hours and self-study hour) x 2 = **180 hours = 6.5 ECTS**).

4. For graduation (Thesis): Total workload = 1020 hours = 300 hours (for discussion with the advisor, laboratory session) + 720 hours (for progress report, reading paper, analyzing data, writing thesis) = **1020 hours = 37.1 ECST** [*Additional document 7: Thesis Syllabus*].

All syllabuses in the curriculum of the of Biotechnology programme have been added to convert from HCMIU credit to ECTS [*Additional document 8: Module Handbook added ECTS; Additional document 9: Program Specification added ECTS*].

2.3 Teaching methodology

We sincerely appreciate the good comments of ASIIN committee on our teaching methods. We will always improve teaching methods, update syllabus and curriculum as well as build better laboratories to serve students' learning outcomes.

2.4 Support and assistance

We sincerely appreciate the very good reviews of ASIIN committee on our Support and assistance to students. All the faculty members, researchers, laboratory technicians and official staff of the school of biotechnology will try to do our better to serve our students as our goal is student-centered learning.

3. Exams

We are very grateful to the ASIIN Appraisal Committee for their good evaluation of the system, concept and organization for examinations section. We are also very grateful to the ASIIN assessment committee for pointing out weaknesses in some midterm and final exams that lacked inference and critical questions. School of Biotechnology board has informed all lecturers that 30-40% of questions of Midterm and final examination must be critical and deductive questions. This work has been done in the midterm exam of the 2nd semester of this academic year 2022-2023 after receiving comments from the ASIIN Assessment Committee.

4.1. Staff

We are very grateful to the accreditation committee of ASIIN for good conclusion about our teaching staff. We always create the best working conditions for our faculty members, researchers to have time to do research and publication to better serve the teaching for students.

4.2. Staff Development

We are very grateful to the ASIIN committee for good summary and conclusion about our staff development. However, in the comment section said that "*However, no sabbatical leave is possible by national regulation from MOET because other teachers would have to*

cover for the teachers on leave and absent teachers cannot be paid by the government (P34, line 22-24)". This is not quite right with HCMIU's regulations (or perhaps our lectures have a misunderstanding). When our lecturers or researchers go to a conference for a week or a short course for a month, HCMIU are also paid during that time and may be provided with extra travel and living expenses. For lecturers and researchers who go to study abroad for a doctoral degree in 2-4 years, all of them go to study with scholarships from the Vietnamese government or from partner universities. However, HCMIU are still paid 40% of basic salary to them according to HCMIU's regulations.

4.3. Funds and equipment

We sincerely thank the evaluation of ASIIN committee for good evaluation of criterion 4.3 Funds and equipment of School of Biotechnology - HCMIU. All of our faculty members are always trying to win laboratory investment projects from the Ministry of Science and Technology, the Ministry of Education of Vietnam and the Vietnam National University of Ho Chi Minh City to improve the research and learning capacity of our students. Regarding the procedure for disbursing project funds, we will work more with the finance department of HCMIU to make the disbursement process more convenient according to Vietnam's regulations. Once again, thank ASIIN committee very much for the comments so that we can plan to do better in the future.

5.1. Module descriptions

We would like to thank the ASIIN review committee for their valuable comments on criterion 5.1 Transparency and documentation, especially the conversion from HCMIU' credits to ECTS. As answered in Criterion 2.2 Work load and credits, based on the recommendation of the ASIIN review committee, *HCMIU has issued Decision No. 54/TB-DHQT dated March 2, 2023 on the conversion of ECTS credits at International University.* All syllabuses in the curriculum of the Biotechnology programme have been added to convert from HCMIU credit to ECTS including syllabus of internship and thesis for graduation [*Additional document 8: Module Handbook added ECTS; Additional document 9: Program Specification added ECTS*].

Based on the comments of the ASIIN Accreditation Committee, we have also improved the entire syllabus, adding more details to the subject description and course content to match the intended learning outcomes and competency aimed.

5.2 Diploma and Diploma Supplement

We would like to thank the ASIIN review committee for comments on criterion 5.2 Diploma and Diploma Supplement. Based on the comments of the ASIIN Accreditation Committee, HCMIU's undergraduate education Department has added to the Diploma supplement the official length of Biotechnology programme with ECTS: 04 years/137 credits/239.2 ECTS.

Besides, we also convert HCMIU credits per module in the program structure [Module I: Basic training module (41 HCMIU credits = 64.2 ECTS)]; Module II: Foundation course training (46 HCMIU credits = 73.4 ECTS)]; Module III: Professional course training (36 HCMIU credits = 58.0 ECTS)]; Module IV: Internship and Thesis (14 credits = 43.6 ECTS)]. Finally, the calculation of only converting from HCMIU credits to ECTS has been detailed in the distribution of biotechnology curriculum and in syllabus [*Additional document 10: Diploma Supplement*].

Regarding the transcript of records with ECTS, we have submitted a proposal to the HCMIU board and will have it soon.

5.3. Relevant rules

We would like to thank the ASIIN review committee gave a good review for criterion 5.3 Relevant rules. We are also setting up a new website of school of Biotechnology and departments to better serve students' learning and will be completed this June, 2023.

6. Quality management

Based on the recommendations of the accreditation board, HCMIU, School of Biotechnology, and The Office of Quality Assurance and Testing of HCMIU have made appropriate adjustments to quality management and responded as follows:

1. In the University council of International University, already has a member who is a student representative,
2. In the School council of the School of Biotechnology, already has a member who is employer,

As suggested by peers, we have added a member who represents students to the school Scientific research and training committee to better understand students' aspirations and feedback for the future improving the programmes. The School of Biotechnology will also meet and communicate more often with employers to understand the recruitment needs of the society to improve the study program better [*Additional document 11: School Council adjustments*]. We also add a student representative to each Department of the School of Biotechnology as a member of the School/Department's Quality Assurance team [*Additional document 12: List of proposed students for joining the quality assurance team at school/ department level of international university*].

F Summary: Peer recommendations (05.05.2023)

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biotechnology	With requirements for one year	-	30.09.2028

Requirements

- A 1. (ASIIN 2.1) It is necessary to include some compulsory engineering courses in the curriculum.
- A 2. (ASIIN 2.2) Verify the students' total workload and award the ECTS points accordingly. Define how many hours of students' total workload are required for one ECTS point.
- A 3. (ASIIN 3) The discrepancy between the intended learning outcomes in the module descriptions and the actual examination methods need to be solved. The exams need to be competency oriented and should put a stronger focus on transfer skills and critical thinking.
- A 4. (ASIIN 5.2) Rewrite the module descriptions to include information about the students' workload and the awarded ECTS points. In addition, the course's content should be described in more detail and the content needs to match the intended learning outcomes and competencies aimed for. The module description of the Bachelor' thesis must make transparent how the final grade is derived.
- A 5. (ASIIN 6) Close the feedback cycles and discuss with the students directly about the results of the course questionnaires.

Recommendations

- E 1. (ASIIN 2.1) It is recommended to further promote the students' academic mobility, to establish more international cooperations, and to provide more scholarships.
- E 2. (ASIIN 2.1) It is recommended to reduce the number of non-subject-specific courses and to offer more courses on engineering and economics.
- E 3. (ASIIN 6) It is recommended to establish an advisory board with external stakeholders at the School of Biotechnology.

G Comment of the Technical Committee 10 - Life Sciences (12.06.2023)

Assessment and analysis for the award of the ASIIN seal:

The procedure was carried out online at the beginning of February. The expert group evaluates as particularly positive that all courses are conducted in English, many lecturers have international experience, and that the graduates have very good career prospects. On the other hand, there is a need for improvement in the area of engineering modules, academic mobility, conversion to ECTS credits, module descriptions, and feedback on teaching evaluations. According to the assessment of the experts, these are typical requirements for universities undergoing international accreditation for the first time. The most important point of criticism is the limited training in the field of engineering sciences, which also needs to be intensified. Overall, the TC with the requirements and recommendations as proposed by the experts.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biotechnology	With requirements for one year	-	30.09.2028

H Decision of the Accreditation Commission (23.06.2023)

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

The AC discusses the procedure and decides to follow the suggestions of the experts and the TC 10 – Life Sciences. The proposed requirements and recommendations are accepted without any changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biotechnology	With requirements for one year	-	30.09.2028

Requirements

- A 1. (ASIIN 2.1) It is necessary to include some compulsory engineering courses in the curriculum.
- A 2. (ASIIN 2.2) Verify the students' total workload and award the ECTS points accordingly. Define how many hours of students' total workload are required for one ECTS point.
- A 3. (ASIIN 3) The discrepancy between the intended learning outcomes in the module descriptions and the actual examination methods need to be solved. The exams need to be competency oriented and should put a stronger focus on transfer skills and critical thinking.
- A 4. (ASIIN 5.2) Rewrite the module descriptions to include information about the students' workload and the awarded ECTS points. In addition, the course's content should be described in more detail and the content needs to match the intended learning outcomes and competencies aimed for. The module description of the Bachelor' thesis must make transparent how the final grade is derived.
- A 5. (ASIIN 6) Close the feedback cycles and discuss with the students directly about the results of the course questionnaires.

Recommendations

- E 1. (ASIIN 2.1) It is recommended to further promote the students' academic mobility, to establish more international cooperations, and to provide more scholarships.

- E 2. (ASIIN 2.1) It is recommended to reduce the number of non-subject-specific courses and to offer more courses on engineering and economics.
- E 3. (ASIIN 6) It is recommended to establish an advisory board with external stakeholders at the School of Biotechnology.

I Fulfilment of Requirements (28.06.2024)

Analysis of the experts and the Technical Committee 10 – Life Sciences (10.06.2024)

Requirements

- A 1. (ASIIN 2.1) It is necessary to include some compulsory engineering courses in the curriculum.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: HCMIU has changed the Bioprocess Engineering course from elective to compulsory. In addition, bioreactors, sterile technology, and down-stream processing has been added to the course's content. Moreover, the course Chemistry for Engineering (compulsory subject) has been revised to focus more on applying the engineering to biotechnology.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the experts' assessment.

- A 2. (ASIIN 2.2) Verify the students' total workload and award the ECTS points accordingly. Define how many hours of students' total workload are required for one ECTS point.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: HCMIU has added an assessment of students' self-study time outside of class to prepare for classes and exams in the student survey form. In addition, HCMIU has defined how many hours of students' total workload are required for one ECTS point for the different kind of courses.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the experts' assessment.

- A 3. (ASIIN 3) The discrepancy between the intended learning outcomes in the module descriptions and the actual examination methods need to be solved. The exams need to be competency oriented and should put a stronger focus on transfer skills and critical thinking.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: The School of Biotechnology has informed all lecturers that 30-40% of questions of midterm and final examinations must be critical and deductive questions. In addition, the module description have been updated.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the experts' assessment.

- A 4. (ASIIN 5.2) Rewrite the module descriptions to include information about the students' workload and the awarded ECTS points. In addition, the course's content should be described in more detail and the content needs to match the intended learning outcomes and competencies aimed for. The module description of the Bachelor' thesis must make transparent how the final grade is derived.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: HCMIU has updated the module description and has made transparent how the final grade is derived if there is more than one examination (e.g. written exam, oral presentation, and report).
TC 10	Fulfilled Vote: unanimous Justification: As the university has submitted additional information on how the final grade is derived and has updated the module descriptions once more, the TC considers the requirement to be fulfilled.

- A 5. (ASIIN 6) Close the feedback cycles and discuss with the students directly about the results of the course questionnaires.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: Students are informed about the results and the respective report is published on the School's website.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the experts' assessment.

Decision of the Accreditation Commission (28.06.2024)

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ba Biotechnology	All requirements fulfilled	-	30.09.2028

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Biotechnology:

Programme Educational Objectives (PEOs)

Objective 1: To train students who will obtain basic knowledge of mathematics, become global citizens, meet the needs of economic development and integration in the stage of national industrialization and modernization.

Objective 2: To train students who will have basic scientific and technical knowledge, solid expertise and professional ethics; ability to solve problems by themselves, capable of teamwork, and communication skills.

Objective 3: To train students who will be capable of working in the fields of biotechnology industry; ability to perform management activities in factories, research institutes, hospitals, universities, high schools, and businesses related to the fields of agriculture, environment, food, medicine, etc..

Objective 4: To train students with sufficient knowledge and ability to continue to study biotechnology, applied biomedical science graduate program in Vietnam or abroad, and the spirit of lifelong learning.

Intended Learning Outcomes (ILOs)

- (1) An ability to obtain fundamental biology-relevant knowledge of mathematics and the natural sciences, molecular, cell and organismic biology. (Generic knowledge)
- (2) An ability to obtain methodological competence in biotechnology and apply this in other contexts, identify and solve subject-specific problems effectively. (Generic skills)
- (3) An ability to obtain professional knowledge in Biotechnology. (Specific knowledge)
- (4) An ability to obtain independent practical work in laboratories in biotechnology and related others. (Specific skills)
- (5) An ability to obtain relevant knowledge of safety, environmental and ethical issues as well as the associated legal fundamentals. (Attitudes)
- (6) An ability to apply modern techniques to produce biotechnological products. (Application)
- (7) An ability to analyze and interpret results in biotechnological process, product manufacturing. (Life-long learning)
- (8) An ability to be well aware of professional development for a career. (Development)

The following curriculum is presented:

LEVEL AE1

Freshman Year (1st year)							
<i>Semester 1</i>				<i>Semester 2</i>			
<i>Code</i>	<i>Course</i>	<i>ETCS</i>	<i>Credits</i>	<i>Code</i>	<i>Course</i>	<i>ETCS</i>	<i>Credits</i>
MA001IU	Calculus 1	6.8	4	PH014IU	Physics 2	3.4	2
PH013IU	Physics 1	3.4	2	EN011IU	Writing AE 2	3.4	2
BT311IU	Biology	5.1	3	EN012IU	Speaking AE 2	3.4	2
BT312IU	Practice in Biology 1	1.7	1	PE008IU	Critical Thinking	5.1	3
CH011IU	Chemistry for Engineers	5.1	3	CH009IU	Organic Chemistry	5.1	3
CH012IU	Chemistry Laboratory	1.7	1	BT150IU	Introduction to Biotechnology	3.4	2
EN007IU	Writing AE I	3.4	2	PT002IU	Physical Training 2	5.1	3
EN008IU	Listening AE1	3.4	2				
PT001IU	Physical Training 1	5.1	3				
Total Credits		30.6	18	Total Credits		23.8	14
<i>Summer Semester</i>							
<i>Code</i>	<i>Course</i>	<i>ETCS</i>	<i>Credits</i>				
PE015IU	Philosophy of Marxism and Leninism	5.1	3				
PE016IU	Political economics of Marxism and Leninism	3.4	2				
PE014IU	Environmental Science	5.1	3				
Total Credits		13.6	8				

Sophomore Year (2 nd year)							
Semester 1				Semester 2			
Code	Course	ETCS	Credits	Code	Course	ETCS	Credits
BT313IU	Genetics	5.1	3	BT317IU	Biostatistics	3.4	2
BT314IU	Practice in Genetics	1.7	1	BT318IU	Practice in Biostatistics	1.7	1
BT010IU	Plant Physiology	5.1	3	BT319IU	Biochemistry	5.1	3
BT315IU	Analytical Chemistry	5.1	3	BT320IU	Practice in Biochemistry	1.7	1
BT316IU	Practice in Analytical Chemistry	1.7	1	BT164IU	Microbiology	5.1	3
PE017IU	Scientific socialism	3.4	2	BT322IU	Practice in Microbiology	1.7	1
				BT009IU	Cell Biology	5.1	3
				BT210IU	Human Physiology	5.1	3
Total Credits		22.1	13	Total Credits		28.9	17
Junior Year (3 rd year)							
Semester 1				Semester 2			
Code	Course	ETCS	Credits	Code	Course	ETCS	Credits
PE018IU	History of Vietnamese Communist Party	3.4	2	BT217IU	Molecular Genetics	5.1	3
PE019IU	Ho Chi Minh's Thoughts	3.4	2	BT337IU	Bioinformatics	5.1	3
BT333IU	Molecular Biotechnology	5.1	3	BT338IU	Practice in Bioinformatics	1.7	1
BT334IU	Practice in Molecular Biotechnology	1.7	1	BT___IU	Foundation Elective Course	5.1	3
BT335IU	Immunology	5.1	3	BT___IU	Foundation Elective Course	5.1	3
BT336IU	Practice in Immunology	1.7	1		Free Elective Course	5.1	3
BT___IU	Foundation Elective Course	5.1	3				
BT___IU	Foundation Elective Course	5.1	3				
Total Credits		30.6	18	Total Credits		27.2	16
Summer Semester							
BT221IU	Internship	3.4	2				
Total Credits		3.4	2				

Senior Year (4 th year)							
Semester 1				Semester 2			
Code	Course	ETCS	Credits	Code	Course	ETCS	Credits
BT216IU	Experimental Design	5.1	3	BT179IU	Thesis	20.4	12
BT___IU	Professional Elective Course	6.8	4				
BT___IU	Professional Elective Course	6.8	4				
BT___IU	Professional Elective Course	6.8	4				
BT___IU	Professional Elective Course	6.8	4				
Total Credits		32.3	19	Total Credits		20.4	12

Total: 137 credits

List of Professional Elective Courses

Students have to take at least 16 credits from following list

BT343IU	Medical Genetics	3
BT344IU	Practice in Medical Genetics	1
BT345IU	Crop Biotechnology	3
BT346IU	Practice in Crop Biotechnology	1
BT347IU	Techniques in Plant Biotechnology	3
BT348IU	Practice in Techniques in Plant Biotechnology	1
BT349IU	Pharmaceutical Biotechnology	3
BT350IU	Practice in Pharmaceutical Biotechnology	1
BT351IU	Molecular Diagnostics	3
BT352IU	Practice in Molecular Diagnostics	1
BT353IU	Reproductive and Regenerative Biomedicine	3
BT354IU	Practice in Reproductive and Regenerative Biomedicine	1
BT355IU	Stem Cell Biology	3
BT356IU	Practice in Stem Cell Biology	1
BT357IU	Medical Microbiology	3
BT358IU	Practice in Medical Microbiology	1
BT359IU	Microbial Biotechnology	3
BT360IU	Practice in Microbial Biotechnology	1

List of Foundation Elective Courses:

Students have to take at least 12 credits from following list

BT218IU	Plant Science	3
BT306IU	Developmental Biology	3
BT200IU	Scientific Writing Workshop	2
BT207IU	Human Pharmacology	3
BT339IU	Protein Biotechnology	3
BT340IU	Practice in Protein Biotechnology	1
BT341IU	Bioprocess Engineering	3
BT342IU	Practice in Bioprocess Engineering	1

List of Free Elective Courses:

Students have to take at least 3 credits from following list

IS050IU	Project Management	3
BA115IU	Introduction to Business Administration	3
BA006IU	Business Communications	3