



AGENTUR FÜR  
QUALITÄTSSICHERUNG DURCH  
AKKREDITIERUNG VON  
STUDIENGÄNGEN E.V.

## EXPERTS' REPORT

- **MECHANICAL ENGINEERING  
(BACHELOR OF ENGINEERING)**
- **MECHATRONIC ENGINEERING  
(BACHELOR OF ENGINEERING)**
- **INDUSTRIAL SYSTEMS ENGINEERING  
(BACHELOR OF ENGINEERING)**

HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY  
February 2022



**Content**

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<b>Decision of the AQAS Standing Commission .....</b>	<b>3</b>
<b>I. Preamble .....</b>	<b>6</b>
<b>II. Accreditation procedure.....</b>	<b>6</b>
a. Criteria.....	6
b. Approach and methodology .....	6
<b>III. General Information on the University .....</b>	<b>7</b>
<b>IV. Assessment of the study programme(s) .....</b>	<b>8</b>
1. Quality of the Curriculum.....	8
2. Procedures for Quality Assurance .....	13
3. Learning, Teaching and Assessment of Students .....	15
4. Student Admission, Progression, Recognition and Certification .....	17
5. Teaching Staff .....	18
6. Learning Resources and Student Support.....	20
7. Information, .....	22
<b>V. Recommendations of the panel of experts.....</b>	<b>23</b>

## DECISION OF THE AQAS STANDING COMMISSION ON THE PROGRAMMES

- **MECHANICAL ENGINEERING (BACHELOR OF ENGINEERING)**
- **MECHATRONIC ENGINEERING (BACHELOR OF ENGINEERING)**
- **INDUSTRIAL SYSTEMS ENGINEERING (BACHELOR OF ENGINEERING)**

### OFFERED BY HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY (HCMUT)

Based on the report of the expert panel, the comments of the university and the discussions of the AQAS Standing Commission in its 12<sup>th</sup> meeting on 21<sup>st</sup> February 2022, the AQAS Standing Commission decides:

1. The study programmes “**Mechanical Engineering**”, “**Mechatronic Engineering**”, and “**Industrial Systems Engineering**” with the final degree of **Bachelor of Engineering** offered by **Ho Chi Minh City University of Technology, Vietnam** are **accredited** according to the AQAS Criteria for Programme Accreditation (Bachelor/Master).

The accreditations are **conditional**.

The study programmes essentially comply with the requirements defined by the AQAS Criteria for Programme Accreditation (Bachelor/Master) and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustments can be implemented within a time period of twelve months.

2. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than **31 March 2023**. The confirmation of the conditions might include a physical site visit.
3. The accreditation is given for the period of **six years** and is valid until **30 September 2028**.

#### **Conditions:**

##### **For all programmes:**

1. The faculty needs to demonstrate how their local credit system transfers to ECTS and how the student workload, including self-study time, is reflected in this process. Increased transparency of transfer to the ACTS should be implemented.
2. The appropriateness of physical resources and labs has to be demonstrated, preferably by an on-site visual inspection of the facilities and labs.

The following **recommendations** are given for further improvement of the programmes:

1. For all programmes, the number of electives should be increased and explanations and guidelines on the elective courses should be added, to provide students with information on the purpose to be pursued within the elective courses.

2. For the Mechatronics Engineering and the Industrial Systems Engineering programmes, the course descriptions should be more consistent in terms of length and depth of description, assessments, language, etc.
3. For the Mechatronics Engineering programme, some basic Computer Science courses should be included in the curriculum in the beginning of the programme, dedicated to programming and coding.
4. For the Industrial Systems Engineering programme, the intended learning outcomes should be defined in a more specific way.
5. Students should be involved in the development of the curriculum in a more institutionalized way, e.g., as voting participants of the academic committee or faculty committee.
6. The low graduation rate of the Mechanical Engineering programme should be subject to further analysis. Procedures for QA should include necessary data to find current reasons for that and detect tendencies for similar future developments, so such issues can be dismantled timely.
7. It is strongly recommended to include a feedback mechanism between lecturer and students on the implementation of adjustments based on evaluation results.
8. The diploma supplement should be further developed, and the explanation of the achieved competencies should be more specific.
9. The Faculty of Mechanical Engineering should find means for young lecturers to get more industrial experience.
10. It is advised that the English version of the programme websites are updated more frequently.

With regard to the reasons for this decision the Standing Commission refers to the attached assessment report.

**EXPERTS' REPORT****ON THE BACHELOR DEGREE PROGRAMMES**

- **MECHANICAL ENGINEERING (BACHELOR OF ENGINEERING)**
- **MECHATRONIC ENGINEERING (BACHELOR OF ENGINEERING)**
- **INDUSTRIAL SYSTEMS ENGINEERING (BACHELOR OF ENGINEERING)**

**OFFERED BY HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY (HCMUT)**

Online visit to the university: 7. – 10. December

**Panel of Experts:**

<b>Prof. Dr.-Ing. Jürgen Mallon</b>	Professor for Quality Management at University of Applied Sciences Kiel, Germany (former President of Vietnamese-German University / Vietnam)
<b>Prof. Dr.-Ing. Georg Frey</b>	Professor for Automation and Energy-Systems, Saarland University, Germany
<b>Prof. Dr. Nguyen Quoc Hung</b>	Dean at the Faculty of Engineering at the Vietnamese-German University in Binh Duong, Vietnam
<b>Andreas Göckede</b>	Vice President Development, Brose China (representative from the labour market)
<b>Wenzel Wittich</b>	Graduate of RWTH University (student expert)
<b>Coordinator:</b>	
Ronny Heintze	AQAS, Cologne, Germany
Corinna Herrmann	

## I. Preamble

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AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation, supported by more than 90 member institutions, both higher education institutions (HEIs) and academic associations. Since 2002, the agency has been accredited by the German Accreditation Council (GAC). It is therefore a notified body for accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of both academic studies and teaching in Higher Education Institutions. The activities of AQAS in accreditation are neither restrained to specific academic disciplines or degrees nor to a certain type of Higher Education Institution.

## II. Accreditation procedure

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This report results from the external review of the Bachelor of Engineering programme in Mechanical Engineering, Mechatronic Engineering and Industrial Systems Engineering offered by Ho Chi Minh City University of Technology (HCMUT).

### a. Criteria

The programme is assessed against a set of criteria for programme accreditation developed by AQAS. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of the programme since not all indicators necessarily can be applied to a programme.

### b. Approach and methodology

#### *The initialisation*

The university mandated AQAS to perform the accreditation procedure in July 2021.

The University produced a Self-Evaluation Report (SER). In July 2021, HCMUT handed in a draft of the SER together with the relevant documentation of the study programme and an appendix.

The appendix included e.g.:

- Overview over statistical data of the student body (e.g. number of applications, beginners, students, graduates, student drop outs).
- CVs of the teaching staff
- Information on student services

- Core information on the main library
- Undergraduate/graduate academic regulations

AQAS scrutinized the SER regarding completeness, comprehensibility and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 30.08.2021.

The final version of the SER was handed in October 2021.

#### *The nomination of the panel of experts*

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective discipline/s, the labour market and students are involved. Furthermore, AQAS follows principles for the selection of experts of the European Consortium for Accreditation (ECA).

The Standing Commission nominated in November 2021 the before mentioned expert panel. AQAS informed the university about the members of the expert panel and HCMUT did not raise any concerns against the composition of the panel.

#### *The preparation of the site visit*

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the University and to the panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

#### *The site visit*

After a review of the Self Evaluation Report, a digital site visit to HCMUT took place from 07.-10. December. On site, the experts interviewed different stakeholders, e.g. the management of the HEI, the programme management, teaching and other staff, as well as students and graduates, in separate discussions and consulted additional documentation as well as student work. The visit concluded by the presentation of the preliminary findings of the group of experts to HCMUT representatives.

#### *The report writing*

After the site visit had taken place, the expert group drafted the following report, assessing the fulfilment of the AQAS criteria for the programme accreditation. The report included a recommendation to the Standing Commission. The report was sent to HCMUT for comments.

#### *The decision*

The report, together with the comments of the university forms the basis for the AQAS Standing Commission to decide regarding the accreditation of the programmes. Based on these two documents, on 21 February 2022 the Standing Commission took its decision on the accreditation. AQAS forwarded the decision to the university. HCMUT had the right to appeal against the decision or any of the imposed conditions.

In April 2022, AQAS published the report and the result of the accreditation as well as the names of the panel of experts.

### **III. General Information on the University**

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Ho Chi Minh City University of Technology (HCMUT) was founded in 1957 and is part of Vietnam National University – Ho Chi Minh City (VNU-HCM), a national multidisciplinary consortium of six universities, one research institute and several affiliate centres and institutions. HCMUT is spread across two campuses and is

structured into eleven faculties, 63 departments, 4 training centres, 14 supportive offices, and 9 research and technology transfer centres. According to the report, the university has an annual student body of about 20.000 students and 1.300 full-time staff members. The goals of the university stated in the report include the achievement of an international standard in engineering education, to enhance intellectual growth, and to assert a role as a leading university of training and scientific research in Vietnam. According to the strategic objectives 2016-2020, the university strives to (1) ensure the transformation into an autonomous university by means of efficiency management and resource development; (2) develop excellent staff; (3) achieve educational excellence; (4) excel in research and technology transfer; and (5) implement activities in the area of internationalisation, cooperation, community outreach, including a strong sense of social responsibility.

HCMUT receives funding from three major sources: (1) governmental funding, both permanent and temporary, to be used for salaries and the maintenance of facilities; (2) tuition fees, research projects, and technology transfers; and (3) sponsorships from local or international organisations.

The Faculty of Mechanical Engineering (FME) consists of eight departments (Machine Design, Manufacturing Engineering, Material Processing Technology, Textile and Garment Engineering, Heat and Refrigeration Engineering, Construction Machinery and Handling Equipment, Mechatronics, and Industrial Systems Engineering) and offers facilities including eleven laboratories, one computer room, a practical training unit and a research and technology transfer centre. As of August 2021, the faculty employs 108 full-time academic staff, including lecturers, senior lecturers, associate professors and full professors. The annual number of graduates is reported as approximately 500 students. As of January 2021, the university's Academic Affairs Office reports an enrolment of 1614 students in the Mechanical Engineering programme, 1047 students in the Mechatronic Engineering programme, and 161 in the Industrial Systems Engineering programme. The faculty offers seven study programmes and states a threefold mission: (1) to create a source of well-educated workforce for Mechanical Engineering and related areas; (2) to efficiently collaborate education with scientific research and technology transfer; and (3) to play a positive part in creating knowledge and in high-tech particularly in Southern Vietnam and generally the rest of the country. Research areas at FME include logistics, robotics, biomechanics, automation systems, mechanism design, image processing, and machine learning, amongst others.

#### IV. Assessment of the study programme(s)

##### 1. Quality of the Curriculum

*The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field.*

*The design of the programme supports achievement of the intended learning outcomes.*

*The academic level of graduates corresponds to the requirements of the appropriate level of the European Qualifications Framework.*

*The curriculum's design is readily available and transparently formulated.*

[ESG 1.2]

##### Description

The curricula of the three programmes are structured into three categories: (1) general topics offered independently of the study programme, including a block on 'Mathematics and Basic Sciences', a block of four subsequent English classes, military training and physical education, and a block on 'Socials and Economics'; (2) subject specific courses, which are divided into core and major courses, and (3) a cluster of practical



courses and graduation projects. In total, each programme consists of 120 compulsory credits and 12 elective credits.

As stated in the SER, the curricula of the programmes are designed according to a top-down approach. This means that the design and revision of a programme starts with the definition of the required programme objectives (POs) which includes the formulation of relevant competences according to the Vietnam Education law. The programme objectives are then translated into intended learning outcomes (ILOs) and categorised into (1) generic knowledge, (2) specialised knowledge and competence, and (3) skills. These ILOs are said to be reflected in the design of curricular structures and courses. HCMUT states that both POs and ILOs are periodically reviewed and updated and to involve input from all relevant stakeholders, i.e. lecturers, students, alumni, and employers. Major review milestones are reported for 2002, 2008, 2014, and 2019, with the last two revisions having focused on the adjustment of the number of credits required for graduation in the undergraduate programmes.

### 1.1 Mechanical Engineering (Bachelor)

The Bachelor's programme Mechanical Engineering aims to prepare students for employment in both the public and private sector as manufacturing engineers, designers, production managers, research and development engineers, or lecturers, amongst others. As stated in the report, the POs include training in professional competence related to designing and manufacturing, the creation and operating of industrial production systems, and the application of advanced technologies. The relevant training includes a specialisation on one of the following sub-majors: Manufacturing Engineering, Design Engineering, Construction Machinery, and Handling Equipment Engineering.

The seven ILOs defined for this study programme state that students are able to (1) identify, form, and solve complex engineering problems, (2) apply the technical design process to come up with appropriate solutions, taking into account multiple disciplines and requirements, (3) communicate effectively with stakeholders, (4) include professional ethics and responsibility in proposing technical solutions, (5) work effectively in groups, (6) design and conduct experiments and analyse the resulting data, and (7) receive and apply new knowledge with appropriate learning and working methods.

According to the idealised study plan provided in the SER, the majority of the courses in the first category (general and basic knowledge) are scheduled for the first four semesters, except for the cluster on socials and economics, which starts in the second semester and is distributed up to the eighth semester. The practical courses start in the third semester. Subject specific core courses cover areas such as mechanical engineering drawing, kinematics, electrical and electronic equipment, or thermodynamics, amongst others. These are complemented by four courses on machine elements, labs of machine mechanics, labs of CAD and a design project. Major courses focus on materials and heat treatment, tolerance and measurement, manufacturing processes, or hydraulic and pneumatic engineering. In addition to these compulsory courses students can strengthen their profile according to their chosen major by specialisation courses. Elective courses also include topics such as 'Engineering Economics' or 'Project Management for Economics'. The cluster of practical courses includes two courses on general mechanic practice to be followed by an internship, a manufacturing engineering project, and a capstone project, all three of which count as graduation practice.

### **Experts' Evaluation**

As the panel of experts learned during the interviews with stakeholders the study programme holds a good reputation within Vietnam and beyond and its objectives are defined based on the vision and mission of the university and the national and global context of mechanical engineering. After the interviews with the key stakeholders including students, alumni, staff, industry representatives, faculty and university leaders, it is

found that the self-evaluation report reflects well the situation and activities in the Mechanical Engineering Programme. It is also found that most of the information in the self-evaluation report is well accepted by the stakeholders. The programme learning outcomes are built based on the programme objectives, common learning outcomes (ABET) and input from stakeholders and it can be concluded that the intended learning outcomes are shown to be appropriate for a Bachelor programme. They include both generic and specialized knowledge and skills, in which life-long learning is emphasized. Subject learning outcomes are consistent with and cover programme learning outcomes. Skills and knowledge are integrated into courses. Although feedback on the appropriateness of the learning outcomes is mostly only obtained through surveys and rather gained from national than international employers, it still contributes to a frequent update of the curriculum. The curriculum also includes elective courses, which gives the students choices to either deepen or broaden their spectrum of knowledge. However, from the experts point of view the number of electives could be increased and explanations and guidelines on the elective courses and possibilities to focus in specialized fields should be added, as otherwise it stays unclear also to students, what exact purpose should be pursued within the elective courses (**Finding 1**).

Correspondingly to its good national and international reputation, the programme provides the graduates with an academic degree that fulfils the appropriate level of the European Qualifications Framework and corresponds to the respective level of the national qualifications framework. This was also demonstrated to the panel of experts through student work and graduation thesis which clearly demonstrates the achieved level of qualification.

An area connected to the documentation is the provision of information on the transferability of the students achievements in the programme, specifically the conversion of the credit system to other systems and how this also considers students workload including their self-study time. In order to facilitate international exchange but also to create transparency for students as well as stakeholders beyond the country it has to become transparent how the local credit system transfers to ACTS and ECTS and how student workload is reflected in this process (**Finding 2**).

Besides this aspect of transparency the panel of experts concludes that the Bachelor programme in Mechanical Engineering is a solid programme with a curriculum that supports the achievement of the well formulated and internationally competitive learning outcomes.

## Conclusion

For the Mechanical Engineering Programme the criterion is partly fulfilled.

### 1.2 Mechatronics Engineering (Bachelor)

As stated in the SER, graduates of the Mechatronics Engineering programme are qualified for employment in manufacturing companies, technical services, as well as training and research facilities, with relevant positions as direct implementers, managers, or operators. The programme aims at training students in the design, development, testing, and operating of systems that integrate mechanical and electronic elements, which involve algorithmic programming.

The university has formulated eleven ILOs for this programme. Students are said to apply knowledge of mathematics, natural science, and interdisciplinary knowledge in the field of mechatronics, to learn how to design and conduct simulations and experiments, and to design components, systems and processes in the field of mechatronics. Other ILOs include the ability to work in multidisciplinary collaborative projects, to identify formulate, and solve engineering problems, to understand and practice professional and ethical responsibility, and to communicate in English effectively. Furthermore, students are said to learn how to recognise and apply knowledge to solve mechatronic engineering issues in a global, economic, environmental, and social context,

to engage in life-long learning, to take into account current and contemporary issues and to apply necessary techniques, skills, and modern engineering tools to concrete mechanical engineering practice.

The distribution of courses on general and basic knowledge, subject core, subject major, and practical training across the eight semesters follows that of the Mechanical Engineering programme. Also, subject specific core and major courses cover similar areas, except for one course ('Labs of Mechatronics') and the choice of elective courses (e.g., 'Robotics', 'Programmable Logic Controllers' or 'Dynamic Systems and Control'). The cluster of practical courses includes two courses on general mechatronic practice to be followed by an internship, a mechatronic engineering project, and a capstone project, all three of which count as graduation practice.

### Experts' Evaluation

The discussion with various stakeholders showed that the intended learning outcomes (ILOs) as stated in the SER are well implemented in the programme. The qualifications to be achieved during study are in line with the ILOs. Extensive feedback collected from students and representatives of the labour market show that the programme reaches the desired goals.

The intended learning outcomes were recently (2019) updated according to current developments in the academic/scientific field and with feedback from the labour market. The panel of experts clearly confirms that these outcomes are up to date and reflect the scientific requirements as well as the needs of the market.

The students graduate with a combination of internship, mechatronic engineering project and capstone project, thereby showing their ability to solve real-world engineering problems using appropriate methods learned throughout their studies. The projects can be based on the internship and done in cooperation with industry partners further increasing the practical employability of students. From the experts point of view this curricular design is very beneficial to achieve the learning outcomes and assist the development of knowledge, skills and competencies of students very well.

All curricular elements (courses/modules) and their functions are well documented. The documentation is fully sufficient but there is still room for improvement. Course descriptions should be more consistent (length and depth of learning outcome and content description, workload allocation, assessments, language) as currently the quality of these description varies to an extent that some descriptions are excellent and allow a full picture of the course, while others remain vaguer and are surprisingly short to the extent that they are at minimum level to be sufficient (**Finding 3**). While all elements of the curriculum are assigned a certain number of local credits that also relate to workload of students in class the reflection of total student workload and thus the transferability to ECTS at this point remains a challenge and requires attention (**see Finding 2**).

Overall, the curriculum is well-designed and clearly allows to achieve the outcomes which is also confirmed by students work and interviews with labour market representatives. It became obvious to the panel of experts that there is a strong focus on compulsory courses with a very small portion of electives. The panel believes that the programme would benefit from some more elective courses for students combined with some guidance for the selection (**see Finding 1**). This would respect the autonomy of the learner even more and at the same time allow a slightly more specialized acquisition of competencies for students. To further improve the programme in the future and to strengthen the mechatronics aspect of the programme it would be good to include some basic computer science course in the beginning, dedicated to programming and coding (**Finding 4**).

### Conclusion

For the Mechatronics Engineering Programme the criterion is partly fulfilled.

### 1.3 Industrial Systems Engineering (Bachelor)

Graduates of the Industrial Systems Engineering programme are described to have employment opportunities at manufacturing or service organisations, governmental, and non-governmental organisations. As stated by the university, they are qualified for positions in relation to the management and operation of production systems or services, material management and inventory planning, optimisation of product resources, quality management and control, logistics and supply chains, resource moderation, and the design of management information systems.

The SER lists ten ILOs, according to which students are educated to apply knowledge of mathematics, science, and engineering to solve problems in the field of Industrial Systems Engineering field and are equipped with transdisciplinary knowledge and qualities necessary to serve the industrialisation and modernisation of their country. They are further said to be skilled in the design, conduct and analysis of experiments as well as in (re)design of systems and processes to improve performance or meet needs while in multi-contextual situations. The programme aims to enable students to work in teams as well as independently, identify, model, and solve problems, and communicate effectively in English and Vietnamese, especially with regards to presentations. Finally, students are said to be able to recognise the need to undertake lifelong learning activities and to use techniques, tools, and skills necessary in the field of Industrial Systems Engineering.

According to the programme's suggested study plan, subject core courses appear in all semesters and cover subjects such as 'Operation Research', 'Product Management', 'Project Management', 'Modelling and Simulation Engineering', as well as 'Logistics management' and 'Decision Making Engineering', amongst others. Specialisation courses are scheduled from the fifth semester onwards and focus on 'Facility Layout and Location Design in Industry and Services', 'Material and Inventory Management', 'Modelling and Simulation Practice', 'Quality Management and Control', as well as 'Analysis and Design of Management Information System'. Practical courses start in the fifth semester and include a course on 'General Practice' to be followed by one on 'Professional Practice', an Industrial Systems Design project, and a final thesis.

#### **Experts' Evaluation**

The study programme of Industrial Systems Engineering (Bachelor) has been developed according to the process of construction and development of Faculty of Mechanical Engineering programmes. The programme objectives are considering the HCMUT Visions and Mission as well as the MOET regulations. Many key stakeholders such as students, teaching staff, alumni and employers are involved in revising the curriculum. The Intended Learning outcomes (ILO) are deduced from the programme objectives, and the panel of experts clearly concludes that they are appropriate for this programme. As the experts learned during the interviews, to ensure the appropriateness of programme objectives, learning outcomes, and the curriculum, the staff of the programme uses the relevant evaluation results and especially their close link with labour market and alumni very well.

It can clearly be confirmed that the ILO as defined are balanced and cover the different dimensions of skills and knowledge. However, in comparison with the ILO of the other programmes (Mechanical Engineering and Mechatronic Engineering they could be more specific. Consequently the experts recommend in the future development of the programme to define the ILO more specific (**Finding 5**).

The academic degree awarded to the graduates corresponds to the learning outcome and the European Qualification Framework for level 6 within the first cycle education which leads to a bachelor's degree. The intended level of qualification is validated by a thesis, usually prepared in collaboration with an industrial company on real cases. These cases are often selected during the internship, which is preceding the thesis.

All information about the PO, ILO and curricular elements are published on webpages of FME and Academic Affairs. An idealized typical course plan declares the order of curricular elements and supports the learner's

progression. Out of the 132 credits for the whole study program just 12 credits are provided by elective courses. The recommendation of the experts is to increase the number of elective courses to properly enable students to specialize in a field (**see Finding 1**).

In the course handbook all courses are described, and the learning outcome is defined. As reflected by the course handbook the curriculum covers subject-specific and cross-subject knowledge, as well as subject-related methodological, and general skills. Some contents are consolidated in laboratories and for that purpose a broad range of laboratories is available. Several facilities and equipment, especially tooling machines seems to be quite outdated, but they are still sufficient for exercising the basic methodology. The quality of the course descriptions shows some variety regarding learning outcome description, workload allocation and content description. The next revision of the module handbook should focus more on harmonising these points (**see Finding 3**).

Curricular modifications follow a predefined process and are published in a transparent manner. A big advantage is the implementation of a quality management system according to ISO 9001:2015 in the faculty of Mechanical Engineering. The certified quality management system supports the compliance with processes, as for example the curricular improvement process.

The group of experts agreed that the credit point calculation based on student workload should be improved for transparency and to ensure the comparison with other international credit systems as the ACTS or ECTS system (**see Finding 2**).

### Conclusion

For the Industrial Systems Engineering programme the criterion is partly fulfilled.

## 2. Procedures for Quality Assurance

*The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes. A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.*

*The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.*

*Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.*

*[ESG 1.1, 1.7 & 1.9]*

### Description

According to the SER, HCMUT's strategic plan for 2016-2020 includes quality assurance of teaching and learning processes as an important objective, including a commitment to create dynamic learning environments and to implement creativity and innovation in education and research. As such, the university has issued a quality policy in 2020, which explicitly mentions the aim to provide high-quality and professional education and training, compliant with global standards, as one of its objectives. Furthermore, the university states that all facilities and departments have ISO 9001:2015 and lists several successful accreditation processes conducted by AUN-QA, ENAEE, HCERES amongst others which concerned both institutional and programme levels. The report also mentions a set of institutional quality standards, which are said to be revised on a regular basis.

Responsible parties and implementing units are said to be active on the university, faculty, and department level and include an Office of Quality Assurance (OQA), the University Academic Council, Scientific Committees of the respective faculties, as well as Programme Councils.

Curriculum design and development processes are said to follow a PDCA-cycle: stakeholder feedback is collected and analysed by the OQA and then forwarded to the University Academic Council, who proposes solutions and improvements to be implemented in the curriculum. Teaching and learning processes and student assessment are said to be continuously reviewed and evaluated with the help of lecturers' end of semester reports, students' course evaluations, and educational inspectors. The overall quality of the curriculum, skills and knowledge of graduates, ILOs, as well as aspects of training and services provided by the university is said to be evaluated by annual or biannual satisfaction surveys which involve online questionnaires and/or interviews with university students, university seniors, alumni, enterprises, and staff members. The received feedback is said to be disseminated via reports, which are sent to the relevant units on the university, faculty, and department level, and published on the OQA website. In addition to the surveys and interviews, the university also offers annual student conferences as well as annual staff conferences at the department, faculty, and university level, in which the participants can voice their opinions and suggestions.

Complementing data is said to be collected with regards to student workload, dropout rates, the composition of the student body, and the employment situation of graduates. With regards to academic integrity the university mentions a plan of building a centralised database to prevent plagiarism and further improve the quality of graduation thesis.

### **Experts' Evaluation**

The development of the FME is based on the vision and mission of HCMUT and FME to ensure the continuous improvement of training and services. These vision and mission were substantiated by the quality policy, issued 2020. A quality assurance process has been defined and a complete quality management system has been implemented and certified according to ISO 9001. The first certification took place 2015 for a limited number of FME departments. Between the external audits, internal audits and surveillance audit take place. In this comprehensive quality management system responsibilities and targets are defined and published.

The main process of FME is the curriculum design and development process. This improvement process is based on extended evaluations (both online and paper based) about program quality and course quality. It must be mentioned that the evaluation for the curriculum development is considering many different stakeholders as students, lecturers, alumni, and employers. The quality of curriculum is also validated by an evaluation one year after graduation to capture information about employment situation, level of response to the labour market and to identify strengths and weakness. On an annual basis there will be meetings with company representatives and university lecturers and leaders to exchange information about labour market development and requirements. The panel of experts believes this is good practice and implementation.

There are also surveys about the progression and completion rate, the societal and financial needs and survey about student and staff satisfaction. Also, the experience and findings of academic advisors and form teachers are considered.

The curriculum improvement process involves the Office of quality assurance and the academic council. All these information is analysed by the Office of quality assurance and the academic council will then propose solutions to improve the curriculum. The results of the evaluation and survey are published on the website of the office of quality assurance. As the panel learned during the interviews, the students are informed about the results. Based on carefully reviewing the defined procedures and also following the discussions during the virtual site visit, the expert group believes that in the future the involvement of students for the development of the curriculum should be more on an institutionalized level, potentially e.g. as voting participants of academic



committee or faculty committee (**Finding 6**). This will add a new perspective to the curriculum development and reflect the active role of students in the learning and teaching process.

As the experts can confirm, based on the results of the evaluation and surveys improvement measures are developed and implemented. One of the first improvement cycles is the course improvement based on course evaluation. The results are submitted to the lecturer for self-improvement and to the dean. For curriculum development the academic council is involved and for the staff satisfaction and improvement of overall situation the faculty leadership collects the request and suggestion. Requests which cannot be solved on faculty level are submitted to the university level.

There are procedures in place to prevent academic fraud, but as the panel of experts learned plagiarism checker software is not available for Vietnamese language. Many regulations and organisations in the university have been established to support staff members and students against discrimination and intolerances, e.g. labour union or youth union.

For a couple of past years, the HCMUT Office of Academic affairs uses an online data base to store all academic data of the students. This allows the students to keep the overview, but it also facilitates the evaluation of FME student progress and performance. Statistics about final grading of the past three graduate classes per programme show that the graduation rate of Mechanical Engineering is quite low (59%) compared with Mechatronic Engineering and Industrial Systems Engineering. One explanation seems to be the higher entry scores of MECE and ISE. The experts suggest further investigation and explanation as a basis to develop solution for this situation (**Finding 7**).

While students see the evaluations and handlings of feedback in a positive way, from the experts point of view their role can be strengthened in these procedures. As students are encouraged to participate in the evaluation of courses/modules, feedback of the results of the evaluations and possible respective changes is not presented to them. While these results must also be shared with students, it is strongly recommended to also include a feedback mechanism between lecturer and students in which students learn about action that was taken based on the results of evaluations, as this highlights possible improvements derived from the evaluation and also enables students to engage in solution findings (**Finding 8**).

## Conclusion

The criterion is fulfilled.

### 3. Learning, Teaching and Assessment of Students

*The delivery of material encourages students to take an active role in the learning process.  
Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.  
Assessment procedures are designed to measure the achievement of the intended learning outcomes.  
[ESG 1.3]*

#### Description

According to HCMUT, the learning process in the programmes is conducted using a variety of strategies and techniques that help students to develop critical thinking skills, acquire relevant knowledge, and achieve all ILOs related to their individual programme. The learning methods employed in the courses are supposed to foster student-centred learning and include groupwork, lectures, blended learning, project-based learning and

experimental learning. The latter two are said to be of special importance for the study programmes as these methods are crucial in the translation of theoretical approaches to real-world engineering contexts. FME reports that since 2009 its programmes also apply the CDIO framework, which stresses engineering fundamentals set in the context of (1) conceiving, (2) designing, (3) implementing, and (operating) real-world systems and products. To support the practical/experimental parts of students' learning processes, the university states that all necessary tools, equipment, and machines are made available in open labs and workshops. The learning process is further said to be supported by an eLearning platform (BKeL) which offers students access to information, tasks and assignments, discussion forums, and the course syllabus including assessment methodology.

The university further states that the overall timetables of study allow for flexibility and that specific study times such as evening and weekend classes are offered to accommodate to the needs of part-time and employed students.

As stated in the SER, assessment take place in the form of entrance, progress, and final tests. Assessment methods include multiple-choice and writing exams, open or closed book exams, as well as problem-based and oral tests for project courses. The choice for an assessment method is made by the individual course instructor and the responsible Head of Department and is said to be based on the particular ILOs of the respective course. The assessment schedule is organised by the Academic Affairs Office and dates and deadlines are said to be published on the offices' website and the official student academic timetable about one month before the examination date. Assessment regulations are said to be available to students on the same website, and further information is additionally disseminated via social media. Furthermore, the report states that the regulations are reviewed on a regular basis by the academic committee of the university. Also, teaching staff is said to be trained regularly with regards to professional skill sin assessment methods.

The university states that the resitting of an exam is not permitted, but that students who have convincing reasons such as health problems will be considered by the Academic Affairs Office and may be offered to take the exam in the following semester. General appeals and complaints can be submitted via the BKeL system, the academic units of the department or the faculty, the Academic Affairs Office, and the regular surveys after each semester. Appeals and complaints with regards to assessment results can be submitted to the Academic Affairs Office which will lead to a remarking of the assessment by a different lecturer or a specific council.

### **Experts' Evaluation**

It became quickly obvious to the panel of experts that the implemented methods of teaching are appropriate for engineering programmes. The programmes include lectures, exercises, practical experiments (lab work), internships, and projects (in groups or alone). Blended learning and e-learning with reduced necessity of presence in the course rooms gives students more flexibility. Students may extend internships to get more industrial knowledge satisfying their needs.

Projects can be done in industrial cooperation or in the research labs of the university thus offering students more theoretical or more practical ways of doing their final projects regarding their personal interest. The assignment of a tutor/supervisor to every student right at the beginning of the studies allows a good and timely feedback to the students increasing their motivation and engagement in the learning process.

Overall, the regulations and procedures for assessments are readily available to the students und documented in the course/module descriptions. The programme design includes different examination types over the course of the studies (homework, project, quizzes, written exams, presentations, projects, reports). Evaluation criteria for assessments are clearly defined and in final projects the evaluation through a committee ensures transparent grading procedures. As each module comprises several exams to be taken, this adds up to a



rather high examination load, possibly hindering student progress, as the non-allowance of resit exams might also complement as a potential obstacle. This should be monitored in the future.

The university employs extensive QA processes that also cover the quality of teaching. The corresponding assessment criteria are known to the teaching staff. Students are encouraged to give feedback in various ways.

The programmes enable students to transfer their knowledge to situations outside the university context. Methods of teaching, learning, and assessment support an interlacing of theoretical and practical aspects. Especially in the final stages of the programmes internships often lead to final projects (or theses) that are done and evaluated with industrial partners thus qualifying the graduates for the local labour market.

### Conclusion

The criterion is fulfilled

## 4. Student Admission, Progression, Recognition and Certification

*Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.*  
[ESG 1.4]

### Description

HCMUT's admission policy is implemented according to the national regulations issued by the Ministry of Education and Training, i.e. each year the university has to specify all standards, criteria, quota, tuition fees, and training capacity to the Ministry and related parties. For the last period of admission, the university reports the following schemes: (1) admission according to the results of the national high school graduation exam, (2) priority admission according to the regulations of VNU-HCM, (3) direct admission according to the enrolment regulations of the Ministry of Education and Training, i.e. candidates who have won national competitions or science technology prizes (4) admission according to the results of the capability assessment of VNU-HCM, which is said to follow the same approach as the US SAT and the UK TSA exams, and (5) admission of foreign students or graduates from foreign high schools. Formal requirements are said to be disseminated via public media and public events, such as the Admission Consultancy Festival.

Students' progression throughout the semester is said to be monitored via regular meetings with their Academic Advisor and the recording of grades and credit accumulation. The recognition of competences gained at other higher education institutions is clearly regulated with regards to the transfer of credits from other VNU-HCM member universities, the transfer of students who have studied abroad or at another domestic university, and the ASEAN Credit Transfer System. Informal and non-formal prior learning is said to be recognised according to subject and student-specific cases.

Upon graduation students are said to be awarded the degree of Bachelor of Engineering and receive a diploma, an academic transcript, and a transcript of training and extracurricular activities.

### Experts' Evaluation

As the presented documents confirm, the formal requirements for admission are clearly defined and available in published form. Specific prerequisites relevant for an individual study programme reflect substantive qualities needed for a successful completion of the programme and are included in the published admissions criteria.

From the self-evaluation report and the responses of the stakeholders it can be concluded that the admitted students are well selected through both the national examination and the university qualification exam. The scores of the admitted students are regarded as high when compared to similar programmes in Vietnam, meaning that the programmes can select from a number of highly qualified applicants. It can be stated that the selection procedure for the study programmes is appropriate and that the admission requirements support the objectives of the study programme. However, it can be observed in the quantitative data of students who start and who finish their studies, that a high number of student drop-outs occur in the Mechanical Engineering programme and the panel of experts urges HCMUT to identify the reasons for this (**see Finding 7**).

A student advisory programme is in place to support the monitoring of the students progress. This system is deemed adequate. Within existing legal limitations mechanisms to recognize prior learning are also in place and there is a possibility to arrange learning agreements to facilitate mobility of students. However, it can be observed, that there is only a limited number of international students.

Graduates receive a diploma supplement explaining the qualification gained, including context, level, and status of the studies. It should be recognized that the information on the achieved outcomes in this document is still rather unspecific and particularly for stakeholders without prior knowledge of HCMUT it will be helpful to also explain the achieved outcomes more specifically in the document (**Finding 9**).

## Conclusion

The criterion is fulfilled.

## 5. Teaching Staff

*The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.*  
*Staff involved with teaching is qualified and competent to do so.*  
*Transparent procedures are in place for the recruitment and development of staff.*  
 [ESG 1.5]

## Description

In the SER, the Faculty of Mechanical Engineering lists 67 lecturers, 48 of which hold a PhD and 19 of which hold a Master's degree. Two of the lecturers have full professor positions, 15 are employed as associate professors and eleven as senior lecturers. According to the university's regulations, each lecturer has to teach a minimum of 270h per year. Faculty members are said to have a combination of incomes: (1) a basic salary based on professional rank and experience, (2) extra income depending on annual performance in teaching, research, and service quality, (3) teaching allowance, (4) research allowance, (5) compensation for participation in service activities of the university.

As stated by the university, transparent recruitment procedures for teaching staff have been set in place. First, a vacancy is published on the HCMUT website and further disseminated by the departments in e.g. alumni networks. As a second step, candidates submit their applications and interviews take place. The criteria for recruitment listed in the report are (1) education and academic profile, counting 50%, (2) research profile, counting 10%, (3) performance in the interview, counting 20%, and (4) foreign language skills, counting 20%. In a third step, the department proposes successful applicants to the recruitment committee of the respective faculty, which will reassess the candidates according to the same criteria. Finally, successful applicants will be proposed to the recruitment committee of the university which will make the final decision.

With regards to staff development, HCMUT emphasises that lecturers are encouraged to study abroad and/or improve their qualifications on an international level. As such, twelve staff members are reported to currently conduct their PhD projects abroad and five gathering postdoctoral experiences. On a university level, staff members are obliged to participate in training programmes for curriculum development, innovative approaches to teaching and learning, as well as assessment.

### Experts' Evaluation

The panel of experts found that overall at FME of HCMUT 72% of all teaching staff holds an (international) PhD. Particularly in comparison with the nation-wide ratio that – following a DAAD report of 2020 – has a target of 35% the FME is in a very good position which also indicates a good hiring policy. Additionally, the average age of 43 years is an advantage for further development of FME.

As the experts identified from the documents, all 67 lecturers must teach at least 270 hours per year. Educational inspectors are monitoring the teaching activities. According to an overview the lecturers are teaching in average much more than the minimum of 270 hours. The capacity for the instruction of students of ME, MECE and ISE is appropriate. Some few lecturers are teaching more than 1000 hours per year. They are teaching basic subjects, e.g. mathematics. For these highly frequented lecturers a reduction of teaching load to allow them to conduct research projects seems recommendable.

For the recruitment of lecturers, a standardized recruitment process involving three councils is in place. The criteria for recruitment are: education and academic profile 50%, research profile 10%, foreign languages skills 20% and interview at the Department 20%. For the selection of visiting lecturers or part time teacher a similar process is in place to assure their qualification.

The personnel development of the faculty is based on a long-term planning of vacancies and future needs due to increasing numbers of students. Each new faculty member becoming a lecturer has at least a Master degree and has successfully participated a training course for the certificate of teaching competency of Higher Education. Additionally new staff is working for one year under the guidance of an experienced lecturer.

For the improvement of teaching skills, the FME offers courses about teaching and learning methods and student assessment methods organized by Arizona State University, HCMUT, and FME (under many programs such as CDIO, VULII, and HEEAP). All lecturers use the teaching support program BKe-learning (e-learning module). Lecturers with master's degree get some support to find a place and funding for a PhD course abroad and also young researcher with PhD find support for further development on post-doc position abroad. This personnel development process is a crucial part of the curriculum and course improvement cycle and from the experts point of view offers no reason for concern. It should be pointed out here that especially students wish for more interaction with international staff or with international experience.

Overall, in the Vietnamese academic system, there are not enough lecturers with PhD. Therefore, it is difficult to follow a career paths consisting of academic and industrial phases, as it is common in some other western countries. a broad industrial experience before coming back to universities is beneficial for teaching and applied science.. On the long run is recommended to FME to find some means for young lecturer to get more industrial experience **(Finding 10)**.

### Conclusion

The criterion is fulfilled.

## 6. Learning Resources and Student Support

*Appropriate facilities and resources are available for learning and teaching activities.*

*Guidance and support is available for students which includes advice on achieving a successful completion of their studies.*

[ESG 1.6]

### Description

HCMUT receives funding from three sources: (1) governmental funding, (2) income from university activities, i.e. tuition fees, research grants, and services such as technology transfer, (3) sponsorship from local and international organisations.

The campus on which the programmes are offered includes classrooms, conference halls, lecture halls, laboratories, workshops, computer rooms, cafeterias, libraries, self-study rooms, and sports facilities. FME also provides a CDIO workspace, which is open for students for team and project work and includes all necessary equipment for conducting engineering projects, such as electrical motors, gear boxes, actuators, electrical components, 3D printers, laser cutters, projectors, and computers. In addition, the faculty also manages twelve laboratories and practical working spaces: a mechanical workshop, a CAD/CAM laboratory, a metrology laboratory, a control and automation laboratory, a machine design laboratory, a manufacturing engineering laboratory, a material processing technology laboratory, a textile and garment engineering laboratory, a thermodynamic and heat transfer laboratory, a construction machinery and handling equipment laboratory, a mechatronics laboratory, and an industrial systems engineering laboratory. On a university level, HCMUT has employed 106 employees for support and maintenance of laboratories. The IT facilities include computers, free Wi-Fi access, and specialised software. Also, the university provides learning management systems in which students can access course descriptions, aims, ILOs, learning outlines, teaching and learning activities, assessment methods, and learning material for each class. Students are said to have access to two libraries, the central library of HCMUT and the VNU-HCM library, which together offer access to over 400.000 books, journals, online databases, and additional media.

With regards to student support, the university offers several possibilities for academic counselling. Each student is assigned an academic advisor in their first semester and also a thesis supervisor for their internship and thesis project. Further counselling is provided by the university's Academic Affairs Office, the faculty's Academic Affairs Unit, and the individual lecturers. Financial support is offered in the form of tuition fee exemption and reduction for students with disabilities, students from lower socioeconomic backgrounds, and ethnic minorities. The university also reports that additional financial aid was provided to support students facing natural disasters and the Covid-19 epidemic. Also, the faculty disseminates information on additional scholarships provided from businesses or other universities. Furthermore, the university provides housing opportunities for staff and students. Career services are offered in the form of Career Days, alumni and lecturer support, and a Student Service & Career Centre. Medical care and psychological counselling are said to be available on campus.

Students' mobility is said to be supported by the Office of External Relations, the faculty, and the individual departments. Scholarships are said to be in place.

Finally, students can access supporting information online, e.g. on a Students' FAQ website, a university wiki, and the websites of the Student Support & Career Centre and the Student Association.

## Experts' Evaluation

The digital site visit generally showed a good state of learning resources and student support, the assessed programmes possess strong services relating to student guidance, which are existent on a broad basis.

However, as pointed out in section one, the module descriptions lack a general comprehensible overview of the involved workload. HCMUT points out that one credit equals different amounts of working hours according to their credit-hour conversion formulas, dependent on the type of teaching. While it seems to be an approach to standardise workloads, it is not understandable, why e.g. 90 lab hours equal three credits, but 90 term project hours only would equal two credits. A credit thus would not be comparable and also would give no information about the overall workload on one module. Furthermore, in the module handbook the information regarding workload and credits don't necessarily relate to that formula and are not consistently applied. While the panel respects the national credits system the transfer to ACTS and ECTS that reflects student workload will require improved transparency and consistency (**see Finding 2**).

The facilities of HCMUT, as indicated by the documents and a video-tour of the facilities, seem to be adequately equipped for the achievement of intended learning outcomes. A variety of labs relating to different fields/modules of the curriculum exist and are being used for student work. Although the facilities are not all on the most modern level, the students in general approve of the learning outcomes from the involved laboratories. HCMUT points out that most labs are offered for student classes for approximately 15-25 students, where enough equipment is existent so that group work can be split into very appropriate sizes of two to three students with the corresponding laboratory staff. It is also positive to note that the students have general access to certain machines (partly after attending introductory workshops) and can freely use them themselves. There also seem to exist enough computer workplaces for student (group work). The indicated facilities therefore show to be of sufficient quantity. However, the panel concludes that besides this generally good impression the limitations of the virtual site visit format hinder a full assessment for the three programmes in which the labs and equipment are vital for the success of students and the achievement of the intended outcomes. Consequently, an in-person on-site visual impression of the facilities will be required to be able to fully confirm the appropriateness of the physical resources (**Finding 11**).

The displayed library service in general offers a broad access to scientific literature. However, the usage within the study programs/modules was not shown in detail. The course/module descriptions partially could be added with complementary literature suggestions for further studies (**see Finding 3**).

From the expert panels point of view student support is put into place in an exemplary manner. The assignment of an academic advisor from the beginning of the studies is an important measure for student success and orientation. The support in finding internships, both through the advisor as well as through interaction with alumni, which was highlighted by the students, can also be positively pointed out. Especially towards the end of their studies, the support of the thesis advisor in actively pursuing technical research was pointed out.

In addition, the wide availability of student clubs and encouragement by HCMUT to participate in them are valuable factors for student engagement, motivation, and success. Communication between students and teaching staff generally takes place without any problem, the teaching staff is widely available for consultation, and is seen to be quite open-minded by the students. This openness in communication often also leads to a continuous improvement and updating of course contents and methods.

As only few students seem to go abroad for temporary studies (while many students change to other universities for graduation) for 1-2 semesters, consulting regarding these possibilities could be further strengthened. The students at HCMUT also see only little interaction with international students, from which they would especially expect an enhancement of their English skills. Contact with foreign teachers would be desirable for students as well.

**Conclusion**

The criterion is partly fulfilled.

**7. Information,**

*Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.*  
[ESG 1.8]

**Description**

As stated in the SER, information regarding the programmes, the curricula, the ILOs, and graduation requirements are published on the website of the Academic Affairs Office and the FME website. The websites are said to be updated on a regular basis, especially with regards to informing students about changes in regulations. In addition, social media accounts, newspapers, and public events are also used to disseminate information to the general public.

The SER also explains (in the quality assurance section) how different data is used to monitor the programmes and how ISO processes follow predefined paths to assure data is processed accordingly.

**Experts' Evaluation**

The panel can confirm that information of the broader public, but specifically also the industry and current and potential employers as well as potential students are well informed and find information that they deem to be in line with what they find in reality. Consequently the panel finds that there is good information for the different relevant stakeholders.

The panel of experts also assesses that all necessary information for students is published on the school and faculty websites. Though, to enhance attractiveness of the programmes to international students and partners, it is advised that the English version of the programme websites are updated more frequently (**Finding 12**).

**Conclusion**

The criterion is fulfilled.

## V. Recommendations of the panel of experts

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The panel of experts recommends accrediting the study programme “Mechanical Engineering” (Bachelor) offered by Ho Chi Minh City University of Technology with conditions.

The panel of experts recommends accrediting the study programme “Mechatronics Engineering” (Bachelor) offered by Ho Chi Minh City University of Technology with conditions.

The panel of experts recommends accrediting the study programme “Industrial Systems Engineering” (Bachelor) offered by Ho Chi Minh City University of Technology with conditions.

### Findings:

1. For all programmes the number of electives should be increased and explanations and guidelines on the elective courses should be added, to provide students with information on the purpose to be pursued within the elective courses and possibilities to specialize in a specific field.
2. For all programmes the faculty needs to demonstrate how their local credit system transfers to ACTS and ECTS and how the student workload, including self-study time, is reflected in this process.
3. For the Mechatronics Engineering and the Industrial Systems Engineering programmes the course descriptions should be more consistent in terms of length and depth of description, assessments, language etc.
4. For the Mechatronics Engineering programme some basic computer science courses in the beginning of the programme, dedicated to programming and coding, should be included in the curriculum.
5. For the Industrial Systems Engineering programme the ILO should be defined even more specific.
6. Students should be involved in the development of the curriculum in a more institutionalized way, e.g. as voting participants of academic committee or faculty committee.
7. The low graduation rate of the Mechanical Engineering programme should be subject to further analysis. Procedures for QA should include necessary data to find current reasons for that and detect tendencies for similar future developments, so such issues can be dismantled timely.
8. It is strongly recommended to include a feedback mechanism between lecturer and students on the implementation of adjustments based on evaluation results, as this highlights possible improvements derived from the evaluation and also enables students to engage in solution finding.
9. The diploma supplement should be further developed, and the explanation of the achieved competencies should be more specific.
10. FME should find means for young lecturers to get more industrial experience.
11. The appropriateness of physical resources and labs will have to be demonstrated, preferably by a on-site visual impression of the facilities and labs.
12. It is advised that the English version of the programme websites are updated more frequently.