AQAS

AGENTUR FÜR
QUALITÄTSSICHERUNG DURCH
AKKREDITIERUNG VON
STUDIENGÄNGEN E.V.

FINAL REPORT

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

CLUSTER BUSINESS & TECHNOLOGY

EDUCATIONAL TECHNOLOGY" (BACHELOR'S DEGREE)

DATA SCIENCE AND ARTIFICIAL INTELLIGENCE" (BACHELOR'S DEGREE)

BUSINESS ANALYTICS" (BACHELOR'S DEGREE)

June 2025

Content

DECISION OF THE AQAS STANDING COMMISSION

ON THE STUDY PROGRAMMES

- **"EDUCATIONAL TECHNOLOGY" (BACHELOR'S DEGREE)**
- **"DATA SCIENCE AND ARTIFICIAL INTELLIGENCE" (BACHELOR'S DEGREE)**
- **"BUSINESS ANALYTICS" (BACHELOR'S DEGREE)**

OFFERED BY HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY,

HANOI, VIETNAM

Based on the report of the expert panel, the comments by the university and the discussions of the AQAS Standing Commission in its 25th meeting on 19 May 2025, the AQAS Standing Commission decides:

1. The study programmes "Educational Technology" (Bachelor's degree), "Data Science and Artificial Intelligence" (Bachelor's degree) and "Business Analytics" (Bachelor's degree) offered by Hanoi University of Science and Technology, Vietnam, are accredited according to the AQAS Criteria for Programme Accreditation (Bachelor/Master).
2. The accreditations are conditional.
3. The study programmes essentially comply with the requirements defined by the criteria 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.
4. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than 31 May 2026. The confirmation of the conditions might include a physical site visit within the time period of twelve months.
5. The accreditation is given for the period of six years and is valid until 31 May 2031, provided that the conditions listed below are fully met. Otherwise, the accreditation may be withdrawn.

Condition:

1. In order to further develop the study programmes and gain more up-to-date insights from outside to issues such as AI, business analytics, and business intelligence, the university has to develop a concept to attract more professors with international background to be integrated into the teaching of the programmes.

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

<u>For all study programmes:</u>

1. In order to ensure the transparency and fairness of group projects in programming, software tools such as Git should be included in the teaching and assessment to track individual contributions.

2. In the courses of the early semesters, more examples of applications should be provided as part of the teaching to ensure students' understanding of the course relevance early on.
3. The university should develop academic regulations on the use of AI to facilitate its use by students as well as to ensure academic integrity.
4. To address the issue of high student numbers as well as high faculty workload, the university should either reduce the current teaching load or recruit more lecturers to improve teaching quality and student support.
5. Lecturers of all study programmes should attend more training modules or workshops in leadership, negotiation, and professional communication as this would provide more structured development in teaching and research capabilities.
6. It is recommended that the internship in all study programmes be extended to at least three months in order to provide students with more time and opportunities to understand the professional world. Furthermore, students should be well-supported with reasonable internship allowance.
7. The support for students to enable and increase mobility should be intensified through the following actions:
    a. Availability of scholarships should be increased and information on available providers should be made available.
    b. A plan to enable remote student exchange for those students who do not have the opportunity to study abroad should be developed.
    c. The scope of international mobilities should be expanded to include international internships.
8. The university should implement a standardised format for programme information across all websites in both Vietnamese and English language to enhance accessibility and usability, especially for international students and professors seeking specific programme details.

For the study programme "Educational Technology":

1. The integration of the practical sphere into the curriculum should be intensified, e.g., through internships and co-teaching activities.
2. As technological development – especially linked to AI – continues to progress rapidly, it is recommended continuing to analyse the current demands more deeply and forecast the potential future professional roles in the education sector to make timely adjustments on the graduate profile and the ILOs of the study programme.
3. As the use of education technology can be widely and cross-disciplinarily applied, students should be further supported to develop competencies through self-directed projects at the intersection of current research in the field.
4. Students should have more opportunities to practise and become more confident in English.

For the study programme "Data Science and Artificial Intelligence":

5. The faculty should implement a more proactive approach to revise the curriculum of the study programme particularly reflecting the fast-paced domains such as Vision and Natural Language Processing.
6. It is recommended distributing the assessment of students in courses more evenly throughout the semester to avoid intensive workload at the end of the semester.

Kommentiert [NF1]: Zählweise der Empfehlungen angepasst, damit es an der HUST in den unterschiedlichen Verfahren, die diesmal abgeschlossen wurden, einheitlich ist.

For the study programme “Business Analytics”:

7. It is recommended to continue the path of expanding the data centre to foster research initiatives and place a focus on issues of Green IT and sustainability ecosystems.
8. It is recommended to integrate the following aspects into the curriculum of the study programme:
   a. AI ethics, responsible AI usage, and existing biases regarding data analytics;
   b. cutting-edge business analytics trends to offer students up-to-date research insights.

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

EXPERTS' REPORT

ON THE STUDY PROGRAMMES

- **"EDUCATIONAL TECHNOLOGY" (BACHELOR'S DEGREE)**
- **"DATA SCIENCE AND ARTIFICIAL INTELLIGENCE" (BACHELOR'S DEGREE)**
- **"BUSINESS ANALYTICS" (BACHELOR'S DEGREE)**

OFFERED BY HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY,

HANOI, VIETNAM

Visit to the university: 17-19 February 2025

Panel of experts:

Prof. Dr. Kerstin Fink	Bavarian University of Business and Technology, Professor of Business Informatics (Germany)
Prof. Dr. Thomas Köhler	Dresden University of Technology, Faculty of Education, Department of Vocational Education, Professor of Educational Technology (Germany)
Prof. Dr. Wray Buntine	Vin University, College of Engineering and Computer Sciences, Director of Computer Science programmes (Vietnam)
Mr. Sinh Nguyen	Andafin Limited, Lead Data Analyst (Ho Chi Minh City/Vietnam) (representative of the labour market)
Ms. Helena Lendowski	Student of University of Postdam, IT System Engineering (Germany) (student expert)

Coordinator:

Vi Le Ronny Heintze	AQAS, Cologne, Germany

I. Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation supported by nearly 90 universities, universities of applied sciences, and academic associations. Since 2002, the agency has been recognised by the German Accreditation Council (GAC). It is, therefore, a notified body for the 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 academic studies and higher education institutions' teaching. In line with AQAS' mission statement, the official bodies in Germany and Europe (GAC and EQAR) approved that the activities of AQAS in accreditation are neither limited to specific academic disciplines or degrees nor a particular type of higher education institution.

II. Accreditation procedure

This report results from the external review of the Bachelor's programmes **"Educational Technology" (Bachelor's degree)**, **"Data Science and Artificial Intelligence" (Bachelor's degree)**, and **"Business Analytics" (Bachelor's degree)** offered by **Hanoi University of Science and Technology, Vietnam**.

1. Criteria

Each programme is assessed against a set of criteria for accreditation developed by AQAS: the AQAS Criteria for Programme Accreditation (Bachelor/Master). 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 each programme since not all indicators can necessarily be applied to every programme.

2. Approach and methodology

Initialisation

The university mandated AQAS to perform the accreditation procedure in March 2024. The university produced a Self-Evaluation Report (SER). In July 2024, the institution handed in a draft of the SER together with the relevant documentation on the programmes and an appendix. The appendix included e.g.:

- an overview of statistical data of the student body (e.g. number of applications, beginners, students, graduates, student dropouts),
- the CVs of the teaching staff/supervisors,
- information on student services,
- core information on the main library,
- as well as academic regulations.

AQAS checked the SER regarding completeness, comprehensibility, and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 27 August 2024. The final version of the SER was handed in in November 2024.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective disciplines, the labour market, and students are involved. Furthermore, AQAS follows the principles for the selection of experts defined by the European Consortium for Accreditation (ECA). The Standing Commission nominated the aforementioned expert panel in December 2024. AQAS informed the university about the members of the expert panel and the university did not raise any concerns against the composition of the panel.

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 all panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

Site visit

After a review of the SER, a site visit to the university took place from 12-14 February 2025. On site, the experts interviewed different stakeholders, e.g. representatives of the management of the higher education institution, the programme management, of teaching and of other staff, as well as students and graduates, in separate discussion rounds and consulted additional documentation as well as student work. The visit concluded with the presentation of the preliminary findings of the group of experts to the university's representatives.

Reporting

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

Decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 19.05.2025. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

In June 2025, AQAS published the report, the result of the accreditation as well as the names of the panel members.

III. General information on the university

Hanoi University of Science and Technology (HUST)

Hanoi University of Science and Technology (HUST) was established on March 6, 1956, to train engineers for North Vietnam. Over nearly 70 years, HUST is said to have become a leading institution in Vietnamese higher education, aiming to be both a multi-disciplinary training centre and a research university with a focus on international integration and technological innovation. The university's strategic goals for 2017-2025 include management system innovation, staff development, capacity enhancement, facility improvement, and financial strengthening.

HUST operates under a governance model based on university autonomy. Following a pilot project for operational innovation, the university restructured its management in December 2022, reducing managerial positions by 35% compared to 2017. Currently, HUST comprises 41 units, including training faculties, research institutes, administrative units, service units, and BK-Holdings, a technology investment company.

As of 2024, HUST employed 1,677 staff members, including 1,177 lecturers, 10 researchers, 457 administrative and support staff, and 157 technical staff. Among the lecturers, 814 hold doctoral degrees, representing 75.5% of the total teaching faculty. HUST offers a wide range of undergraduate and graduate programmes, including Bachelor of Science (4 years), Master of Science (1.5 years), Specialised Engineering (1.5 years), and PhD programmes, as well as a continuing education system for lifelong learning. HUST offers 64 undergraduate programmes (including 36 standard, 19 advanced, and 8 international joint programmes), 44 Master's programmes, and 26 doctoral programmes. As of 2023, the university has 36,229 full-time students.

HUST's Development Strategic Goals for 2017-2025 focus on key areas including management system innovation, organisational optimisation, staff quality improvement, capacity enhancement, facility upgrades, and financial system strengthening. These efforts aim to create the best academic environment for student success and university growth. Guided by the motto, "The University lays the foundation; lecturers are the driving force; students are the centre," HUST emphasises innovation, solidarity, creativity, and resource efficiency to achieve its strategic objectives.

HUST is a public institution focused on training, scientific research, and technology transfer. Its income is derived from several sources:

- State budget: 3%-4% of total revenue, primarily for supporting students and small infrastructure projects.
- Development investment projects: 22%-24% of total revenue, including state-funded investments, preferential loans, and the World Bank-funded SAHEP project.
- Public services: 70%-87% of total revenue, with 82%-86% from training activities, 3%-5% from scientific research and technology transfer, 9%-13% from other services, and up to 2% from sponsorship.

Faculty of Education

The Faculty of Education was established in 1997 to train highly-skilled STEM teachers for secondary education. Initially, it comprised two departments: Educational Science and Technology, and Pedagogy of Engineering Education, offering majors such as IT, electrical and electronic engineering, and mechanical engineering. The faculty has 24 personnel, including 20 lecturers (89% hold doctorates), 2 adjuncts, 1 technician, and 2 administrative specialists. These personnel are organised into four professional divisions managed by the Faculty Management Board, supported by the Faculty Council and the Academic Programme Development Committee. The faculty also introduced the Bachelor's programme of Education Technology in 2019, focusing on innovative approaches to meet the demand for skilled professionals in this emerging field.

School of Information and Communications Technology (SICT)

The School of Information and Communication Technology (formerly the Faculty of Information Technology) was established in 1997 with the mission of training IT professionals for the country. Among the teaching staff, 86% hold doctorates (90% of which are from prestigious universities abroad) and 23% have associate professorships. The School also collaborates with renowned lecturers, both domestic and international. It aims to become a research-driven institution by focusing on international standards, quality training linked to research, and producing impactful research that supports the country's socio-economic development. The School offers programmes in Computer Science (CS), Computer Engineering (CE), and Data Science and Artificial Intelligence (DSAI), with CS and CE being long-established, while DSAI was introduced in 2019.

School of Economics and Management (SEM)

The School of Economics and Management (SEM) at HUST, established in 1965, focuses on training skilled human resources and conducting quality research in the fields of economics and management. SEM is said to be committed to researching and developing applied technology to support sustainable industrial growth, providing high-quality education at undergraduate and postgraduate levels, and offering specialised training and consulting services. SEM currently offers 8 undergraduate programmes, 4 Master's programmes, and 3 doctoral programmes, including disciplines such as Business Administration, Accounting, Finance-Banking, Business Analytics, and Industrial Management. The school has 75 staff members, with 60% holding doctoral degrees. Since 2019, SEM has also launched the Advanced Business Analytics Programme (BBA).

IV. Assessment of the study programmes

1. Quality of the curriculum

Bachelor's/Master's degree

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]

General aspects

It is stated in the SER that the ILOs of three study programmes are in accordance with the Vietnamese National Qualifications Framework level 6 and the European Qualifications Framework EQF level 6, divided into three categories: knowledge, skills, and level of autonomy and responsibility. The university states that the ILOs are developed through a nine-step process and that researching the labour market and consulting experts, scientists, educators in relevant fields and the employers are the two most important steps. The three programmes comprise five blocks of knowledge, totalling 132 credits. The general education block, with 51 credits (38.64% of the total), covers political, legal, and philosophical foundations (13 credits) and mathematics and science (32 credits). Non-credit physical education and civil service courses are also required. The core and foundation block includes 46-48 credits (34.85%-36.36%), offering fundamental major-related knowledge. Complementary courses require 9 credits (6.82%), focusing on academic writing, social sciences, and professional skills. The professional concentration block consists of 16-18 credits (12.12%-13.64%), deepening major-specific

knowledge. The final block, Internship and Graduation Thesis, involves 8 credits (5.97%), assessing students' ability to apply their learning in real-world contexts, as stated in the SER.

Since 2007, HUST has adopted a credit-based system, with training periods ranging from 4 to 7.5 years. Each credit is equivalent to 45 hours of learning, including self-study time. For classroom, one credit equates to a minimum of 15 hours of lectures or 30 hours of practical work, experiments, and discussions; 45 hours of work placements; or 45 hours dedicated to written assignments, major projects, or a graduation thesis. Additionally, one week of full-time project work corresponds to 1 credit, while one week of full-time internship is worth 0.5 to 0.6 credit. Most courses carry 1 to 4 credits, except for some courses such as internships and Bachelor's degree project/thesis (6 credits). An academic year consists of two main semesters and an optional summer semester. Main semesters last 20 weeks, with study periods divided into 8-week terms or a full 16-week period. The summer semester, lasting 5 weeks, is optional.

Educational Technology (Bachelor's degree)

According to the SER, the intended learning outcomes (ILOs) of the Educational Technology programme are said to be developed at both global and local levels, focusing on knowledge, skills, attitudes that students are expected to acquire by the time they graduate. The ILOs are listed as follows:

- Apply basic mathematics and science knowledge to participate in designing technology solutions, especially information technology for educational products, services, and communication such as multimedia for education, technology-rich learning environments, technology-integrated training programmes;
- Apply foundational industry knowledge to participate in analysing technology solutions, especially information technology for educational products, services, and communication;
- Apply core industry knowledge to design, implement, and manage processes, educational and modern technology resources, especially information technology for educational products, services, and communication;
- Analytical reasoning, identifying, and solving problems in the field of Educational Technology;
- Planning and scheduling implementation; proactive, self-reliant, and career-oriented task management;
- Developing research capabilities, professional creativity, and adapting to a service-oriented environment;
- Understanding contemporary issues and having a lifelong learning mindset;
- Cooperation, organisation, and teamwork;
- Effective communication through writing, presentations, discussions, and the efficient use of modern communication tools;
- Effective use of English in the workplace, achieving a TOEIC score of 500 or above;
- Identifying the close relationship and impact of information technology solutions on education and communication with economic, social, and environmental factors in a globalised world;
- Recognising problems and formulating ideas, information technology solutions for education and communication; participating in project development in the field of educational technology;
- Designing educational and communication products, services such as multimedia, technology rich learning environments, technology-integrated training programmes;
- Executing educational and communication products, services such as multimedia, technology rich learning environments, technology-integrated training programmes;

- Operating and evaluating the effectiveness of educational and communication products, services such as multimedia, technology-rich learning environments, technology-integrated training programmes;
- Training planning;
- Teaching and organising training;
- Training management;
- Testing and assessment;
- Having professional ethics and responsibility;
- Having political theory knowledge according to the general programme of the Ministry of Education and Training;
- Having physical education and national defence-security education certificates according to the general programme of the Ministry of Education and Training.

It is stated in the SER that graduates of the programme have a wide range of career opportunities. They can work as media specialist, training material designer, course designer, faculty support and development expert, business analyst, design and development specialist.

The duration of the study programme is 8 semesters or 4 years. The curriculum is loaded with 132 credits, which is equivalent to 228.39 ECTS. In the first semester (16 credits), students undertake foundational courses such as General Law, The Communist Party of Vietnam's Defence and Security Policy, National Defence and Security Work, Theory of Physical Education and Sports, Calculus I, Algebra, and Educational Psychology. The second semester (19 credits) includes Marxism-Leninism Philosophy, General Military, Infantry Combat Techniques and Tactics, Introduction to Informatics, Probability and Statistics, General Physics I, English 2, Calculus II, and Introduction to Educational Technology. In the third semester (20 credits), students study Scientific Socialism, History of the Communist Party of Vietnam, Elective 1, General Physics II, Programming Techniques, Basic Fine Arts, Supplementary Course Elective 1, Theories of Teaching, 3D Animation, Database, and Data Structures and Algorithms. The fourth semester (19 credits) covers the Ho Chi Minh's Ideology, Elective 2, Supplementary Course Elective 2, Instructional Design, Multimedia Information Retrieval, Introduction to Artificial Intelligence, Web Design and Programming, and Digital Games and Interaction I. During the fifth semester (19 credits), students take courses such as Elective 3, Supplementary Course Elective 3, Teaching Technologies, Adult Education, E-Learning, Photography and Branding, Research Methodologies, System Analysis and Design, Digital Games and Interaction II. The sixth semester (18 credits) focuses on Elective 4, English for Educational Technology, Teaching Techniques, Evaluation Tools and Techniques, Project Management, Project on Teaching and Learning in Digital Era, and students can select three courses belonging to one of three concentrations. The seventh semester (13 credits) is dedicated to specialised courses such as Technical Writing and Presentation, and students also choose four courses from one of three concentrations. In the final semester (8 credits), students are required to complete a technical internship and a Bachelor's thesis.

Experts' evaluation

HUST is the best university of technology in Vietnam, with a high reputation for science and technology. The quality of the Educational Technology (Ed Tech) programme is proved through highly-qualified teaching staff. This is confirmed through the current 75% of teachers holding a PhD, while the average percentage in Vietnam is only 33%. This corresponds to the high number of students admitted. The intended learning outcomes and the curriculum of this study programme are in line with the Vietnamese Qualifications Framework (VQF) level 6 and the European Qualifications Framework (EQF) level 6. The programme workload is correctly and transparently allocated to the courses, enabling students to finish their study within the expected four years.

The curriculum demonstrates the alignment with market needs in the field of educational technology. This is proved by the low percentage of students (8%) continuing to study Master's degree as most graduates have

already been employed and provided with good opportunities. Although the educational institutions such as schools do not directly employ graduates who are not regular lecturers, the situation has changed since the pandemic. The current demand for ed tech solutions has increased significantly, especially for ed tech specialists who can offer necessary competencies to employers such as software startups or in some cases, larger educational institutions that offer relevant job opportunities.

Since there is strong demand from this new industrial sector and close ties between the study programme and the industry have been demonstrated through connections with domestic and international companies, the integration of the practical sphere into the curriculum should be intensified, e.g., through internships and co-teaching activities **(Finding 1)**. Additionally, seeing that technological development – especially linked to AI – continues to progress rapidly, the experts recommend continuing to analyse the current demands in greater detail and forecast the potential future professional roles in the education sector to make timely adjustments on the graduate profile and the ILOs **(Finding 2)**.

The use of educational technology for online and blended learning has been implemented effectively. These resources are also available for students with special needs. The labs used for the programme have recently become available for both in-person instruction and independent activities, contributing to effective training. As the use of education technology can be widely and cross-disciplinarily applied, students should further develop competencies through self-directed projects at the intersection of current research in the field. Such should be implemented and recorded as an additional competence **(Finding 3)**.

Conclusion

The criterion is fulfilled.

Data Science and Artificial Intelligence (Advanced Programme, Bachelor's degree)

According to the SER, the intended learning outcomes (ILOs) of The Data Science and Artificial Intelligence programme are said to be developed at both global and local levels, focusing on knowledge, skills, attitudes that students are expected to acquire by the time they graduate. The ILOs are listed as follows:

- Mastering knowledges of mathematics and basic science, math, statistics, algorithms, optimisation for data science to solve technical problem;
- Ability to apply fundamental knowledges computer systems, algorithm and programming, database, design, information security, artificial, machine learning and deep learning, etc. in research and develop systems, products, data science solutions;
- Mastering and being able to apply specialised knowledge of data science in developing IT systems, products and technical solutions;
- Technical problem analysis and solving, understanding the different approaches of the technology building process, appropriate for all aspects: socio-economic, professional ethics, law and information security;
- Having ability to experiment, research and discover knowledge;
- Having system thinking and critical thinking;
- Having active, creative and serious characteristics;
- Having ethics and professional responsibilities;
- Understanding contemporary issues and lifelong studying awareness;
- Having organisational, leadership and teamwork skills (multidisciplinary);
- Having effective communication skills through writing, presentation, discussion, negotiation, case management, effective use of modern tools and facilities;

- Having skills to use English effectively at work, get TOEIC score > 500;
- Awareness of the close relationship between data science solutions with socio-economic and environmental factors in the globalised world;
- Identify problems and formulate ideas of data science solutions, participate in building information technology projects;
- Participate in designing data science systems, products, and solutions;
- Participating in implementing and deploying data science systems, products, and solutions;
- Exploiting and maintaining information technology systems, products, and solutions.

As stated in the SER, graduates have various career paths, including roles as data scientist, operation specialist, system engineers, software developers.

The duration of the study programme is 8 semesters or 4 years. The curriculum is loaded with 132 credits, which is equivalent to 244.23 ECTS. In the first semester, students take foundational courses such as Marxist-Leninist Philosophy, Calculus I, Algebra, and Introduction to Programming. The second semester includes General Law, Calculus II, Basic Physics, Probability and Statistics I, Discrete Mathematics, and Data Structures and Algorithms. In the third semester, students study Calculus III, Fundamentals of Optimisation, Introduction to Artificial Intelligence, Object-oriented Programming, and Computer Architecture. The fourth semester covers Marxist-Leninist Political Economy, Applied Statistics and Experimental Design, Database, Machine Learning, and Technical Writing and Presentation. During the fifth semester, students take courses such as Scientific Socialism, Introduction to Data Science, Operating System, Computer Networks, Project I, Introduction to Deep Learning, Introduction to Cryptography and Security, and Elective 1 from soft skill block. The sixth semester focuses on Vietnam Communist Party History, Introduction to Software Engineering, Natural Language Processing, Computer Vision, Parallel and Distributed Programming, Data Visualisation, Project II, and Elective 2 from soft skill block. The seventh semester is dedicated to Ho Chi Minh's Ideology, Big Data Storage and Processing, Introduction of Business Analytics, System Analysis and Design, Web Mining, Project III, Internship, and Elective 3 from soft skill block. During the last semester, students take the course Mathematical Modelling and write the Bachelor's thesis. In addition, students shall take the English course block during the first year. They are divided in different groups depending their English level or ILETS band score.

Students enrolled in this programme are said to have the opportunity to participate in transfer and exchange programmes at universities, including the University of Sydney in Australia, the University of Aizu, and Tokyo University of Agriculture and Technology in Japan, among others. Additionally, they can study at universities in Europe through the Erasmus Mundus scholarship programme.

Experts' evaluation

The ILOs cover applying data science, AI skills and soft skills, analysing problems, creating solutions and products, as well as understanding and evaluating various non-technical issues such as ethical and socio-economic issues. The knowledge component is extensive and suitable at the undergraduate level, and there is extensive coverage of professional and soft-skills. Although interdisciplinary options are explicitly presented in the module handbook, they are still delivered in form of projects in many courses.

The ILOs align with those typically found in comparable international programmes and are deemed appropriate to meet academic and industry requirements. Mechanisms for evaluating the effectiveness of the intended learning outcomes at both programme and course level include stakeholder surveys and structured feedback sessions with employers, industry representatives, and alumni. This ongoing evaluation process ensures that the programme maintains relevance and responsiveness to external expectations.

The development process is rigorous, with consulting experts, scientists, and educators in relevant fields, including one international university, and is developed by experienced lecturers and researchers. Stakeholders

such as industry and employers have been adequately consulted and international standards have been considered when developing the curriculum. The School of Information and Communications Technology itself has a good history of partnering with international universities and multinational corporations. Moreover, the degree is described to be an Elite Technology Programme according to HUST regulation having considerably higher standards for specialised knowledge, proficiency in foreign languages, application of information technology, leadership, team collaboration, and adaptability to an international work environment. Most significantly, however, the degree boasts a 100% employment rate amongst graduates. This strong outcome suggests graduates have obtained the right skills.

The degree aligns with both VQF level 6 and EQF level 6. The achievement is demonstrated with a technical internship involving an oral exam and a Bachelor's thesis with a written report and an oral defence. The curriculum begins with a general education block in the first year, complemented by soft skills and professional development courses. Major and core subjects are introduced from the third semester, progressing to advanced topics such as Computer Vision, Parallelisation, and Software Engineering by the sixth semester. Electives and thesis work are completed in the final year, demonstrating a coherent and logical academic progression.

Subject-specific knowledge in the course is extensive. The curriculum also includes an area of cross-subject knowledge through the course block of general education or the course "Introduction of Business Analytics". General soft and project skills are extensively covered. The Academic Programme Development Committee (APDC) utilises feedback from various stakeholders including students to inform curricular updates. However, there is little evidence of substantial content updates, particularly in rapidly evolving areas such as Vision and Natural Language Processing. This presents an opportunity for the programme to adopt a more proactive approach to curriculum revision in these fast-paced domains **(Finding 4)**.

The programme includes a short internship prior to the Bachelor's thesis, providing students with practical experience in a professional setting. All curricular components – courses and modules – are clearly detailed in the handbook, including their objectives, classification as compulsory or elective, and any restrictions. Additionally, the programme workload is transparently structured and allocated with an appropriate number of credits, ensuring a balanced and manageable academic progression for students. However, it was mentioned during the site visit that the assessment is slightly intensive at the end of the semester. Therefore, the experts recommend distributing the assessment more evenly throughout the semester for students to handle it more feasibly **(Finding 5)**.

Conclusion

The criterion is fulfilled.

Business Analytics (Advanced Programme, Bachelor's degree)

According to the SER, the intended learning outcomes (ILOs) of The Business Analytics programme are said to be developed at both global and local levels, focusing on knowledge, skills, attitudes that students are expected to acquire by the time they graduate. The ILOs are listed as follows:

- Demonstrate knowledge of and proficiency in the field of mathematics and technical sciences to illustrate, measure, and simulate business and economic processes in an enterprise;
- Exhibit competency in applying the knowledge of law and political science;
- Exhibit competency in applying the knowledge of business administration;
- Demonstrate knowledge and proficiency in business administration to study, analyse, summarise, and evaluate business and economic processes;

- Demonstrate knowledge and proficiency in planning, organising, and scheduling tasks;
- Demonstrate knowledge and proficiency in methods and tools to analyse, generate and transmit solutions to unpredictable and sometimes complex problems;
- Demonstrate knowledge and proficiency in applying knowledge and skills to recognise, collect information to solve business and economic problems;
- Demonstrate knowledge and proficiency in personal working skills;
- Demonstrate knowledge and proficiency in quantitative and qualitative methods and tools to discover and innovate business process;
- Perceive ethics and professional responsibilities;
- Demonstrate knowledge and proficiency in effective communicating via writing, discussing, and presenting skills;
- Demonstrate knowledge and proficiency in English to communicate and read professional materials; TOEIC standard ≥ 500;
- Exhibit the competency in participating, leading, discussing, negotiating, and resolving group conflicts;
- Perceive the relationship between economic and business solutions of organisations and businesses with environmental factors of the business;
- Be qualified at a level of political reasoning under the general programme of the Ministry of Education and Training;
- Be qualified at a physical education certificate and a national defence and security certificate under the general programme of the Ministry of Education and Training.

As stated in the SER, graduates have various career paths, including data analyst, business analyst and analytics specialist. The duration of the study programme is 8 semesters or 4 years. The curriculum is loaded with 132 credits, which is equivalent to 231.9 ECTS. Students in this programme have the option to transfer to Monash University in Australia under a 2.5+1.5 model (2.5 years at HUST followed by 1.5 years at Monash) or to the University of Hertfordshire in the UK under a 3+1 model (3 years at HUST followed by 1 year at Hertfordshire). Under the MOU between SEM and Monash University, students completing 2.5 years at HUST will have 72 ECTS recognised out of the 144 required by Monash. Similarly, the MOU with the University of Hertfordshire allows for the conversion of credits, recognising 3 years at HUST as equivalent to level 6 of the programme at Hertfordshire University under the UK's top-up model, as stated in the SER.

In the first semester, students undertake foundational courses such as Introduction to the Legal Environments, Calculus I, Algebra, Principles of Microeconomics, and Introduction to the Major of Business Analytics. The second semester includes Probability and Statistics, Introduction to IT, Principles of Macroeconomics, Business Law, and one complementary elective for two credits. In the third semester, students study Mathematical Economics, Organisational Behaviour, Applied Statistics, Principles of Accounting, Database, Mathematics for Business Analytics, and one complementary elective for three credits. The fourth semester covers Calculus III, Mathematics for Business and Commerce, Introduction to IT for Business, Philosophy of Marxism and Leninism, Principles of Marketing, and Corporate Finance. During the fifth semester, students take courses such as Political Economics of Marxism and Leninism, Business Process Management, Human Resources Management, Managerial Accounting, Business Ethics, and Operations Management. The sixth semester focuses on Scientific Socialism, Management Information Systems, Strategy Management, Applied Data Science for Business, one elective for three credits, and complementary electives for 4 credits. The seventh semester is dedicated to courses such as History of Vietnamese Communist Party, Corporate Performance Management, and electives for 12 credits. In the final semester, students are required to take the course Ho Chi Minh's Ideology, and to complete a graduation internship, a Bachelor's thesis, and a research-based capstone project.

Experts' evaluation

In general, the Business Analytics programme demonstrates a well-rounded approach to equipping students with both technical and critical thinking skills. The curriculum and the ILOs comply with the Vietnamese Qualifications Framework level 6 and the European Qualifications Framework level 6. By integrating modern trends such as AI law, open-source software, and internationalisation, the programme ensures relevance in an evolving industry. The Business Analytics programme at HUST appears to be well-structured, with a strong emphasis on practical skills and industry needs. The discussions during the site visit showed that the inclusion of Business Law, which covers AI-related legal aspects, enhances students' understanding of regulatory challenges in business analytics locally and internationally. This issue is relevant since students are acting in a global network. The risk management course further supports this by addressing compliance risks and sustainability reporting, reflecting the needs of a highly regulated industry. HUST is focusing on offering an updated curriculum to the students in a highly competitive world.

The programme integrates both proprietary and open-source software, ensuring students gain hands-on experience with real-world tools. The use of Python, data mining software, and Tecnomatix licenses for the digital factory as well as business process modelling and forecasting courses offers students exposure to industry-relevant technologies. Additionally, leveraging openly accessible data sources aligns with legal frameworks and business needs.

HUST has a detailed financial plan on the development of the data centre for the next three to four years, and has also integrated a plan to use green energy to operate the centre. Currently, the focus is on the following key components including upgrading the IT infrastructure, network systems, cybersecurity issues; building recording studio; and creating digital learning materials. HUST has developed a high-speed network infrastructure, a high-performing computing center, and a cloud-based Data Management System to support teaching and research at the university and for the Business Analytics programme. Furthermore, an Intelligent Operation Centre (IOC) will be implemented, to empower online education and being a pioneer in higher education digital transformation at HUST. In this context, the university also has a project developed installing a complete solar panel system and investing in bioenergy. Along this line, continuing the path of expanding the data centre to foster research initiatives and also placing a focus on issues of Green IT and sustainability ecosystems is recommended **(Finding 6)**.

The proactive approach toward generative AI (GenAI) is commendable. Encouraging students to critically assess AI-generated content fosters responsible AI usage. The practice of explaining and reflecting on AI-generated answers ensures deeper engagement rather than passive reliance on technology. The incorporation of AI-generated content in assessments further enhances reasoning and analytical skills. While AI law is covered, a more structured course on AI ethics, bias in data analytics, and responsible AI usage could be beneficial **(Finding 7a)**. Given the increasing scrutiny on AI applications, specialised training in ethical considerations could better prepare students for future industry challenges. The programme successfully integrates GenAI into assessments, but expanding its use in coursework (e.g., predictive modeling, decision-making simulations) could enhance technical proficiency.

Real-world case studies, peer review mechanisms, and project-based assignments encourage critical thinking. The structured group assessments, including midterms, finals, and presentations, offer diverse evaluation formats that cater to different learning styles. The integration of soft skills through coursework, presentations, academic writing, and English language development is well-structured. Student clubs further enhance leadership, teamwork, and communication skills, ensuring holistic student development.

The programme's collaboration with international professors, student exchanges, and internship opportunities in global markets enhances students' exposure to international business analytics practices. The active student club, which connects students with industry professionals, is an excellent initiative for real-world learning

and networking. While there is a clear internationalisation intention, further efforts are required to expand exchange programmes and recruit more international professors to strengthen the faculty's global expertise (see Chapter 5, Finding 12).

The Business Analytics programme is fostering interdisciplinary learning and teaching, even integrating a start-up contest. Strong engagement with industry partners ensures that students are trained in relevant skills and tools. The programme integrates feedback from employers, reflecting real-world business needs. However, a fast-changing environment in the field of business analytics will be a challenge in meeting the requirements of the labor market. Although the programme has made significant progress in research, further development in integrating cutting-edge business analytics trends into the curriculum is recommended to offer students up-to-date research insights **(Finding 7b)**.

Conclusion

The criterion is fulfilled.

2. Procedures for quality assurance

Bachelor's/Master's degree

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

The Centre for Quality Assurance (CEQUA) at HUST was established on September 30, 2008, to develop and manage the university's quality assurance processes. In 2018, it was renamed the Quality Management Office (QMO) with the mission to oversee and support quality assurance across all university units. In 2023, following changes in HUST's management structure, QMO was renamed the Department of Quality Management (DQM). As the focal point for quality management, DQM has developed and gained approval for its Quality Assurance System from HUST's Board of Presidency.

HUST's quality management system is structured into three levels: strategic, system, and functional. At the strategic level, the University Council sets overall policies and strategies, while the Board of Presidency implements quality assurance (QA) according to national, regional, and international standards. Strategic goals are translated into detailed plans for functional units, which then develop their own objectives.

At the system level, the Department of Quality Management (DQM) oversees the development and implementation of QA plans, coordinates with various units to monitor quality, and ensures compliance with ISO procedures. Key activities include stakeholder surveys, process improvement according to ISO 21001 standards, SWOT analysis for strategic planning, and using accreditation results for continuous improvement.

At the functional level, academic units and administrative offices carry out QA activities based on their specific roles and the university's QA plan. The School of Mechanical Engineering (SME) has established a Quality Assurance Group (QAG) to manage these tasks, ensure transparency, and report annually on QA outcomes.

The QAG comprises the Vice Dean in charge of Training and Accreditation, ISO staff, Programme Directors, academic group leads, and the School Office Secretary. The QAG is responsible for preparing legal documents and guidelines for internal QA activities, submitting them for approval, and guiding their implementation within SME. These documents are communicated to staff, students, and alumni through class meetings, seminars, and the SME website, covering topics such as QA of recourses, achievements of external accreditation, and improvement of the SME Office.

As stated in the SER, HUST employs various tools to monitor its quality management system, including the Department of Inspection, Legal, and Internal Audit, which checks compliance with university regulations. At the end of each semester, HUST surveys learners for feedback via a QA information system. Surveys are also said to be conducted with different stakeholders, such as students, graduates, lecturers, staff, alumni, and employers.

HUST is said to collect and analyse data from various activities, including training, research, technology transfer, and support services. This data is gathered through information systems accessible to students, lecturers, and managers, enabling efficient tracking and monitoring. Additionally, HUST and SME collect external data from sources such as state agencies, professional associations, and regular alumni meetings. Information on labour market needs is also gathered through job fairs, surveys, and alumni connections, as stated in the SER.

Experts' evaluation

The programmes are fully subject to the university's comprehensive and multi-layered quality assurance policies and associated procedures. These procedures span strategic planning, systematic oversight by the DQM, and functional implementation by the respective academic units, ensuring continuous monitoring, evaluation, and improvement of the programmes. The development of the Intended Learning Outcomes (ILOs) for all three programmes strictly follows HUST's Academic Programme Development Guidelines. The quality assurance includes different components for course and programme evaluations, including student feedback and class observation, with periodic academic workshops for overall review, and class managers operating at the lowest level able to monitor individuals. Dropout and graduation rates are closely observed at the programme level. Student workload is carefully managed through the credit system, and feedback from students plays a role in reviewing and potentially adjusting the workload of courses.

A comprehensive set of responsibilities for quality assurance are distributed across various levels and units within HUST. The schools and faculties are responsible for the implementation of quality assurance for their degrees, while other units set plans, guidelines and policy. The Department of Quality Management develops systematic plans for the colleges and schools to follow including stakeholder surveys, self-assessment, proposals for improvement and auditing. Colleges and schools then carry these out using their own QA teams using some of the approaches discussed above. HUST's QA procedures lead to concrete measures through a multi-layered system involving strategic planning, systematic monitoring and analysis, and functional implementation. Stakeholder feedback is a crucial driver for identifying areas needing improvement. Improvements are guided by frameworks like ISO 21001 and regular self-assessment processes.

All expected stakeholders are included in quality assurance. Various surveys are done: online at the end of each semester, after graduation and soon after initial enrolment, of employers, and of various facilities and services such as libraries, dormitories, etc. Direct feedback is done during activities such as job fairs, during student business meetings, by academic advisors and class managers, and faculty members. Furthermore, annual staff conferences, and staff workshops and seminars provide additional opportunities for feedback.

Information on labour market needs is gathered through job fairs, surveys, workshops and seminars involving industry, and alumni connections. Industry development trends and potential job positions for students in the field are updated through statistical data provided by state management agencies like MOET (Ministry of

Education and Training), the Ministry of Science and Technology, and professional associations. The Academic Programme Development Committees (APDCs) include external stakeholders from business organisations. The reports makes clear in which sectors graduates are employed and how many graduates continue their studies.

Extensive and appropriate policies and expectations and safe-guards are in place to support academic integrity. Major final assessments use orals and related techniques (in person exams) for this. A non-academic department audits compliance of the colleges and schools. Quality assurance does not directly address safeguarding against intolerance and discrimination, but admission policies highlight equal opportunities.

Extensive data is collected on student progression, course performances, and so forth. This is used to monitor quality of graduation and reasons for delayed graduation, courses proving challenging, student and faculty workloads, programme analysis and development, and performance indicators for courses and programmes.

Conclusion

The criterion is fulfilled.

3. Learning, teaching and assessment of students

Bachelor's/Master's degree

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 the SER, the study programmes employs various teaching and learning methods including theoretical lectures, practical exercises, essays, projects, and self-study. The study programmes are said to integrate different methods to engage students into learning such as active learning, problem-based learning, research-oriented learning, practice-based learning, and experiential learning in business. Specific teaching and learning activities can be named as lectures, tutorial, exercises and homework, class discussion, hand-on practice and experiment report writing, peer-review, problem-based learning, project-based learning, teamwork, videoclip making, self-learning and self-reflection, etc. The university also states in the SER that teaching methods are customised to specific groups of students, namely full-time students, part-time students, international students, and students with disabilities.

In terms of study organisation and feasibility, the university states in the SER that students have the flexibility to complete their programmes and graduate either earlier or later than the standard duration, with an allowable extension of up to 5 semesters. Each academic year includes two main semesters and one summer semester. The main semesters span 20 weeks each, comprising 16.5 weeks of instruction, one week for mid-term exams, and two to three weeks for final exams. Mid-term exams are typically held during the 9th week. The summer semester lasts 5 weeks for instruction and 1 week for exams, organised based on student demand.

Assessment methods of students are said to be varied depending on each course, including (1) attendance checks & in-class Q&A; (2) quizzes; (3) written exams; (4) multiple-choice exams; (5) individual projects; (6) group projects; (7) computer-based tests; (8) evaluations by lecturers and reviewers (for graduation internship reports, graduation theses, and research projects); and (9) thesis defences (for graduation theses and

research projects). Examination types, assessment criteria, and the weight of ongoing and final assessments are outlined in course descriptors, with the final assessment required to carry at least 50% of the total grade. Ongoing assessments include midterm exams and attendance. The Department of Academic Affairs arranges and announces detailed exam schedules via HUST's internal system, as stated in the SER. Final assessments often combine multiple-choice and open-ended questions, while graduation internship assessments involve an oral exam, and the graduation thesis requires a defence before an evaluation committee. Students unable to take final exams due to legitimate reasons can defer the exam within the next two main semesters; otherwise, they receive an F grade.

Exams are graded on a 10-point scale, with scores rounded to 0.5 points. A course grade combines midterm and final grades, rounded to two decimal places and converted to letter grades. A score lower than 3 (or 5 for theses) results in failure, and component scores below 4 lead to an overall F grade. Passing grades require at least a D for regular courses and higher than a C for theses. Course scores are then converted to a 4.0 scale for GPA calculations. Students receive a semester GPA and a cumulative GPA to track overall academic performance.

Experts' evaluation

The learning and teaching methods employed at this university are generally student-centred. The approach is designed to actively engage students with ongoing exercises, quizzes, and other assessments, such as midterm projects or exams before the final assessment. For the first semesters, these continuous examinations are certainly helpful for students as they transition from school to university. The experts would like to encourage the university to allow more freedom in the higher semesters. This will help students develop further other skills, such as independent time management and taking responsibility for learning. After two years at university, students should already be able to assess for themselves how they learn best and how to pass the course, meaning there should no longer be a need for compulsory attendance.

The experts acknowledge that the curriculum is tailored to enhance problem-solving by incorporating projects and the application of knowledge in real-world contexts, with options for joining a research lab. The experts view it positively that students can join such labs without further conditions; they just have to reach out to the professor, according to student statements. Internship opportunities are integrated into the curriculum, though students have noted that the 5-week internship is quite short and should be extended (see Chapter 6, Finding 16).

Regarding the group assessments within the projects, the experts see the methods as appropriate for how the lecturers identify individual contributions. For instance, they use oral examinations, and sometimes peer evaluations are integrated into the grading system. In order to ensure the transparency and fairness of group projects in programming, the experts recommend including software tools such as Git which can track individual contributions **(Finding 8)**.

The learning and teaching methods align generally well with the intended learning outcomes (ILOs) of the programmes. However, some challenges remain in ensuring that all students clearly understand the rationale behind certain courses, particularly in the first year of study. The experts learnt during the site visit that students sometimes struggle to understand the relevance of foundational courses, such as calculus, until later in the programme or when they enter the labour market. The panel therefore encourages the university to provide more examples of applications in these first-year courses to ensure students' understanding of the course relevance from earlier on **(Finding 9)**.

The university emphasises the blended-learning method, and lecturers provide different learning materials (i.e., videos, books, and papers). Some lecturers also incorporate gamification into their teaching methods, which the students appreciate and wish to have even more of in their classes. The experts see this hybrid

model and diverse methods as well catering to the varying learning preferences of students and offering flexibility in their learning paths. Regular use of ed-tech platforms, such as Teams, ensures that students have access to resources and updates in real time, which supports their ongoing engagement.

The institution's efforts to cater to diverse student needs are evident in its strategies to support students with disabilities, including offering dedicated classrooms on the ground floor and providing psychological counselling services. When it comes to assessment regulations, it is worth noting that more inclusive assessment methods for students with disabilities should be in place although such cases have not yet happened. In addition to the possibility of postponing an exam due to illness, the study programmes could consider alternative assessment methods or additional time during exams.

Students are informed about the requirements of a course at the beginning of the semester, and the experts acknowledge the university's efforts to offer exams with as little scheduling conflict as possible through an algorithm for exam timetabling. The experts endores the option for students to retake a course as many times as needed until they pass, but limited to 7 years. Students can also retake the course if they want to achieve a better grade to increase their chances of being accepted into other international Master's degree programmes.

Conclusion

The criterion is fulfilled.

4. Student admission, progression, recognition and certification

Bachelor's/Master's degree
Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.
[ESG 1.4]

Description

Admission

The university states that there have been several innovations of the admission policy. As of 2024, there are three main paths for admission:

- Talent-based admission: (a) Direct admission for excellent students according to the regulations of MOET; (b) Admission based on students' international certificates such as SAT, ACT, A-Level, AP and IB; (c) Admission based on the students' competency profiles combined with interviews.
- Admission based on the Thinking Skills Assessment results: Admission is based on the total score of the K00 Thinking Skills Assessment (including Mathematics - Reading Comprehension - Natural Sciences - English).
- Admission based on the National High school graduation examination results*:* Admission is based on A00-categorised (Mathematics - Physics - Chemistry) or A01-categorised (Mathematics - Physics - English) subject scores in the National high school graduation exam organised by MOET.

HUST's admission process includes several steps. First, applicants are assessed based on their talent, Thinking Skills Assessment (TSA) results, or National High School Graduation Examination scores. For talent-based admissions, competency profiles and interview results are evaluated and scored. TSA scores, with a minimum threshold of 50, determine eligibility for admission. Admissions based on National Examination results depend on subject-specific scores. The admission process involves ranking applicants by score and filling targets

through the MOET system. Conditional admission may be given to talent-based applicants pending their graduation results. The Department of Admissions then sends notifications to accepted applicants, while the Department of Student Affairs manages enrolment and updates student records. Students are placed into classes of 40 to 100, and faculty members are assigned as student class managers to oversee them from their first days at the university.

Progression

According to the SER, HUST monitors students' academic progress through its Training Information Portal, where students, academic advisors, and staff can track academic results and progression. Educational software records students' academic outcomes from their first year until graduation. Key student data, such as dropout and graduation rates, are said to be closed observed. Delays in graduation can be due to several reasons unpassed courses, retaking classes to improve grades, part-time internships, health issues, financial difficulties, or a desire to change majors. Academic units work with the Department of Academic Affairs and the Department of Student Affairs to advise students facing difficulties and help them complete their programmes on time.

SME states that they also use various monitoring methods, including activities such as fostering students' research abilities, nurturing a spirit of innovation and entrepreneurship, enhancing community responsibility via Youth Union and Student Union, and Promoting "learning by doing".

Recognition and certification

Students' academic progression at HUST is assessed through several indicators: the number of credits accumulated, outstanding credits for unpassed courses, Cumulative Point Average (CPA), and proficiency in foreign languages as per programme requirements. Additionally, extracurricular activities are recognised with non-academic performance scores evaluated by the Department of Student Affairs, according to the SER. These scores consider students' awareness and attitude towards studies and research, adherence to university rules, and participation in various activities such as political, social, cultural, artistic, sports, scientific, and career-oriented events.

Upon completion, graduates receive a degree certificate, transcript, and supplement detailing completed courses, grades, and accumulated credits according to the ECTS system. The degree is issued in Vietnamese and English, providing information on the student's study and achievements, personal information such as name, birth date, enrolment date, and graduation date.

Experts' evaluation

Formal requirements for admission and the specific prerequisites for each study programme are clearly defined and accessible to prospective students. The selection procedure follows predefined criteria and steps, ensuring transparency in the admissions process. The university also gathers data on the admission procedures of past cohorts, allowing for continuous evaluation and improvement. For instance, the number of students enrolling in the Educational Technology programme has been increasing, growing from 35 in the first cohort to 120 in the latest cohort. Initially, students were sceptical about this newly-established Bachelor's programme. However, after the pandemic and the AI booming, they have acknowledged the curriculum with confidence, recognising the usefulness and relevance of the topics covered.

Mechanisms for recognising prior learning, including non-formal and informal learning, have been implemented. There are established regulations for the recognition of competencies and the transfer of credits from other higher education institutions. These regulations align with regional and international principles, such as those outlined in the Lisbon Recognition Convention, to facilitate student and graduate mobility.

Lecturers demonstrate an encouraging and attentive attitude towards students' interests. The differentiated focus of the teaching staff complements each other in a convincing manner, ensuring that students receive well-rounded support. Assessments within the programmes include innovative concepts such as peer assessment and incorporate digital solutions. The programmes also integrate online practice and media production into the curricula, further enriching students' learning experiences.

Lab work is a key component of the programmes with a sufficient number of labs available for students to conduct independent and supervised research. In some cases, students even have the opportunity to complete their internships within these labs. However, a weakness of the programmes is the absence of official regulations on the use of AI. Despite this, data science and AI have been embedded into the curriculum from the beginning, ensuring that students are well-versed in these critical fields. The experts therefore recommend that the university develop academic regulations on the use of AI to facilitate students during their study as well as to ensure academic integrity **(Finding 10)**.

The university employs various mechanisms to support student mobility, including learning agreements. Upon graduation, students receive comprehensive documentation detailing their qualifications. These documents provide transparent information on learning outcomes, the national context, study level, and programme status in the form of a diploma supplement. This ensures that graduates have clear and internationally recognised credentials for their future careers.

Conclusion

The criterion is fulfilled.

5. Teaching staff

Bachelor's/Master's degree
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

As stated in the SER, lecturers are provided with optimal conditions to focus on teaching and research. Teaching performance is assessed through student feedback and peer reviews, while research is evaluated based on publications in recognised journals. Lecturers are also involved in general duties like invigilation and quality assurance, working about 40 hours per week. Teaching loads range from 440 to 720 hours annually for the Business Analytics programme and the Educational Technology programme and 600 to 900 hours for the Data Science and Artificial Intelligence programme, within a total workload of 1,600 hours.

A significant portion of HUST's lecturers is said to hold doctoral degrees, with nearly 90% in FED and SICT for the 2023-2024 academic year. While the number of professors is currently limited, there are plans to increase this number in the coming years. The faculty comprises lecturers with diverse domestic and international experience, with many holding doctoral degrees from global institutions.

According to the SER, the student-to-lecturer ratio should be 25:1 for Business and Management majors and 20:1 for Education Sciences and Information Technology. The current ratio for SEM stands at 7.6:1, which is said to be within the recommended limits.

Annually, HUST units submit recruitment plans to the Department of Organisation and Personnel (DOP) based on workload, lecturer-to-student ratios, and retirements. The DOP then publicly announces job requirements, recruitment plans, and application procedures on the university's website. Candidates must hold a doctoral degree and be proficient in using computers for teaching, preferably be able to teach in English, and have quality international publications. The recruitment process involves receiving applications, organising examinations and interviews by the recruitment committee, and a micro-teaching session. New lecturers undergo a one-year probationary period, during which they must demonstrate their teaching skills and professional development. At the end of this period, they are evaluated by faculty members and administrative staff on various criteria, including teaching methods and class management.

Regarding staff development, HUST states that it has implemented various policies under its Internal Spending Regulations to enhance faculty dedication and participation in professional development. These policies include full coverage of tuition fees for short-term training courses, fieldwork internships, and university-level teaching certificates. Faculty members pursuing Master's and doctoral degrees at HUST receive full salary and tuition support, and those who pass English proficiency exams are reimbursed for the exam costs. From 2019 to 2023, lecturers in three programmes are said to be engaged in various training courses, both domestic and international, including language courses, political theory, management, accreditation, and overseas training.

In addition, the SER states that SEM organises quarterly SEM Talks featuring international experts, while SICT hosts monthly Lunch Seminars and has established the International Research Centre for Artificial Intelligence (BK.AI) with support from NAVER Corporation. The faculty and schools are said to host annual international conferences. HUST states to support research by partially financing conference attendance and organisation and recognising publications in prestigious journals. Special policies incentivise high-quality research, including higher salaries for staff with ISI Q1 and Q2 publications.

Experts' evaluation

During the on-site visit the expert team learned that HUST aims to provide lecturers with optimal conditions for teaching and research. Teaching performance is evaluated through student feedback and peer reviews, while research is assessed based on publications in recognised journals in the specific fields. The current student-to-lecturer ratio remains a challenge due to high student numbers, and addressing faculty workload could improve teaching quality and student support. To tackle this, the university should either reduce the current teaching load or recruit more lecturers **(Finding 11)**.

Teaching staff is highly qualified, with a significant percentage holding PhDs, contributing to the university's strong reputation in Vietnam. Faculty members actively engage with industry experts and incorporate real-world applications into their teaching, ensuring that students gain practical knowledge alongside theoretical foundations.

A key strength is the faculty's adaptability to emerging trends, particularly in AI and educational technology. Many lecturers are involved in professional development programs, including training on Generative AI (GenAI) and innovative assessment methods. This is to be commended and should be continuously expanded. The integration of AI in teaching and assessment is a growing focus, with ongoing efforts to develop ethical guidelines for AI use in education. The issue of teaching soft skills and the integration in the curriculum is well addressed in all three study programmes. Soft skills, including teamwork, communication, and critical thinking, are integrated into the curriculum through various approaches: project-based learning, critical thinking, industry interaction and entrepreneurship. Faculty members emphasise critical thinking by engaging students in discussions, case studies, and real-world problem-solving exercises. In AI-related courses, students are encouraged to critically assess AI-generated content and compare it with their own reasoning.

However, some areas require further improvement. While internationalisation efforts are visible, recruitment of international professors could be further strengthened to provide a more diverse teaching perspective. There are many possibilities to integrate an international teaching staff into the study programmes, such as visiting/guest professors, professor exchange programmes and short-term engagements. Challenges, however, remain in attracting and retaining long-term international professors through bureaucratic barriers. The appointment of full-time international professors is said to be complex due to national regulations requiring a multi-stage approval process. This makes long-term recruitment more difficult and should be addressed at the government level. Also, the financial constraints are challenging since funding for international faculty remains a challenge, as salaries and benefits may not always be competitive enough to attract top talents. While visiting professors provide valuable contributions, their limited stay restricts long-term impact on curriculum development and student mentoring. As a result, in order to further develop the study programmes and gain more up-to-date insights issues such as AI, business analytics, and business intelligence, the university needs to develop a strategic plan to attract more professors with international background, including financial measures **(Finding 12)**.

Additionally, increasing faculty involvement in research and establishing a clear research strategy would further enhance the integration of cutting-edge knowledge into teaching **(Finding 13)**. This could also be a good way to attract international professors to the university. Students who have had courses with international lecturers note the different teaching styles and benefit from their input.

Regarding the staff development, while soft skills are embedded in various courses and taught by lecturers, they should constantly update their skills themselves. The experts suggest offering more dedicated training modules or workshops in leadership, negotiation, and professional communication as this would provide more structured development in teaching and research capabilities **(Finding 14)**.

Conclusion

The criterion is partially fulfilled.

6. Learning resources and student support

Bachelor's/Master's degree
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

Learning resources

HUST covers a total area of 26.2 hectares to teaching, research, and meetings, HUST has more than 200 lecture halls, classrooms, large halls, and a conference room system; nearly 200 laboratories, 12 of which are national key laboratories; and about 20 workshops and practice rooms. The university also provides indoor and outdoor sports facilities such as fitness, aerobics, football fields, tennis court, and swimming pool, and a medical centre.

The library located in the HUST campus offers facilities, including study rooms, computer stations, and specialised service areas. It is connected to over 100 libraries and 45 digital libraries in Vietnam. The library

provides online database access for all students and staff and is open from 8:00 AM to 9:00 PM on weekdays and 8:00 AM to 4:00 PM on weekends.

Student support

The university states in the SER that there are several scholarships to support students during their studies. HUST offers student support in various aspects, including academic advising, administrative assistance, career orientation, job counselling, psychological support, health care, extracurricular activities, and financial aid. Class managers and advisors assist with study plans and resources. Orientation week introduces new students to university life, and career guidance is provided throughout their studies.

Experts' evaluation

The university provides students with access to course requirements at the start of each semester, which include information on forms of assessment. These outlines ensure that students are well informed about the structure and requirements of each course. The experts also think that the scheduling plan for online classes helps the students to have a good overview of their semester and courses.

There are procedures in place to coordinate course offerings at both the content and organisational levels, aiming to avoid overlaps and ensure that students can complete their studies within the expected period of time. Moreover, the university employs algorithms to schedule exams in a way that minimises conflicts and optimises available resources. This coordination helps students manage their workload and meet deadlines efficiently.

The university provides appropriate material resources for the study programme, including access to computer workstations, laboratories, and technical equipment. Regarding space allocation, the university ensures that facilities accommodate the number of students. Additionally, the use of e-learning and blended learning formats provides flexibility and allows for better space management, as students can access course materials and resources online. Some rooms are technically well equipped to allow a smooth hybrid learning experience. The experts learned on the lab tour that sometimes first-come-first serve counts for getting an onsite place, but other times the teacher also points out students to join in class to let them answer questions and engage more actively, which is appropriate from the experts' view.

The technical infrastructure supports students in their learning and research activities, particularly in fields like AI and data science. Although some students have expressed a desire for additional resources, such as more GPUs for running complex models, the university has made strides to improve its technical offerings by developing a financial plan to further enlarge the data centre.

Laboratories mainly consist of computer rooms which are large enough to fit all students. Lecturers also reported that students also make use of their own devices. Most software used is open-source, and all students get a Microsoft license. The access to online libraries was not part of the discussion rounds, but the experts highlight the importance of access to new research papers, solid fundamental books and resources to ensure self-study and up-to-date knowledge.

Students have access to both institutional and individualised advisory services. These include regular consultation hours with academic advisors and staff members. The faculty management also supports students in their academic and personal growth, with psychology counsellors available to assist students with emotional and mental well-being. Moreover, the university offers various opportunities for peer support, such as senior students mentoring younger cohorts, which was a reaction from the university to support students more at the beginning of their studies. The faculty mentioned that students who struggle with English proficiency are given additional support, such as mandatory English courses for those who fail to meet the IELTS requirement.

However, students of the Educational Technology programme wish to have even more opportunities to practise and become more confident in English **(Finding 15)**.

When it comes to internships, the university supports students in finding placements by providing a platform listing internship opportunities and requirements. While the university helps coordinate these placements, students have noted that internships are often too short (usually 5 weeks), leading to the situation where some students take the initiative to organise their internships independently. There is also feedback that the allowance for internships is relatively low, which could be an area for further development. It is recommended that the internship be extended to at least three months in order to provide students with more time and opportunities to understand the professional world. They should be well-supported with reasonable internship allowance **(Finding 16)**.

The university is attentive to student diversity and ensures that learning resources and support services are accessible to all students, including those with disabilities. For example, students with disabilities are provided with dedicated classrooms on the ground floor, and psychological counselling services are available.

The university offers several scholarship opportunities, such as grade-oriented scholarships to encourage academic excellence, as well as scholarships for low-income families and enterprise scholarships. These opportunities are communicated to potential recipients through the university's website and other platforms. The experts see from the student discussion round that these scholarships are actively in place where 3 of the 13 present students receive a scholarship.

Regarding partnerships between HUST and international higher education institutions, an increased number of such mobilities would be suitable to gain more comprehensive insights. The support for students in internationalisation and mobility should be intensified (e.g., through government or university scholarships) **(Finding 17a)**. On the other hand, HUST should develop a plan to enable remote student exchange for those students who do not have the opportunity to study abroad **(Finding 17b)**. In addition, the scope of international mobilities should be expanded to include international internships **(Finding 17c)**.

Conclusion

The criterion is fulfilled.

7. Information

Bachelor's/Master's degree
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

HUST provides updated training information to students and stakeholders through multiple channels, primarily via the official HUST and faculty and schools' websites. Functional units within the university also share specific information on their respective sites. Additionally, HUST communicates with students using online social media platforms.

According to the SER, HUST's public information pages offer comprehensive details about the university's vision, mission, programmes, training objectives, and support facilities. They include information on the recruitment system, quality improvement activities, teaching methods, assessment systems, and research. The pages also highlight cooperation programmes with businesses and opportunities for recruiting high-quality

talent from the university. This platform is said to serve as a crucial link between HUST and external stakeholders, enhancing mutual cooperation and helping stakeholders, including businesses, organisations, and parents, understand and trust HUST's commitment to providing a quality workforce.

Experts' evaluation

HUST demonstrates a commitment to providing public information regarding its programmes, intended learning outcomes, selection procedures, qualifications awarded, and teaching, learning, and assessment procedures. Information is accessible through the official HUST website, faculty and school websites, and social media platforms, addressing the needs of various stakeholders, including current and potential lecturers, staff, students, the public, and employers.

Specifically, the evaluation focused on the Education Technology, Data Science and Artificial Intelligence, and Business Analytics programmes. While information is available, an area for improvement lies in the organisation and presentation of this information. Currently, programme details are dispersed across different school websites, leading to inconsistencies in format and layout. This can be particularly challenging for international stakeholders or those unfamiliar with the university's structure.

Therefore, a key recommendation is to implement a standardised format for programme information across all HUST websites in both Vietnamese and English language **(Finding 18)**. This would enhance accessibility and usability, especially for international students and professors seeking specific programme details. Additionally, HUST could consider organising public information by targeted audience would allow all stakeholders to easily find the information relevant to their interest. This would improve the overall user experience and ensure that all stakeholders can readily access the information they need. For instance, targeting public information and websites to international universities and teaching staff would be potentially helpful for the internationalisation of teaching staff as previously mentioned.

Conclusion

The criterion is fulfilled.

V. Recommendation of the panel of experts

The panel of experts recommends accrediting the study programmes **"Education Technology" (Bachelor's degree)**, **"Data Science and Artificial Intelligence" (Bachelor's degree)** and **"Business Analytics" (Bachelor's degree)** offered by **Hanoi University of Science and Technology (Vietnam)** with conditions.

Commendation:

The university is to be commended for the overall high quality and forward-looking nature of its study programmes. Strong stakeholder involvement, particularly from industry, has contributed to well-aligned and up-to-date curricula that are ahead of the fields and have remained current. Graduates are highly valued in the job market, reflecting the programmes' relevance and quality. The empirical focus, integration of research skills and critical thinking, and use of reputable academic resources like PEARSON further enhance academic standards. Students are motivated, engaged, and well supported, and robust internal processes for evaluation and course updates are clearly in place.

Findings:

1. The integration of the practical sphere into the curriculum of the study programme "Educational Technology" should be intensified, e.g., through internships and co-teaching activities.
2. As technological development – especially linked to AI – continues to progress rapidly, the experts recommend continuing to analyse the current demands more in greater detail forecast the potential future professional roles in the education sector to make timely adjustments on the graduate profile and the ILOs of the study programme "Educational Technology".
3. As the use of education technology can be widely and cross-disciplinarily applied, students of the study programme "Educational Technology" should further develop competencies through self-directed projects at the intersection of current research in the field.
4. There should be a more productive approach to revise the curriculum of the study programme "Data Science and Artificial Intelligence" in the fast-paced domains such as Vision and Natural Language Processing.
5. For the study programme "Data Science and Artificial Intelligence", the experts recommend distributing the course assessment more evenly throughout the semester to avoid the intensive workload at the end of the semester.
6. For the study programme "Business Analytics", it is recommended to continue the path of expanding the data centre to foster research initiatives and place a focus on issues of Green IT and sustainability ecosystems.
7. The experts recommend integrating the following aspects into the curriculum of the study programme "Business Analytics":
    a. The university has to strengthen the curricula on AI ethics, responsible AI usage and train students to existing biases regarding data analytics.
    b. Cutting-edge business analytics trends should be integrated to offer students up-to-date research insights.

8. In order to ensure the transparency and fairness of group projects in programming of all study programmes, the experts recommend including software tools such as Git which can track individual contributions.
9. For all study programmes, more examples of applications should be provided in courses of initial semesters to ensure students' understanding of the course relevance from earlier on.
10. The university should develop academic regulations on the use of AI to facilitate students during their study as well as to ensure academic integrity.
11. To address the issue of high student numbers as well as high faculty workload, the university should either reduce the current teaching load or recruit more lecturers to improve teaching quality and student support.
12. In order to further develop the study programmes include aspects of internationalization and gain more up-to-date insights issues such as AI, business analytics, and business intelligence, the university has to develop a strategic plan to attract more professors with international background, including financial measures.
13. The experts recommend increasing faculty involvement in research and establishing a clear research strategy to further enhance the integration of cutting-edge knowledge into teaching.
14. Lecturers of all study programmes should attend more training modules or workshops in leadership, negotiation, and professional communication as this would provide more structured development in teaching.
15. Students of the study programme "Educational Technology" should have more opportunities to practise and become more confident in English.
16. It is recommended that the internship of all study programmes be extended to at least three months in order to provide students with more time and opportunities to understand the professional world. Furthermore, students should be well-supported with reasonable internship allowance.
17. The support for students of all study programmes in internationalisation and mobility should intensified through the following actions:
    a. Government or university scholarships should be provided for students to study abroad.
    b. The university should develop a plan to enable remote student exchange for those students who do not have the opportunity to study abroad.
    c. The scope of international mobilities should be expanded to include international internships.
18. The university should implement a standardised format for programme information across all websites in both Vietnamese and English language to enhance accessibility and usability, especially for international students and professors seeking specific programme details.