ASIIN Seal

Accreditation Report

Bachelor Degree Programmes

Natural Resource and Environment Management

Construction Economics

Master Degree Programme

Construction Management

Provided by

The University of Danang – University of Science and Technology

Version: 6th December 2024

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Chương trình đào tạo Đại học ngành Quản lý tài nguyên và Môi trường	Bachelor's Degree Natural Resource and Environment Management	ASIIN	/	11, 03
Chương trình đào tạo Đại học ngành Kinh tế xây dựng	Bachelor's Degree Construction Economics	ASIIN	AUN-QA, 2018 -2023	03
Chương trình đào tạo Thạc sỹ Quản lý xây dựng	Master's Degree Construction Management	ASIIN	/	03
Date of the contract: 17.02.2022 **Submission of the final version of the self-assessment report:** 16.02.2023 **Date of the onsite visit:** 18.-19.05.2023 **at:** University of Danang				
Peer panel: Prof. Dr. rer. pol. Frank Schultmann, Karlsruhe Institute of Technology Prof. Dr.-Ing. Joaquin Diaz, University of Applied Sciences Mittelhessen Prof. Dr.-Ing. Ulrich Neuhof, University of Applied Sciences Erfurt Vi Nguyen Nguyen, industry representative from Bach Khoa Sai Gon Construction Joint Stock Company Khuc Quang Trung, student at Ho Chi Minh City University of Technology				

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 02 - Electrical Engineering/Information Technology.

Representative of the ASIIN headquarter: Yanna Sumkötter	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 07, 2021 Subject-Specific Criteria Technical Committee 03 – Civil Engineering, Geodesy and Architecture as of June 26, 2020	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ba Natural Resource and Environment Management	B.Sc.	-	6	Full time	-	8 Semesters	130 CP	Academic year 2009-2010
Ba Construction Economics	B.Sc.	-	6	Full time	-	8 Semesters	130 CP	Academic year 2001-2002
Ma Construction Management	M.Sc.	-	7	Full time	-	4 semesters	60 CP	Academic year 2019-2020

For the Bachelor's degree programme Natural Resource and Environment Management, the institution has presented the following profile in its Self-Assessment Report:

"The overall goal of the education programme […] is to train learners with political and ethical qualities who have knowledge, professional practical skills, and the ability to explore and develop the application of science and technology in the field of natural resource and environmental management, who are capable of lifelong learning, have creative ability and professional responsibility, and can adapt to the work environment […]."

Bachelors graduated from the Natural Resource and Environment Management Programme meet the requirements of 6-level framework of The Vietnam National Qualification as follows:

- "Having comprehensive professional knowledge in the field of natural resources and environment management; master the principles and laws of nature - society to meet the needs of environmental protection and sustainable exploitation of natural resources.

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

- Having basic practical skills related to environmental and natural resource management.
- Able to work independently and creatively; capable of teamwork; capable of solving management, technological and technical problems in the field of natural resources and environment."

Students graduating from the Bachelor's degree programme Natural Resource and Environment Management are suitable for the following positions:

- "Officials and experts in environmental and natural resource management at state management agencies: Ministry/Department of Natural Resources and Environment, Ministry/Department of Science and Technology, Department of Transport, Environmental Police Schools, Management Boards of Urban Areas, Management Boards of Export Processing Zones - Industrial Parks, Divisions of Natural Resources and Environment.;
- In charge of Environment, Occupational Safety, Occupational Health and Safety-OH&S management system at Urban Environment Company, Factories, Enterprises, Industrial Zones/Clusters;
- In charge of consulting, designing, constructing, managing environmental protection works, dealing with environmental pollution issues, protecting and rationally using resources at consulting companies. environment, the Company provides environmental and resource services;
- Working in departments, agencies, banks, credit Participating in teaching courses in the field of Environmental and Resource Management at universities, colleges, professional and vocational schools;
- Officers and researchers at institutes, schools or training and research centers related to technology, environment and resource management."

For the Bachelor's degree programme Construction Economics, the institution has presented the following profile in its Self-Assessment Report:

"The general objective of the Construction Economics training programme […] is to train learners with political and ethical qualities; have knowledge, professional practice skills, scientific and technological research and development capacity commensurate with the training level; capable of lifelong learning; have creative ability and professional responsibility, adapt to the working environment […]."

Bachelors graduated from the Construction Economics programme meet the requirements of 6-level framework of The Vietnam National Qualification as follows:

- "Having comprehensive professional knowledge, mastering the principles and laws of nature - society.
- Have basic vocational skills.
- Ability to work independently and creatively; capable of analyzing and solving problems in the field of economics and construction management; Ability to communicate and work in a team to meet job requirements."

Students graduating from the Bachelor's degree programme Construction Economics are suitable for the following positions:

- "Working for investors and investment capital management organizations: Investment Department, Project Appraisal Division, Construction Valuation Department, Project Management Board;
- Working for Construction Enterprises: Bidding Department, Construction Planning Department, Site Management Board (measurement and control of construction volume (QS), payment and settlement of works);
- Working for a consulting unit: Making investment projects, Estimating and verifying estimates, Project management consulting, Making bidding documents, Auditing of capital construction, Payment and settlement of works;
- Working in departments, agencies, banks, credit institutions: Department of Construction, Department of Planning and Investment, Project Management Board, Project Management Division of other departments, Appraisal and Credit Department at stateowned and private banks"

For the Master's degree programme Construction Management, the institution has presented the following profile in its Self-Assessment Report:

Research orientation

"The research orientation Construction Management Master's programme […] aims to train graduates at Master's level: have political and ethical qualities; have knowledge, research capacity, professional skills and application development of science and technology in the field of construction management; be capable of lifelong learning, have creative ability and professional responsibility and adapt to the working environment […].

The research orientation of the programme aims to train learners:

- Having in depth scientific and technical knowledge in the field of construction management; Good understanding of economy, politics, law and society. Having a sys-

tem of in depth, advanced and comprehensive knowledge in the field of construction management and specialized economic technical knowledge to practice the profession in reality.

- Having in depth research skills in the field of construction management or effective construction management professional activities; Possess effective communication and teamwork skills; having the ability in foreign languages to meet the professional working environment.
- Capable of independent research, idea creation design implementation of construction investment projects; having the ability to critique, analyze, synthesize and evaluate data and information to come up with a scientific solution. Having the ability to work in research, teaching, consulting and policy making positions or other positions in the field of construction management.

Learners can become experts, consultants, construction project managers, commander of construction works. In addition, the training programme also provides scientific research methods so that learners can become lecturers or researchers in universities and research institutes in the field of construction management."

Application orientation

"The application orientation Construction Management Master's programme […] aims to train graduates at Master's level: have political and ethical qualities; have knowledge, research capacity, professional skills and application development of science and technology in the field of construction management; be capable of lifelong learning, have creative ability and professional responsibility and adapt to the working environment […].

The application orientation of the programme aims to train learners:

- Having in depth scientific and technical knowledge in the field of construction management. Good understanding of economy, politics, law and society. Having a system of in depth, advanced and comprehensive knowledge in the field of construction management and specialized economic technical knowledge to practice the profession in reality.
- Having in depth applied skills in the field of construction management or effective construction management professional activities. Possess effective communication and teamwork skills; having the ability in foreign languages to meet the professional working environment.
- Capable of forming and creating ideas designing implementing construction investment projects. Capable of operating and managing construction projects in a professional and volatile industry environment.

Learners can become experts, consultants, construction project managers, commander of construction works. In addition, the training programm also provides scientific research methods so that learners can become lecturers or researchers in universities and research institutes in the field of construction management.”

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Self-Assessment Report
- Curricula for all degree programmes
- Module handbooks for all degree programme
- Diploma Supplements
- Websites for all study programmes
- Discussions during the audit
- Objective-module-matrix per programme

Preliminary assessment and analysis of the experts:

The experts refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committee 3 (Civil Engineering, Geodesy and Architecture), the objective-module-matrix for each degree programme, the matching learning objectives and the modules as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Natural Resource and Environment Management and Construction Economics as well as the Master's degree programme Construction Management correspond with the competences as outlined by the SSC. The descriptions of the qualification objectives are comprehensive and include the achieved competencies and possible career opportunities of the graduates.

The Danang University of Science and Technology (DUT) has described programme objectives (POs) and programme learning outcomes (PLOs) for each of the three degree programmes under review. While the POs are developed based on the vision and mission of the university as well as the respective faculty and are rather general and concise, the PLOs describe in greater detail the competences the students should acquire during their studies. To what extent the information, including the POs and PLOs about the three degree programmes must be accessible to the students as well as to all stakeholders, for instance

by publishing them on the faculty's website, will be described under chapter 5.3. Furthermore, there are regular revision processes in place that take into account feedback by external and internal stakeholders. A major revision including consultations of stakeholders takes place every five years for the three degree programmes, a minor revision every two years.

The experts note that the development of PLOs of the study programmes involves both internal and external stakeholders so that the curricula can be adapted and modified according to the needs of the industry and the graduates on a regular basis. For example, DUT regularly conducts surveys, through which the different stakeholders get the chance to assess the programmes and their main objectives. Based on this feedback DUT adapts the degree programmes if necessary. Internal stakeholders include all of DUT members (students, teaching staff, and non-academic employees), while the external stakeholders include the industry, alumni, the government, and society.

At the end of their studies, graduates of the Bachelor's degree programme Natural Resources and Environment Management have acquired basic and advanced knowledge in mathematics, basic science, technology and engineering and are able to apply this knowledge in practice, analysis, evaluation and research on issues in the field of natural resources and environment management. They should be able to apply management tools and legal regulations to solve problems in the field of natural resources and environment management. They know how to manage the environment of enterprises, industrial parks and urban centers. Moreover, they have gained a solid understanding of the implementation of solutions to manage occupational safety, minimize risks in professional activities in accordance with the context of the enterprise, society and the environment. Therefore, graduates of this study programme are capable of working in several professions, especially as officials and experts in environmental and natural resource management at state management agencies. Moreover, they can be in charge of environment, occupational health and safety at urban environment companies and of consulting, designing, constructing, and managing environmental protection works, dealing with environmental pollution issues, protecting and rationally using resources at consulting companies. Furthermore, they can work as officers and researchers at institutes, schools or training and research centers related to technology, environment and resource management.

The aim of the Bachelor's degree programme Construction Economics is to produce graduates who are able to apply knowledge of mathematics, natural sciences and industry foundations to practice, analyze and evaluate problems in the fields of economics and construction management. Graduates of this programme know how to assess economic and management issues in the construction sector, considering the business, social and environmental context. Moreover, they must be able to manage the process of investment and construction project development as well as to establish entrepreneurship and innovation

skills. Consequently, graduates of this programme are capable of working for investors and investment capital management organizations, for construction enterprises, for a consulting unit by making investment projects, estimating and verifying estimates, etc. Moreover, they can work in agencies, banks and credit institutions in the following departments: department of construction, department of planning and investment, project management board, project management division of other departments, appraisal and credit department at stateowned and private banks.

Graduates of the Master's degree programme Construction Management should be able to assess economic-management issues in the field of construction considering the impact on the economic, social, environmental and sustainable development contexts. Graduates of the application-oriented path are additionally capable of applying management science to solve professional problems effectively and of acquiring and applying new knowledge when necessary and of discussing professional and scientific issues. They know how to use their organizational and administrative skills and how to effectively manage and improve professional activities in the field of construction management. They are also capable of effective application of innovative technologies in the field of construction management. Graduates of the research-oriented path have, on the other hand, skills in in-depth research, critical thinking, and systematic thinking to solve professional problems creatively and know how to self-direct and guide others in research activities in the field of construction management. They are capable of independent research, improving professional activities and providing policy solutions in the field of construction management as well as of effective application of innovative technologies in the field of construction management. Consequently, graduates from both paths can take on jobs at organizations, agencies and businesses, for instance as independent experts, or in charge of experts who manage and implement issues related to areas as for example basic construction management, management board of industrial zones, design consultancy and socioeconomic development projects. Graduates from the application-oriented path can also work in areas where then need to apply research results, organize and deploy research results into practice in the field of construction in general and the field of construction management in particular. Start-up science and technology enterprises. Graduates from the research-oriented path can participate in teaching and research at domestic and international training institutions, in start-up science and technology enterprises.

Next to the professional skills, the students of all three study programmes are supposed to acquire personal and social skills such as critical and creative thinking, communication skills, adaptability, the capacity to work in (international) teams, and leadership skills. In addition, they should be able to solve problems through research and the application of different concepts and methods.

In the expert's opinion, the intended qualification profiles of all degree programmes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of DUT are much sought after in the labor market. The industry representatives emphasize the high quality of the graduates of all three programmes under review and students as well as graduates are satisfied with and well aware of their good job perspectives. Therefore, the experts gain the impression that the graduates are well prepared for entering the labour market and can find adequate jobs in Vietnam.

In summary, the experts conclude that, in formulating the intended learning outcomes for the three degree programmes, the university has followed the Subject-Specific Criteria of the ASIIN Technical Committee 03 for Civil Engineering, Geodesy and Architecture. The experts confirm that the study aims and learning outcomes of the two Bachelor's degree programmes correspond to level 6 of the European Qualifications Framework while the learning outcomes of the Master's degree programme correspond to level 7 of the EQF. They aim at the acquisition of specific competences and are well-anchored and binding.

Criterion 1.2 Name of the degree programmes

Evidence:

- Self-Assessment Report
- Diploma Supplements

Preliminary assessment and analysis of the experts:
The experts confirm that the English translation and the original Vietnamese names of all three degree programmes under review correspond with the intended aims and learning outcomes as well as the main course language (Vietnamese).

Criterion 1.3 Curriculum

Evidence:

- Study plans of the degree programmes
- Module descriptions
- Discussions during the audit
- Self-assessment report

Preliminary assessment and analysis of the experts:
The two degree programmes, Construction Economics and Construction Management, are managed by the Faculty of Project Management while the Natural Resource and Environment Management degree programme is managed by the Faculty of Environment.

Both Bachelor's degree programmes are designed for four years, offered as full-time programmes, and encompass 130 Vietnamese credit points. The general structure of the curriculum is similar for both Bachelor's degree programmes. In the first year, students mainly take general courses from subject areas such as mathematics, natural sciences, social sciences, humanities, and economics with the same content for all students in both faculties. From the second year on, students can take part in core courses and specialized courses in their respective field. Furthermore, after consultation with their academic advisor, students can select electives according to their personal interests. During their studies, all students must spend at least six weeks to study and work in companies for their internship. In the final year, students have to complete their Bachelor's thesis. For both internship and thesis, students have to submit their reports, present and defend it in front of a panel.

The curricula consist of

- Math & Natural Sciences (30 credits for both programmes) providing students with knowledge of mathematics, possibility statistics, physics and environment;
- Technical foundation and major core (18 and 19 credits respectively) offering students with fundamental knowledge and skills in the field of NREM and CE;
- Compulsory Specialized Subjects (35 and 19 credits respectively) providing students with specialized knowledge and skills in the field of NREM and CE;
- Elective Specialized Subjects (4 and 11 credits respectively)
- Internship and Graduation project (17 and 23 credits respectively) helping students gain practical experiences and train their problem-solving skills;
- General Knowledge (15 credits) teaching students basic knowledge of political thoughts, theories, and laws;
- Supplementary knowledge (11 and 13 credits respectively), which in turn consists of foreign language studies, Project Management for NREM and entrepreneurship and innovation for CE, Physical Education and Military Training.

A detailed description of the curricula structure can be found in chapter 2.1.

The internship in the Bachelor's degree programmes is conducted through collaboration with companies or other external institutions. Taken full-time, the internship usually lasts six weeks which is valued by the students as this allows them to apply the skills they learned in the programmes in a real working environment. The students point out that the university is very supportive in finding placements for the internship and always encourages them to gain as much practical experience as possible. The university has established useful guidelines for these internships and every student has one advisor at the company and one at the university to ensure that the work contributes to achieving the programme's learning outcomes. The assessment methods to evaluate this phase is comprehensive and includes a written report and a presentation of their results in front of a panel of two lecturers. The

evaluation takes into account the aspects work plan, discipline, teamwork, programme implementation, and activity report. However, the students express the wish to be exposed to even more practice during their studies, for example in the form of field trips or practical experiments or experiences during the courses. They believe that this would prepare them even better for the following internship at the end of their studies and would be appreciated by the industry. The industry representatives confirm during the audit discussions. Therefore, the expert recommend to strengthen the students' practical skills, for instance by including more field trips into the curricula.

The Master's degree programme is designed for two years and offered as a full-time programme. Students need to achieve 60 credit points, in order to complete the programme successfully. The programme offers two tracks: the research-oriented profile and the application-oriented profile. The curriculum of the application-oriented path consists of four main blocks, including modules about "general and complementary knowledge" as well as "industry knowledge", an internship and a graduation project. In the research-oriented path, the internship is replaced by research projects/topics. Besides that, the structures of both paths are similar. The table below illustrates the study components of both the research- and application-oriented tracks:

A. Research – oriented curriculum

No	Modules	Credits	ECTS	Type of module	
				Compulsory	Elective
	Semester 1	**15**		**12**	**3**
1	Scientific Research Methodology	2	2.84	x	
2	Principles of management	2	2.84	x	
3	Philosophy	3	4.26	x	
4	Special topic on contract management	2	2.84	x	
	Electives on technology	3			x
5	Advanced Building Technology	3	4.26		x
6	Application of BIM to project schedule management	3	4.26		x
7	Construction quality management	3	4.26		x
8	Engineering and Organization of high-rise construction	3	4.26		x
9	Research seminar 1	3	4.26	x	
	Semester 2	**15**		**8**	**7**
10	Special topics on bidding management	2	2.84	x	
11	BIM application to project management	3	4.26	x	
	Electives on sustainability	3			x
12	Sustainable development in construction	3	4.26		x
13	Sustainability indicators in construction	3	4.26		x
14	Built environment and life cycle assessment	3	4.26		x
	Electives on management	2			x

No	Modules	Credits	ECTS	Type of module	
				Compulsory	Elective
15	Leadership and Management	2	2.84		x
16	Legislation in business	2	2.84		x
17	Business communication	2	2.84		x
	Electives on Information technology	2			x
18	Computer applications in construction management	2	2.84		x
19	Application of SPSS to construction management	2	2.84		x
20	Research seminar 2	3	4.26	x	
	Semester 3	**15**		**12**	**3**
21	Advance Construcstion Project Appraisal	3	4.26	x	
22	Special topics on risk management	3	4.26	x	
	Electives on innovative technology	3			x
23	Applications of Artificial Intelligence in Construction Management	3	4.26		x
24	Python and R for data analytic in construction	3	4.26		x
25	Revit architecture and structure	3			x
26	Research seminar 3	3	4.26	x	
27	Research seminar 4	3	4.26	x	
	Semester 4	**15**		**15**	

No	Modules	Credits	ECTS	Type of module	
				Compulsory	Elective
28	Graduation Thesis	15	25.05	x	
	TỔNG	**60**	**88.95**		

B. Application-oriented curriculum

No	Modules	Credits	ECTS	Type of module	
				Compulsory	Elective
	Semester 1	**15**		12	3
1	Scientific Research Methodology	2	2.84	x	
2	Principles of management	2	2.84	x	
3	Philosophy	3	4.26	x	
4	Applied Statistics in Construction Management	3	4.26	x	
5	Special topic on contract management	2	2.84	x	
	Electives on technology	3			x
6	Advanced Building Technology	3	4.26		x
7	Application of BIM to project schedule management	3	4.26		x
8	Construction quality management	3	4.26		x
9	Engineering and Organization of high-rise construction	3	4.26		x
	Semester 2	**15**		8	7
10	Quantitative Analysis in Construction Management	3	4.26	x	
11	Special topics on bidding management	2	2.84	x	
12	BIM application to project management	3	4.26	x	
	Electives on sustainability	3			x
13	Sustainable development in construction	3	4.26		x

14	Sustainability indicators in construction	3	4.26		x
15	Built environment and life cycle	3	4.26		x
	Electives on management	2			x
16	Leadership and Management	2	2.84		x
17	Legislation in business	2	2.84		x
18	Business communication	2	2.84		x
	Electives on Information technology	2			x
19	Computer applications in construction management	2	2.84		x
20	Application of SPSS to construction management	2	2.84		x
	Semester 3	**18**		15	3
21	Advance Construcstion Project Appraisal	3	4.26	x	
22	Advanced Construction Project Management	3	4.26	x	
23	Financial management in construction	3	4.26	x	
24	Special topic on risk management	3	4.26	x	
	Electives on innovative technology	3			x
25	Applications of Artificial Intelligence in Construction Management	3	4.26		x
26	Python and R for data analytic in construction	3	4.26		x
27	Revit architecture and structure	3	4.26		x
28	Internship 1	3	5.01	x	
	Semester 4	**12**		12	
29	Internship 2	3	5.01	x	
30	Graduation project	9	15.03	x	
	TỔNG	**60**	**88.95**		

In the research-oriented profile, it is mandatory that students carry out four research projects and write a research report for each of the projects. In the application-oriented profile, on the other hand, students are not completing research projects but an internship and a graduation project. Overall, the focus here is on the application of construction technologies, management models, and new technologies to construction projects.

A detailed description of the curriculum structure can be found in chapter 2.1.

Since DUT has the goal to become more visible internationally and wants to further internationalize its degree programmes, the experts discuss with the programme coordinators and students of all degree programmes what classes in regular programmes are taught in English. The programme coordinators explain that usually all courses are delivered in Vietnamese, but especially in the Construction Management degree programme, some lecturers deliver courses, like for example “Advanced Construction Project Management”, in English. Moreover, some projects and the related presentations are done in English and specialized English courses are offered in every programme. Furthermore, English textbooks

are used in the advanced courses in the last two years of Bachelor's studies and throughout the Master's programme. In all study programmes, students have also the possibility to join the English study club, which is offered by the Language Centre. In addition, students are obliged to achieve the required TOEIC 450 score in order to graduate from their Bachelor's studies. Master's students need to verify their foreign language ability at Level 3 or higher according to the 6-level Foreign Language Competency Framework for Vietnam in order to be admitted to the Master's degree programme. The students confirm that some projects as well as parts of other modules are done in English and that English textbooks are used. However, they also underline that they lack English practice for daily conversations and communication with clients. The industry representatives confirm this statement by explaining that students from all three programmes have the proficiency to edit and draft English documents, but not to conduct conversations with clients. They suggest that they should join more foreign projects in order to strengthen those skills. The experts support DUT in further promoting these efforts and recommend to teach more classes in English in order to improve the corresponding language skills of the students.

Finally, the experts ask how the teaching staff and the prospective employers evaluate the soft skills of the students. They learn that the students from DUT are particularly resilient in many respects: both in terms of competition and in terms of their perseverance. In spite of this, the industry representatives also underline that specific soft skills as public speaking, presentation skills and entrepreneurship could still be improved. Consequently, the experts recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.

After reviewing the study plans and module descriptions of the three degree programmes under review, the experts conclude that the curricula enable students – besides the mentioned small restrictions – to achieve the intended learning outcomes of the programmes and that they are in line with the SSC of the Technical Committee Civil Engineering, Geodesy and Architecture. The experts also confirm that the programmes are regularly reviewed and changes are made if requested by the stakeholders.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- University Website
- Admission regulations

- Curricula for all degree programmes
- Audit Discussions

Preliminary assessment and analysis of the experts:
Danang University of Science and Technology (DUT) is a member university of the University of Danang (UD). Next to DUT, the UD consists of five other member universities, namely the (Danang) University of Economics, (Danang) University of Science and Education, (Danang) University of Foreign Language Studies, (Danang) University of Technology and Education, as well as the Vietnam-Korea University of Information and Communication Technology.

The UD annually handles the admission process and operates as the centre for all admissions across its member universities, institutions or units. Each year, the UD assigns and delegates an admission quota to all its member institutions based on societal needs and available resources, and subsequently reports to the Ministry of Education and Training. This admission quota for each member university is based on three primary factors: the student-lecturer ratio, the ratio of the gross floor area of all university buildings to the number of students, and lastly, the societal demand for human resources for each programme. The admissions council is set up annually with DUT's approval and disbands once the admission task has been fulfilled. This council is responsible for planning, managing, and overseeing the admissions process at DUT.

Admission processes for Bachelor's degree programmes are held annually before September. DUT publishes detailed information about the admissions process through its website, faculty and division pages, brochures, flyers, as well as through online admission counselling sessions for high-school students. During the latter, candidates are also informed about scholarships and post-graduation job opportunities.

High school graduates can apply to degree programmes offered by DUT through one of six available admission methods. The admission council determines and approves the admission conditions for each admission method. These methods include

- Direct admission in accordance with the regulations of the Ministry of Education and Training for candidates with notable e.g. civil, educational, or military achievements, with disabilities or who come from disadvantaged backgrounds;
- Admission based on the University's unique procedure for candidates with excellent high school performance and student competitions;
- Admission based on scores from the National high school graduation examination and additional criteria outlined annually by DUT;

- Admission based on scores from the National Ho Chi Minh City University competency assessment test,
- Admission based on scores from the Hanoi University of Science and Technology thinking assessment test, and
- Admission based on high school study results or transcript reviews.

To assist applicants from economically disadvantaged families, ethnic minorities, individuals with disabilities and applicants from different regions, priority points are granted during the application process. Foreign applicants can secure direct admission into DUT's degree programmes if their competence in knowledge and Vietnamese language proficiency meets the criteria set by the Ministry of Education and Training.

For the Master's degree programme, the candidates must meet the following conditions: they must have a regular undergraduate degree in a discipline relevant to construction management, the foreign language ability at Level 3 or higher according to the 6-level Foreign Language Competency Framework for Vietnam, and meet the general requirements of the training programme standards promulgated by the Ministry of Education and Training and according to the regulations of the training programme. Candidates applying for admission to the research-oriented path additionally require a graduation rank of "good" or higher or have a scientific publication related to the field of construction management. The faculty of Project Management reviews the university academic transcripts of every candidate to see if the enlisted modules are in line with the Master's programme. If the modules fail to be in line with those in the Master's programme, the faculty will develop plans to supplement knowledge for these finalists.

According to the statistics provided by the DUT, the number of applicants always exceeds the number of available places. In the past few years, an average of 50 students enrolled in the Bachelor's degree programme Natural Resource and Environment Management, 114 students in the Bachelor's degree programme Construction Economics and 20 students in the Master's degree programme Construction Management each year.

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

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

Criterion 1.3:

With regard to the recommendation to strengthen the students' practical skills in the two Bachelor's degree programmes, for instance by including more field trips into the curricula, DUT explains in its response statement that the curriculum 2021 includes courses (such as: Introduction to NREM, General chemistry, Environmental Analytical Chemistry, Environmental monitoring, Wastewater treatment, Application GIS) that focus more on practical skills and field trips (e.g. Introduction to NREM course for the first year includes field trips. DUT submits corresponding pictures together with its statement. Moreover, as DUT underlines that both programmes are planning to organize more practical co-curricular activities such as field trips, practice, etc, the experts continue to adhere to this recommendation.

Regarding the recommendation to teach more classes in English in order to improve the corresponding language skills of the students, DUT states in its response statement that they absolutely agree that improving English skills for students is necessary. DUT points out that in order to graduate, undergraduate students at DUT are required to obtain a score of 450 on the TOEIC exam. To meet the English output standard, DUT consistently strives to provide students with an improved English learning environment. This includes collaborating with the University of Foreign Languages, The University of Danang to offer intensive English courses and partnering with educational organization IIG Vietnam to conduct international TOEIC exams at the DUT Campus. These efforts are aimed at creating optimal conditions for DUT students to meet the required English proficiency standards. Moreover, according to DUT regulations, students are tested an English entrance for English classification and training. Upon graduation, students must achieve TOEIC 450 in English. Every academic year, if students do not meet English standards, they are not allowed to register for more than 14 credits per semester, this means that students save their time to focus on learning English.

Regarding the three programmes, in addition to basic English courses such as English A2.1, and English A2.1, other courses especially specialized subjects will provide supplementary materials in English for students to enhance reading comprehension skills. Improving oral presentation skills in English will also be emphasized, such as in Specific English, Environmental Toxicology (for NREM). In that way, students in the classes are supposed to be provided with increased opportunities to engage in active English speaking. This can be accomplished, for example, through discussions of international papers or by giving more oral presentations in English. Following the ASIIN accreditation, DUT states to have received this request also from students and employers. Therefore, DUT plans to request its lecturers to integrate specialized English into teaching and learning and students prepare and present reports of the courses in English. As these plans are currently only being announced and have not yet been implemented, the experts continue to adhere to this recommendation.

With regard to the recommendation to strengthen the soft skills of the students, DUT states in its response statement that the NREM curriculum 2021 includes some courses to develop the public speaking, presentation skills for the students such as Introduction to NREM, Environmental Toxicology, Environmental law and policy, Management of urban environment and industrial zones, Urban solids collection planning, Environmental impact assessment. In addition, DUT plans to invite soft skills specialists/speakers to train and strengthen the soft skills for the students. Especially, in the curriculum 2021, the course "Project management" is supposed help students in innovation and entrepreneurship.

The Faculty of Project Management always features the role of soft skill improvement for students. Actually, FPM is one of the faculties that applied the presentation method early and most extensively in DUT. As of the academic year 2020-2021, DUT has designed the Entrepreneurship course for the Construction Economics programme. DUT included activities such as talk-show of speakers and entrepreneurs to students about startups. DUT provides corresponding evidence together with its statement. As not all three programmes have been addressed in the DUT's statement with regard to this recommendation and as the mentioned plans have not yet been implemented, the experts continue to adhere to this recommendation.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Module handbooks for all degree programmes
- Academic Regulations
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As detailed in chapter 1.3, the programmes under review are structured transparently into sensible curricular sections and modules. They do so following the Vietnamese National Qualification Framework and DUT's "Curriculum Development Guidelines".

The Bachelor's degree programmes are designed for a standard study period of four years. The Master's degree programme spans over four semesters, equating to a two-year standard period of study. An academic year is structured into two main semesters, with each

semester encompassing fifteen weeks of study and four weeks allocated for assessments. The third summer semester, which takes place between the two regular semesters, allows students to repeat courses they have failed or take courses in advance to shorten their overall study time.

The structure of the Bachelor's degree programmes is designed to provide a balance of general knowledge, specialized knowledge, and skills. The programme structure is divided into six knowledge modules, including mathematics and science, technical fundamentals and majors, specialization modules, project, internship and graduation, general knowledge and supplementary knowledge. The programme structure for both Bachelor's degree programmes under review is shown in the following table:

Table 2.1.1. Curriculum structure of NREM program and CE program

Module components	NREM program					CE program				
	Credits				%	Credits				%
	Compulsory	Oriented electives	Free electives	Total		Compulsory	Oriented electives	Free electives	Total	
Math and natural sciences	30	0	0	30	23	30	0	0	30	23
Technical foundation and major core	18	0	0	18	14	17	2	0	19	14
Specialization	35	4	0	39	30	19	5	6	30	23
Graduation internships and graduation projects	17	0	0	17	13	23	0	0	23	18
General knowledge	15	0	0	15	12	15	0	0	15	12
Complementary knowledge	11	0	0	11	8	13	0	0	13	10
Total	126	4	0	130		117	7	6	130	

"Math and Science" provides mathematical and scientific knowledge to support the courses in the "technical foundations and major core" as well as in the "specialization" modules. All courses in this area are compulsory. The "technical foundations and major core" modules provide fundamental knowledge and skills. All courses in this area are mandatory as well. The "specialization" modules includes mandatory and elective courses. For electives, students are selected for a specific focus. Depending on the requirements of the particular study programme, the specialization courses provide knowledge and skills in the subject areas of Natural Resource and Environment Management as well as Construction

Economics. The internships and final projects are supposed to provide students with the opportunity to work on hands-on projects to complete their undergraduate degree. The "General Knowledge" modules provide general knowledge of the environment, political theory, and general law, whereas the "complementary knowledge" modules include English courses and introduction courses to Natural Resource and Environment Management as well as Construction Economics. The English course is supposed to assist students in achieving a minimum level of TOEIC 450 or equivalent prior to graduation. However, students who already have an English test score of TOEIC 450 or equivalent may be exempt from taking these English courses. The Introduction to Natural Resource and Environment Management as well as Construction Economics courses provide students with an overview of career pathways and curriculum structure for subject-specific majors, and help students first develop personal and technical skills, communication skills, and technical project design thinking for other courses in the future semesters.

Students of the Bachelor's degree programmes are also required to carry out an internship of 120 academic hours/6 weeks, which is awarded with 2 credit points and carried out in the eighth semester. The internship should be completed in an enterprise in a field relevant to the respective programme and serve as a preparation for the graduation project. The final project can be carried out either at DUT or in cooperation with a company. During the audit, the experts learn that students have the option to carry out the graduation thesis in form of a capstone project. In this case, student spend 15 weeks at a company gathering data for their project.

The structure of the application-oriented Master's degree programme consists of four main blocks, including modules about "general and complementary knowledge" as well as "industry knowledge", an internship and a graduation project. In the research-oriented path the internship is replaced by research projects/topics. Besides that, the structures of both paths are similar. The share of each knowledge block is shown in the following table:

Table 2.1.3 Structure of CM program in 2 orientations

Knowledge components	Application-oriented program		Research-oriented program	
	Credits	%	Credits	%
General and complementary knowledge	4	6.7	4	6.7
Industry knowledge	41	68.3	29	48.3
Research project/topic	-	-	12	20.0
Internship	6	10.0	-	-
Thesis/Graduate thesis	9	15.0	15	25.0
Total	60	100	60	100

The “general and complementary knowledge” block includes compulsory modules that provide students with knowledge of scientific research methods and management methods, whereas the “industry knowledge” block provides students with advanced industry knowledge. Nearly half of the credits in this block are electives to should help the students make the right choice for their thesis or graduation project. They convey contents such as advanced construction project management, advanced construction project appraisal, application of new technologies in construction management, data analysis, bidding and risk management in construction projects.

The “research projects/topics” block is only applicable to the research-oriented path of the programme. This knowledge block provides students with knowledge and skills in scientific analytics and in-depth research in various fields of construction management. Accordingly, those students are supposed to conduct a final project based on highly scientific topics. The “internship” block, on the other hand, only applies to the application-oriented path of the programme and is supposed to teach students contents about the application of construction technologies, management models and new technologies to construction projects through visiting construction projects onsite. Accordingly, those students will conduct final projects based on practical application topics.

With regard to the mandatory internship which is part of the application-oriented path in the Master’s degree programme, students carry out the internship of 360 hours (6 credits) in the fourth semester alongside the graduation project. In the research-application track, students are completing their thesis in the form of a research project at DUT. The experts find that the internships are well integrated in all three study programmes and support the achievement of the respective programme learning outcomes.

In summary, the experts confirm that all degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. They can see that the modules are structured in a way that ensures that the learning outcomes can be reached.

International Mobility

The experts learn that the university provides various mobility opportunities for students. These include semesters abroad, short programmes, internships and international conferences. To foster these, there are cooperation agreements with a number of partner institutions worldwide, with a certain focus on Asia (for instance Korea, Singapore, Japan), but also including institutions in Europe and United States. Partly due to the COVID-19 pandemic, the number of students participating in mobility programs between 2020 and 2022 was relatively low, but is expected to markedly increase again after the pandemic. An international office has been established in order to coordinate DUT's efforts and to support the students in the planning and administration of international mobility. Moreover, the university provides scholarships for international mobility programmes and manages various external scholarships sponsored for instance by the Vietnamese government.

According to a regulation from the Ministry of Education and Training, a course taken at an international university can be considered equivalent to a course at the home university by a Scientific Academic Committee. Before a stay abroad, the university concludes a learning agreement with the respective student to ensure that the courses taken are relevant to the study programme and can thus be recognised.

During the audit discussions, the experts inquire the reasons for the low numbers of student mobility. Especially the number of Bachelor's students who participate in international exchange programmes is still low despite students' high interest. In recent years, there have been a few incoming students from European and Asian countries. At the same time, a small number of students went abroad during their studies. The programme coordinators explain that tuition fees at foreign universities are too high for most Vietnamese students and that DUT has only a limited budget to support students abroad. Therefore, they are currently trying to increase mobility options within Vietnam to enable all students to spend an exchange semester. For example, a Memorandum of Understanding (MoU) between different Vietnamese universities aims to strengthen student mobility within Vietnam. The experts welcome the efforts of DUT to increase national mobility options. However, they also see the need for more international exchange opportunities. During the audit discussions, students express a clear interest in more places and better endowed scholarships for long and short-term stays abroad. The number of available places in the exchange programmes is still limited. DUT can only provide limited travel grants, while the demand from students is rising. The lack of financial support hinders students from joining

the outgoing programmes. The experts can understand these wishes and recommend to increase the efforts to further internationalise DUT by establishing more international co-operations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

The extent to which strengthening the English skills of the students would assist them with increasing their job perspectives and their chances for receiving a scholarship for continuing their academic education at an international university will be discussed in more detail under chapter 1.3.

The experts appreciate the efforts undertaken by the university to foster student mobility and they are – besides the mentioned, small restriction – satisfied with the structures and support mechanisms for international mobility.

Criterion 2.2 Workload and credits

Evidence:

- Self-Assessment Report
- Programme Specifications of all degree programmes
- Module Handbooks for all degree programmes
- Curricula for all degree programmes
- Instruction: Converting credit equivalents of University of Science and Technology – the University of Danang to the European Credit Transfer and Accumulation System (ECTS)
- Student and graduate survey forms and results
- Audit Discussions

Preliminary assessment and analysis of the experts:

According to the legal requirements, the total credit load is 130 Vietnamese credits (equivalent to 260 ECTS) for the Bachelor's degree programmes Natural Resource and Environment Management as well as Construction Economics and 60 Vietnamese credits (equivalent to 120 ECTS) for the Master's degree programme Construction Management. The workload is spread relatively evenly over the semesters. Moreover, the effective number of credits the students can take depends on their achievements in the previous semester. In the three degree programmes, students need to take at least 12 credits and maximum up to 21 credits in one semester. The workload of the last two semesters in the Bachelor's degree programmes and the workload of the last semester in the Master's degree programme are markedly reduced to give the students enough time for their theses as well as

to already start looking for a job. This mechanism is supposed to ensure that the students can really handle the workload. It also means that theoretically, students can finish their studies in less than 8 or 4 semesters respectively, although this is relatively rare due to the high workload in general.

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

Course type	In-class periods (one period =50 minutes)	Self-study hours (one hour = 60 minutes)	Total study hours (one hour = 60 minutes)
Theoretical lecture	15	30	42.5
Practice, experiment or discussion	30	30	55
Internship	-	-	50
Project, graduation project	-	-	50

Taking the European Credit Transfer System (ECTS) with one ECTS credit equalling 30 hours of work as comparison, one credit at Da Nang University of Technology (DUT) is equivalent to (42.5/30 =) 1.42 ECTS credits for theoretical lectures, (55/30 =) 1.83 ECTS credits for practical applications and experiments, and (50/30 =) 1.67 ECTS credits for internships and projects.

In view of the above and the provided evidence, the experts recognise that a transparent credit point system is established that accounts for the workload required from students, encompassing both attendance-based learning and self-study. This includes all compulsory subject-related elements of the degree.

As the statistical data provided by DUT shows, the average length of study was 4,5 years in both Bachelor's degree programmes and 2 years in the Master's degree programme in the last 3 years. According to the SAR, this is due to all the written examinations and also due to the fact that they have research and a final thesis or work next to studying. Additionally, the experts see that almost all students complete the degree programmes as there have only been 30 students of the Natural Resource and Environment Management degree programme, 15 students of the Construction Economics degree programme and none of the students of the Construction Management degree programme who dropped out of the degree programmes in the last 3 years. The data verifies that all three degree programmes under review can be completed in the expected period.

During the audit, the students emphasise that they consider the workload high but manageable and that it is possible to finish the degree programmes within the expected four or two years.

In conclusion, the experts recognise that a credit point system is established that accounts for the workload required from students, encompassing both attendance-based learning and self-study.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- Programme Specifications for all degree programmes
- Module Handbooks for all degree programmes
- Curricula for all degree programmes
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Teaching staff at DUT apply various teaching and learning methods, which are outlined in the module handbooks and linked narrowly to the respective course learning outcomes. According to them, various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

The most common method of learning is class session, with several courses having integrated laboratory practices. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory preparation, pre- or post-tests, laboratory exercises, reports, discussions, and presentations.

During the audit, the teachers particularly emphasise the role of internships and project-based learning in the curricula in the context of student-centred learning as well as the University's mission and philosopher. Furthermore, teachers of both Bachelor's programmes heavily employ the project-based learning method. Here, students can choose

topics, and then propose design methods concerning technical, environmental, and economical factors. In the practical courses, students learn how to conduct subject-specific experiments with indirect instruction approach.

The Master's programme focuses on developing the students' skills in autonomously carrying out and solving (research) projects. Thus, teaching and learning methods mostly include projects and essay assignments.

To help students achieving the intended learning outcomes and to facilitate adequate learning and teaching methods, DUT has developed a student information system (DUT-SIS), where students and teachers can interact.

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

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report
- Audit Discussions

Preliminary assessment and analysis of the experts:
DUT offers a comprehensive range of student services from enrolment to graduation, involving its Department of Student Affairs, Faculty members, student unions, and academic supervisors.

Students have access to student accommodation, sports facilities and well as medical and psychological care. DUT moreover supports students' engagement in various activities through the establishment of clubs that cater to diverse interests, ranging from culture and art to sports, science, technology, and start-ups. Students are also encouraged to participate in social initiatives like green campaigns, blood donations, charity work in disadvantaged areas, and visits to underprivileged children.

The Center for Student Support and Business Relations (CSSBC) facilitates the link between students and businesses by providing career counselling and job opportunities.

Scholarships are awarded to high-performing students by DUT's Academic Affairs Office as an incentive and financial aid. The scholarship policy is widely communicated to students

through various channels. Furthermore, financial assistance is available to students facing financial difficulties through tuition waivers and extensions on tuition payments.

During their exchange with the auditor group, students confirm the availability of financial assistance, including scholarships made available offered by the university based on students' grade point average (GPA) as well as such offered by industries based on specific criteria.

The experts conclude that sufficient resources are available to provide individual assistance, advice and support for all students. They judge that the support systems help students to achieve the intended learning outcomes and to complete their studies successfully.

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

Criterion 2.1:

With regard to the recommendation to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students, DUT plans to propose to the university management to finance and support students to join the outgoing programmes by strengthening the annual student exchange and cooperation agreements. As these plans are currently only being announced and have not yet been implemented, the experts continue to adhere to this recommendation.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module Handbooks for all degree programmes
- Exam regulations
- Regulations On Evaluation Of Academic Performance Of Undergraduate Students, Graduate Students (…)
- Audit Discussions

Preliminary assessment and analysis of the experts:

Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module descriptions have been achieved. For this purpose, DUT utilizes various types of examination.

In each course, short class assignments/quizzes, a mid-term and a final examination are employed. There are different assessment methods in the programmes, such as quizzes, written tests, practical performances, report writing, small projects and presentations or a combination of these. In most courses, mid-term and final exam consist of written tests and additional quizzes or assignments are used. However, the other assessment methods are also used to a certain degree. Via the Academic Calendar, the students are informed about mid-term and final exams. The form and length of each exam is mentioned in the module descriptions that are available to the students via the student information system (DUT-SIS). It is common to hold small quizzes every two or three weeks, but there are generally no unscheduled tests.

The final grade of each module is calculated based on the score of these individual kinds of assessment, whereby the lecturer determines the ratio between them in accordance with the Academic Guidelines. The exact formula is given in the module handbooks. At the first meeting of a course, the students are informed about what exactly is required to pass the module and about how the final grade is determined through the teaching and learning plan. Students who miss out on more than 20% of the course may be declined participation in the final exam. Internships are assessed through a committee of lecturers based on students' provided internship reports and a presentation and Q&A to be held by the students, as well as students' ability to work in groups. To ensure that students observe standards of academic writing, a plagiarism checking software is utilised at the Faculties.

Grades are initially given on a 10-point scale, then translated into a 4-point scale and a letter grade (A+, A, B+, B, C+, C, D+, D and F, where a D (equivalent to a Grade Point of 1) is necessary to pass a module. Students failing a course must retake the course. Students who have successfully passed a course may re-enrol to improve their grades. If students cannot attend the exam due to unavoidable reasons (such as illness, accident, death of family members, etc.), they can log into their academic personal account and register for exam postponement. In these cases, students will take the final exam in the next semester without repeating the whole course. The reason, why there are no re-sits of the final exam is that the final grade depends on the assessment of the learning activities that will be carried out continuously through the semester and not only on the final exam. Students who fail a course must attend the course again in the next semesters. The number of repetitions is unlimited. The experts appreciate that corresponding rules are in place.

Students who underperform will receive academic warnings. The warning system has three levels: “Academic warning level 1”, “Academic warning level 2”, and “Suspension”. The academic warning is issued if the student violates one of the regulations, such as not affording the minimum number of required credits, finishing the semester with the average grade less than 3.0 (scale 10) or less than 4.0 in the last two consecutive semesters. Students who already have received “Academic warning level 1” would receive “Academic warning level 2” if their performance does not improve in the following semester. In those cases, the students will be suspended. As the student’s academic advisor receives the notifications during the course as well, help and support can be given in time to improve the student’s academic performance.

The experts discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or quizzes. The students confirm that a variety of assessment methods is used, ranging from traditional methods to presentations or project reports. The final grade is the sum of the sub exams. Although this means that the total number of tests taken during a semester is comparatively high, the students do not complain about this workload and instead appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading. The experts appreciate their perception.

As their final study performance, students have the option to structure their graduation thesis around either a capstone project, a scientific research project, or a combination of the two. Students undertake these graduation projects within the faculty under the supervision of lecturers. On the Master’s level, students may either write their thesis within the faculty or in partnership with the industry depending on whether they have chosen the research-oriented or application-oriented track. Supervision of theses is accordingly conducted through academic and industry supervisors.

During the on-site visit, the experts had access to a selection of exams and final projects. They confirm that these represent an adequate level of knowledge as required by the EQF level 6 for the two Bachelor’s programmes and 7 for the Master’s programme. The forms of exams are oriented in-line with the envisaged learning outcomes of the respective courses, and the workload is allocated in an acceptable way.

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

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

As DUT does not further comment on this criterion, the experts continue to adhere to their previous assessment.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Staff Handbooks for all degree programmes including CVs of all teachers
- Audit discussions

Preliminary assessment and analysis of the experts:

At DUT, the staff members have different academic positions. There are professors, associate professors, and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities.

According to the self-assessment report, there are 23 full-time lecturers for the Faculty of Project Management (Bachelor's degree programme Construction Economics and Master's degree programme Construction Management) and 21 for the Faculty of Environment (Bachelor's degree programme Natural Resource and Environment Management). Overall, 19 of the 44 full-time teaching staff of both faculties possess a PhD. Besides graduates from Vietnamese higher education institutions, various lecturers from all three degree programmes hold degrees obtained abroad in Japan or Germany, amongst others. In addition, there are some visiting lecturers from other universities and companies in Vietnam and abroad to foster academic exchange. The technicians support practical classes in terms of preparing computer labs and teaching experiments. Both faculties have additional staff members who support the Dean in terms of administration, student work, undergraduate and postgraduate training management.

The following table depicts the number of teachers who are involved in the three degree programmes:

Table 4.1.1. Teaching staffs of FPM and FE

Faculty of Project Management						
From	Professors	Associate professors	Doctoral holders	Master holders	Engineer	Total
Full time lecturers	0	2	9	11	1	23
Visiting professors/ lecturers	0	0	8	10	0	18
Faculty of Environment						
From	Professors	Associate Professors	Doctoral holders	Master holders	Engineer	Total
Full time lecturers	0	4	10	7	0	21
Visiting professors/ lecturers	0	0	1	0	0	1

All fulltime members of the teaching staff are obliged to be involved in teaching/advising, research, and administrative services. However, the workload can be distributed differently between the three areas from teacher to teacher and also depends on the academic position. For example, full professors spend more time on research activities and less on teaching than associate professors or lecturers. DUT expects staff members to conduct research activities and has issued a policy, which offers some financial support for publishing papers in international journals. In addition, students are encouraged to participate actively in scientific research activities.

Every year, associate professors or lecturers can apply for promotion to associate professor or full professor, respectively. The candidates are considered based on three main criteria such as: years of working, hours of teaching graduate students, quantity and quality of scientific published papers.

With regard to the absence of full professors in both faculties, the experts learn from the programme coordinators that this is a common situation in many degree programmes in Vietnam, because the appointment of a full professor position is not only under the authority of the university. The academic position of each staff relies on regulations by the Vietnamese Ministry of Education that determines certain standards for reaching the next level. In Vietnam, in order to be promoted to the position of full professor, it is necessary to satisfy the state-required standards and be evaluated by the State Council of Professors. The satisfaction of these standards is time-consuming and includes complex administrative procedures. Every year nationwide, only a few candidates in the field of the three degree programmes under review meet the standards and are granted full professor's certificates from the State Council of Professors. The experts understand these circumstances.

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

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- Staff Handbooks for all degree programmes
- Regulation: On Internal Expenditure of University of Science and Technology
- Audit discussions

Preliminary assessment and analysis of the experts:
According to the self-assessment report and the discussions during the on-site audit, DUT encourages the continuing professional development of its staff. For this purpose, various opportunities are provided. Faculty members regularly participate in didactic training that encompasses curriculum design, teaching material, and innovative teaching and learning methods. Moreover, workshops related to subject-specific fields are held to refresh and to deepen various didactic competences in each semester. The lecturers can also regularly participate in external didactical trainings offered and funded by the government. New academic staff is required to complete compulsory teacher training.

The teaching staff is encouraged to study abroad or to participate in international research projects and conferences in order to enhance their knowledge, increase their English proficiency and to build international networks. For this purpose, the university informs about possible scholarships to support academic mobility. The experts learn from the teaching staff that there are many different options to apply for funding for research projects, not only from DUT but also from the government and big companies the university collaborates with. In general, the exchange programmes are funded by international partner universities and organizations. DUT particularly encourages its academic staff to enhance their professional qualifications through scholarships for doctoral projects. The general rule at the DUT is that lecturers must have started their doctoral project three years after taking up their position as a lecturer at the DUT (unless they already have a doctorate); otherwise they will be asked to leave the DUT. Therefore, most of the teaching staff possesses a PhD. Furthermore, DUT encourages its staff members to pursue a PhD abroad and offers scholarships as an incentive. As a result, a number of lecturers have earned their doctorates abroad.

During the audit, the experts discuss with members of the teaching staff about their obligations to do research and incentives to reach for higher levels of professorship. In response, the experts learn that teaching staff cannot solely be lecturers but are obliged to devote 40% of their time to research. In terms of their career progression, however, the

present staff indicate that the financial benefits of aiming e.g. for full professorship are not in relation to the additional responsibility and workload.

Finally, the experts inquire in the audit to what extent teachers are in contact with the industry and how they receive up-to-date information about new developments in the industry. The teachers state that they are regularly invited by the companies to visit them and learn about the newest technologies and processes. By supervising student projects carried out in companies, the teachers also establish contacts with various companies and occasionally start their own projects with them. In addition, many teachers also work in industry alongside their teaching activities. The experts appreciate the teachers' contact with the local industry.

In summary, appreciate the university's efforts in the further development of its employees and consider the support mechanisms for the continuing professional development of the teaching staff adequate and sufficient.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-site visit of participating institutes and laboratories
- Audit Discussions

Preliminary assessment and analysis of the experts:
As of 2022, the Ministry of Education and Training designated DUT as being responsible for financing its regular expenditures. To ensure sufficient operational funds, DUT has developed a financial plan and has adjusted the tuition fees for the 2022-2023 academic year in compliance with the state's regulations for universities.

The primary funding sources of DUT are government funding, tuition fees from students, and industry funding. The figures presented by the university show that the faculties' income is stable and the funding of the degree programmes is secured. The academic staff emphasise that from their point of view, all three programmes under review receive sufficient funding for teaching and learning activities as well as research, which results in facilities that are equipped according to the standard and good access to literature, databases and modern software. The students confirm this positive impression and state their satisfaction with the available resources.

In the self-assessment report, DUT gives an extensive overview of the available learning spaces and libraries. Moreover, they list detailed information of all laboratories available

per study programme. During the on-site visit, the experts take a look at some central facilities, relevant research and teaching facilities and, in particular, a selection of different laboratories available for the three study programmes. The DUT main campus houses 133 classrooms, 12 computer rooms and 2 multimedia classrooms. In addition, students and staff can use the Learning Resource and Communication Centre with 4 conference rooms and 8 seminar rooms for discussions and seminars. The Faculty of Environment has 2 laboratories and the Environment Protection Research Center (EPRC) serving experimental, practical, and research modules. The Faculty of Project Management has equipped a simulation laboratory with 40 computers that offer students access to licensed software. The university has licensed Microsoft Office and other standard software and provides the students full access to this software.

During the audit, the experts find that the facilities and laboratories are adequate and contain everything necessary for the programme's objectives. However, they note that some parts of the equipment in the laboratories, while still functioning, is slightly outdated. As the improvement of the research environment is one of the seven goals formulated in the university's strategic plan, the experts propose to gather more funds from industry in order to improve the research facilities at DUT. Moreover, they observe that outdated equipment in the laboratories can limit students' access to new technology and that the small space of the laboratories can limit the number of students participating in scientific research. Therefore, they recommended to increase the investment into laboratories, meaning of space, technology and equipment.

With regard to library capacities, DUT is connected to the University of Danang's Academic Library Network, connecting ten libraries of UD's affiliated network. The general catalogue provides access to 200,000 titles, including books, serials, theses, scientific reports and more, in addition to digital and electronic databases. Additionally, the library website provides access to a range of online publishing databases. During the audit, students express their satisfaction with the respective programmes' facilities as well as with the library capacities and available literature.

In summary, the expert group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, class rooms etc.) – besides the mentioned, small restriction – to comply with the requirements for adequately sustaining the degree programmes.

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

Criterion 4.3:

With regard to the recommendations to gather more funds from industry in order to improve the research facilities at DUT as well as to increase the investment into laboratories, meaning of space, technology and equipment, DUT explains that every year, with the limited budget of DUT (purchasing norms), the faculty of Environment chooses and prioritizes to invest in the important and necessary laboratory equipments (in 2023 the budget for upgrades of FE's infrastructure includes 2 faculty rooms (222 million VND ≈ 9,000 Euro) and laboratory equipment (182 million VND ≈ 7,400 Euro) for NREM. Furthermore, DUT plans to propose to the university management to invest a bigger part of the budget for laboratory equipment of FE (for NREM). As not all three programmes have been addressed in the DUT's statement with regard to these recommendations and as the mentioned plans have not yet been implemented, the experts continue to adhere to these recommendations.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module Handbooks for all degree programmes

Preliminary assessment and analysis of the experts:

The experts observe that the module descriptions contain the necessary information about the persons responsible for each module, the Vietnamese credit points awarded, the intended learning outcomes, the applicability, the admission and examination requirements, the forms of assessment, and details explaining how the final grade is calculated. However, the experts note that the module descriptions do not make the calculation of the students' total workload in hours (including contact hours and self-study) and the conversion into ECTS points transparent. Therefore, DUT must rewrite the module descriptions of all three degree programmes under review so as to include this information.

Furthermore, the experts realise that the module descriptions of some modules, as for instance the thesis module, are missing for all three study programmes under review. For those reasons, it is necessary that DUT submits the complete and latest version of the corresponding module descriptions and makes them accessible for students and teaching staff.

Finally, the experts would like to draw DUT's attention to the numerous repetitions within the module descriptions of the three degree programmes. The experts appreciate the information they were able to extract from the module handbooks, but point out that the information content should be reduced to the absolute necessary in order to be able to clearly distinguish the modules from each other and to avoid redundancies.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

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

Preliminary assessment and analysis of the experts:

The experts confirm that the students of the three degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA. The Diploma Supplements contain all necessary information about the degree programmes.

Criterion 5.3 Relevant rules

Evidence:

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

Preliminary assessment and analysis of the experts:

The experts confirm that the rights and duties of both DUT and the students are clearly defined and binding. The students receive all relevant course material in the language of the degree programme at the beginning of each semester.

However, the experts notice that the English websites of the programmes do not include sufficient information. For this reason, the experts expect DUT to update this version of the websites of the programmes, to align the information on the university's and the faculty's webpages, to include information about the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme and make them available to all relevant stakeholders.

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

Criterion 5.1:

With regard to the two requirements, DUT submits updated versions of the module descriptions for all three degree programmes that make the calculation of the students' total workload in hours (including contact hours and self-study) and the conversion into ECTS

points transparent. Moreover, DUT submits the complete and latest version of the corresponding module descriptions (including thesis module) and made them accessible for students and teaching staff by publishing them on their website. Therefore, the experts consider the two requirements to be fulfilled.

With regard to the recommendation to reduce the information content in the module descriptions to the absolute necessary in order to be able to clearly distinguish the modules from each other and to avoid redundancies, DUT submits updated versions of the module handbooks. Therefore, the experts consider this recommendation to be fulfilled as well.

Criterion 5.3:

With regard to the requirement to update the English version of the websites of the programmes, to align the information on the university's and the faculty's webpages, to include information about the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme and make them available to all relevant stakeholders, DUT explains that the faculty of Environment updated the English website of the NREM programme including the intended learning outcomes, study plans, module descriptions, and academic guidelines. Moreover, the faculty of Project Management aligned the information of the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme on the FPM website with the DUT website. Therefore, the experts consider the requirement to be fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Development Strategy Of University Of Science And Technology - The University Of Danang To 2025 With A Vision Towards 2035
- Student and graduate survey forms and results
- Survey Form On Graduate Quality And Educational Programme For Employers
- Audit Discussions

Preliminary assessment and analysis of the experts:
The experts discuss the quality management system at DUT with the programme coordinators and the students. They learn that DUT has an extensive quality management system, which is aimed at constantly improving the quality of the degree programmes and the experience of students and faculty members. The central units responsible for quality management are the Educational Quality Assurance Council and the Scientific and Educational Council. These bodies report their findings to the Board of Rectors, i.e. the Rector and Vice-Rector responsible for quality assurance. The members of the Educational Quality Assurance Council are informed by evaluations conducted by the Department of Educational Testing & Quality Assurance. At the Faculty level, the faculty-specific Scientific and Educational Quality Assurance Councils carry out surveys, assess quality, and consult with the Faculty Board of Directors.

Every five years, DUT develops a quality assurance plan on the basis of regular tasks and the university's general quality policy. The individual faculties are obliged to follow these plans and carry out self-assessment tasks such as the revision of the curricula. The process of curriculum development is divided into three major steps. First, at the end of every academic year lecturers of the individual faculty meet in order to assess and discuss the courses syllabi. The lecturers hereby consider among other things the students' learning results, inspiration from other institutions, and new trends in the technical fields. The second step consists of conducting surveys and analysing the feedback from students, alumni, employers, and other stakeholders. Finally, the Educational Quality Assurance Council, which receives the results of surveys and reports from other groups, suggests improvements to the individual programmes. According to DUT, all surveys are carried out on a regular basis. Both groups present during the audit confirmed their satisfaction with the conducted surveys, and that they feel their voices are generally heard for the purpose of programme development. However, the students state that the results of the surveys are never communicated to them directly. The programme coordinators and teaching staff confirm that the evaluation results are not passed on to the students. Instead, the head of the faculty sends the evaluation results to the respective teaching staff, who in turn should initiate improvement measures if necessary. The experts welcome that the evaluation results are used effectively. However, it is necessary that teachers also discuss the (anonymous) results of the course questionnaires directly with students and what could be improved in the respective courses. In line with criterion 6, DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires in order to close the feedback loops.

In terms of external quality management, the university adopts several sets of quality management standards, which include domestic quality accreditation standards for degree program assessment from the Ministry of Education and Training (MOET), and international quality accreditation standards from the likes of CTI (France), AUN-QA, and ASIIN. To evaluate the effectiveness of its internal quality assurance system, the University has invited both domestic (MOET) and international (HCERES) institutions for reviews in the past years. Furthermore, the University has resorted to international accreditation bodies, such as CTI, AUN-QA, and ASIIN, to review its degree programmes.

All in all, the experts are – besides the mentioned restriction – content with the university's quality management system, which they find to be multi-layered and effective.

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

With regard to the requirement to launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires, DUT informs that the Student Affairs Department usually organizes dialogue between students and DUT every academic year. On that basis, the Student Affairs Department requires the Testing & Quality Assurance Department to collect the open comments of students about the courses, then bring it to the faculties and send it back to the student before the dialogue organized. During the dialogue, there are more ideas and the functional units participating in the meeting must reply on the spot. In the upcoming academic years, DUT plans to assign the faculties in charge to report the feedback results through the classroom directly to students. The experts appreciate these efforts, but as the mentioned plans have not yet been implemented, the experts continue to adhere to this requirement.

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution (01.11.2023)

The following quotes the comment of the institution:

Standards	Preliminary assessment and analysis of the experts	Feedback
1. The Degree Programme: Concept, content & implementation	**Criterion 1.1** Objectives and learning outcomes of a degree programme (intended qualifications profile)	We absolutely agree with the experts' conclusions.
	Criterion 1.2 Name of the degree programmes	We absolutely agree with the experts' conclusions.
	Criterion 1.3 Curriculum However, the students express the wish to be exposed to even more practice during their studies, for example in the form of field trips or practical experiments or experiences during the courses. They believe that this would prepare them even better for the following internship at the end of their studies and would be appreciated by the industry. The industry representatives confirm during the audit discussions. Therefore, the expert recommends to strengthen the students' practi-	New Curriculum 2021 includes courses (such as: Introduction to NREM, General chemistry, Environmental Analytical Chemistry, Environmental monitoring, Wastewater treatment, Application GIS) with more practical skills and field trips (see Faculty of Environment - FE's website at Program Specification NREM). E.g. Introduction to NREM course for the first year includes field trips (see Appendix 1.3a). - We appreciate the experts' suggestions. The three programs are going to organize more practical co-curricular activities such as field trip, practice, etc. We believe that our strong cooperation

Standards	Preliminary assessment and analysis of the experts	Feedback
	cal skills, for instance by including more field trips into the curricula.	to the industry will support for successfully implementation.
	The experts support DUT in further promoting these efforts and recommend to teach more classes in English in order to improve the corresponding language skills of the students.	We absolutely agree that improving English skill for students is necessary. **Regarding to the DUT:** - To graduate, undergraduate students at DUT are required to obtain a score of 450 on the TOEIC exam. To meet the English output standard, DUT consistently strives to provide students with an improved English learning environment. This includes collaborating with the University of Foreign Languages, The University of Danang to offer intensive English courses (see Appendix 1.3b) and partnering with educational organization IIG Vietnam to conduct international TOEIC exams at the DUT Campus (see Appendix 1.3c). These efforts are aimed at creating optimal conditions for DUT students to meet the required English proficiency standards. - According to DUT regulations, students are tested an English entrance for English classification and training. Upon graduation, students must achieve TOEIC 450 in English. Every academic year, if students do not meet English standards, they are not allowed to reg-

Standards	Preliminary assessment and analysis of the experts	Feedback
		ister for more than 14 credits per semester, this means that students save their time to focus on learning English. **Regarding to the three programs:** - In addition to basic English courses such as English A2.1, and English A2.1, other courses especially specialized subjects will provide supplementary materials in English for students to enhance reading comprehension skills. Improving oral presentation skills in English will also be emphasized, such as in Specific English, Environmental Toxicology (for NREM). In that way, students in the classes will be provided with increased opportunities to engage in active English speaking. This can be accomplished, for example, through discussions of international papers or by giving more oral presentations in English. - Follow the ASIIN accreditation, we have also received this information from students and employers, we will request our lecturers to integrate specialized English into teaching and learning, students prepare and present reports of the courses in English.
	Finally, the experts ask how the teaching staff and the prospective employers evaluate the soft skills of the students. They	- We appreciate the experts' comments. + NREM curriculum 2021 include some courses to develop the public speaking, presentation skills for the students such

Standards	Preliminary assessment and analysis of the experts	Feedback
	learn that the students from DUT are particularly resilient in many respects: both in terms of competition and in terms of their perseverance. In spite of this, the industry representatives also underline that specific soft skills as public speaking, presentation skills and entrepreneurship could still be improved. Consequently, the experts recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.	as Introduction to NREM, Environmental Toxicology, Environmental law and policy, Management of urban environment and industrial zones, PBL 3_Urban solids collection planning, Environmental impact assessment (for NREM). In addition, we will invite soft skill specialists/speakers to train and strengthen the soft skills for the students. Especially, in curriculum 2021 new course "Project management" can help students in innovation and entrepreneurship (for NREM). + The FPM always features the role of soft skill improvement for students. Actually, FPM is one of the faculties that applied the presentation method early and most extensively in DUT. In the Construction Economics program from the academic year 2020-2021, we have designed the Entrepreneurship course. We have integrated exciting activities such as talk-show of speakers and entrepreneurs to students about startups (evidences shown in Appendix 2). We really appreciate the reviewers' comments on this issue.
	Criterion 1.4 Admission requirements	We absolutely agree with the experts' conclusions

Standards	Preliminary assessment and analysis of the experts	Feedback
Standard 2. The Degree Programme: Structures, Methods & Implementation	**Criterion 2.1 Structure and modules** The lack of financial support hinders students from joining the outgoing programmes. The experts can understand these wishes and recommend to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.	- We propose to DUT to finance and support students from joining the outgoing programmes. - Strengthen annual student exchange and cooperation (for NREM see Appendix 3).
	Criterion 2.2 Workload and credits	We absolutely agree with the experts' conclusions
	Criterion 2.3 Teaching methodology	We absolutely agree with the experts' conclusions
	Criterion 2.4 Support and assistance	We absolutely agree with the experts' conclusions
Standard 3. Exams: System, Concept & Organisation	**Criterion 3 Exams: System, concept and organisation**	We absolutely agree with the experts' conclusions
Standard 4. Resources	**Criterion 4.1 Staff**	We absolutely agree with the experts' conclusions

Standards	Preliminary assessment and analysis of the experts	Feedback
	Criterion 4.2 Staff development	We absolutely agree with the experts' conclusions
	Criterion 4.3 Funds and equipment However, they note that some parts of the equipment in the laboratories, while still functioning, is slightly outdated. As the improvement of the research environment is one of the seven goals formulated in the university's strategic plan, the experts propose to gather more funds from industry in order to improve the research facilities at DUT. Therefore, they recommended to increase the investment into laboratories, meaning of space, technology and equipment. In summary, the expert group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, class rooms etc.) – besides the mentioned, small restriction – to comply with the requirements for adequately sustaining the degree programmes.	- We appreciate the experts' comments. - Every year, with the limited budget of DUT (purchasing norms), FE chooses and prioritizes to invest the important and necessary laboratory equipments (in 2023 the budget for upgrade of FE's infrastructure includes 2 faculty rooms (222 million VND ≈ 9,000 Euro) and laboratory equipment (182 million VND ≈ 7,400 Euro) for NREM see Appendix 4. We will propose DUT invest more budget for laboratory equipments of FE (for NREM) for the upcoming years.

Standards	Preliminary assessment and analysis of the experts	Feedback
Standard 5. Transparency and Documentation	**Criterion 5.1 Module descriptions** However, the experts note that the module descriptions do not make the calculation of the students' total workload in hours (including contact hours and self-study) and the conversion into ECTS points transparent. Therefore, DUT must rewrite the module descriptions of all three degree programmes under review so as to include this information.	We appreciate the experts' comments. The total workload in hours of Module descriptions is recalculated including contact hours and self-study and the conversion into ECTS points transparent. Regarding to requirement of the experts while checking SAR before onsite visit, the three programmes added the total workload into module discritions and send back to Ms. Yanna via email on April 24th, 2023. We have uploaded the latest version of module discriptions on the links of required evidences (Please check the Module descriptions on NREM's website at Module descriptions NREM; CE programme and CM programme on the FPM website [link CE] , [link CM])
	Furthermore, the experts realise that the module descriptions of some modules, as for instance the thesis module, are missing for all three study programmes under review. For those reasons, it is necessary that DUT submits the complete and latest version of the corresponding module descriptions	The thesis module is Graduation project/Graduation thesis.

Standards	Preliminary assessment and analysis of the experts	Feedback
	and makes them accessible for students and teaching staff.	
	Finally, the experts would like to draw DUT's attention to the numerous repetitions within the module descriptions of the three degree programmes. The experts appreciate the information they were able to extract from the module handbooks, but point out that the information content should be reduced to the absolute necessary in order to be able to clearly distinguish the modules from each other and to avoid redundancies.	The information content should be reduced to the absolute necessary in order to be able to clearly distinguish the modules from each other and to avoid redundancies, this issue is already updated in RE06. Module descriptions for all compulsory and elective modules (for NREM is Module handbook_NREM (updated)).
	Criterion 5.2 Diploma and Diploma Supplement	We absolutely agree with the experts' conclusions
	Criterion 5.3 Relevant rules However, the experts notice that the English websites of the programmes do not include sufficient information. For this reason, the experts expect DUT to update this version of the websites of the programmes, to align the information on the university's and the faculty's webpages, to include information about the intended	- We highly appreciate the experts' comments. + For the FE, the English website of the NREM programme has been updated the intended learning outcomes, study plans, module descriptions, and academic guidelines (See the website of Faculty of Environment at NREM program).

Standards	Preliminary assessment and analysis of the experts	Feedback
	learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme and make them available to all relevant stakeholders.	+ For the FPM, we have synced the information of the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme on the FPM website with the DUT website. [Undergraduate programme] [Master programme]
Standard 6. Quality Management: Quality Assessment and Development	**Criterion 6 Quality management: quality assessment and development** However, it is necessary that teachers also discuss the (anonymous) results of the course questionnaires directly with students and what could be improved in the respective courses. In line with criterion 6, DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires in order to close the feedback loops.	The Student Affairs Department usually organizes dialogue between students and DUT every academic year. On that basis, the Student Affairs Department requires the Testing & Quality Assurance Department to collect the open comments of students about the courses, then bring it to the faculties and send it back to the student before the dialogue organized. During the dialogue, there are more ideas and the functional units participating in the meeting must reply on the spot. In the upcoming academic years, the DUT will assign to the faculties in charge of reporting the feedback results through the classroom directly to students.

F Summary: Peer recommendations (10.11.2023)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Natural Resource and Environment Management	With requirements for one year	30.09.2029	–	–
Ba Construction Economics	With requirements for one year	30.09.2029	–	–
Ma Construction Management	With requirements for one year	30.09.2029	–	–

Requirement

For all degree programmes

A 1. (ASIIN 6) DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.

E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.

E 3. (ASIIN 2.1) It is recommended to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 4. (ASIIN 4.3) It is recommended to gather more funds from industry in order to improve the research facilities at DUT.

E 5. (ASIIN 4.3) It is recommended to increase the investment into laboratories, meaning of space, technology and equipment.

For the Bachelor's degree programmes

E 6. (ASIIN 1.3) It is recommended to strengthen the students' practical skills, for instance by including more field trips into the curricula.

G Comment of the Technical Committees (21.11.2023)

Technical Committee 03 – Civil Engineering, Geodesy and Architecture (20.11.2023)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accrediting procedure and follows the assessment of the experts without any changes.

The Technical Committee 03 – Civil Engineering, Geodesy and Architecture recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Natural Resource and Environment Management	With requirements for one year	30.09.2029	–	–
Ba Construction Economics	With requirements for one year	30.09.2029	–	–
Ma Construction Management	With requirements for one year	30.09.2029	–	–

Requirement

For all degree programmes

A 1. (ASIIN 6) DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.

E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.

E 3. (ASIIN 2.1) It is recommended to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 4. (ASIIN 4.3) It is recommended to gather more funds from industry in order to improve the research facilities at DUT.

E 5. (ASIIN 4.3) It is recommended to increase the investment into laboratories, meaning of space, technology and equipment.

For the Bachelor's degree programmes

E 6. (ASIIN 1.3) It is recommended to strengthen the students' practical skills, for instance by including more field trips into the curricula.

Technical Committee 11 – Geosciences (21.11.2023)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accrediting procedure and follows the assessment of the experts without any changes.

The Technical Committee 11 – Geosciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Natural Resource and Environment Management	With requirements for one year	30.09.2029	–	–

Requirement

For all degree programmes

A 1. (ASIIN 6) DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.

E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.

E 3. (ASIIN 2.1) It is recommended to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 4. (ASIIN 4.3) It is recommended to gather more funds from industry in order to improve the research facilities at DUT.

E 5. (ASIIN 4.3) It is recommended to increase the investment into laboratories, meaning of space, technology and equipment.

For the Bachelor's degree programmes

E 6. (ASIIN 1.3) It is recommended to strengthen the students' practical skills, for instance by including more field trips into the curricula.

H Decision of the Accreditation Commission (08.12.2023)

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

The Accreditation Commission discusses the accreditation procedure and reformulates the requirement A 1, as the closing of the feedback loop should not be limited to a feedback conversation with the students and it should be left to the university to decide which channel to use to inform the students about the evaluation results. However, the focus of A 1 is still on the completion of the quality assurance process. Otherwise, the AC follows the assessment of the experts and the TC without any changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Natural Resource and Environment Management	With requirements for one year	30.09.2029	–	–
Ba Construction Economics	With requirements for one year	30.09.2029	–	–
Ma Construction Management	With requirements for one year	30.09.2029	–	–

Requirement

For all degree programmes

A 1. (ASIIN 6) DUT must close the feedback loop by informing the students about the results of their evaluation questionnaires in order to complete the quality assurance process.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, presentation skills and entrepreneurship.

E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.

E 3. (ASIIN 2.1) It is recommended to increase the efforts to further internationalise DUT by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 4. (ASIIN 4.3) It is recommended to gather more funds from industry in order to improve the research facilities at DUT.

E 5. (ASIIN 4.3) It is recommended to increase the investment into laboratories, meaning of space, technology and equipment.

For the Bachelor's degree programmes

E 6. (ASIIN 1.3) It is recommended to strengthen the students' practical skills, for instance by including more field trips into the curricula.

I Fulfilment of Requirements (18.07.2024)

Analysis of the experts and the Technical Committees (21.11.2024)

Requirement

For all degree programmes

A 1. (ASIIN 6) DUT must launch a feedback conversation between teachers and students after having submitted the evaluation questionnaires.

Initial Treatment	
Experts	Fulfilled. Justification: DUT has implemented revisions to its survey process, with a particular focus on stakeholders, especially students. In response, DUT has not only refined the overall structure but also significantly enhanced the content of the course surveys to ensure they better capture valuable insights. Additionally, the lecturers responsible for the course and the programmes will develop and implement a comprehensive improvement plan based on the feedback received. This ensures that the feedback is directly translated into actionable steps to enhance the quality of the course. DUT has also established multiple channels to effectively communicate survey results to students, including the direct dialogues between the faculty and students at the start of each semester, and consultations with academic advisors. Actually, the feedback results as well as improvement plans of lecturers and the programmes in semester 2 of academic year 2023-2024 have been communicated to students through dialogues and class meetings since September, 2024. Additionally, DUT has integrated these communication methods into the survey process diagram, which is now accessible on the official DUT website.
TC 03	Fulfilled. Vote: unanimous Justification: The TC discusses the procedure and follows the assessment of the experts without any changes.
TC 11	Fulfilled. Vote: unanimous

	Justification: The TC discusses the procedure and follows the assessment of the experts without any changes.
AC	Fulfilled. Vote: unanimous Justification: The AC discusses the procedure and follows the assessment of the experts and the TC without any changes.

Decision of the Accreditation Commission (06.12.2024)

Degree programme	**ASIIN-label**	**Subject-specific label**	**Accreditation until max.**
Ba Natural Resource and Environment Management	All requirements fulfilled	--	30.09.2029
Ba Construction Economics	All requirements fulfilled	--	30.09.2029
Ma Construction Management	All requirements fulfilled	--	30.09.2029

Appendix: Programme Learning Outcomes and Curricula

According to the website (accessed 07.09.2023), the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Natural Resource and Environment Management:

"Specific objectives:

University of Technology - The University of Danang trains graduates of the undergraduate training program in Natural Resource and Environment Management:

- Having comprehensive professional knowledge in the field of Natural Resource and Environment Management; master the principles and laws of nature - society to meet the needs of environmental protection and sustainable exploitation of natural resources.
- Have basic practical skills related to the field of Natural Resource and Environment Management.
- Ability to work independently and creatively; capable of teamwork; capable of solving management, technological and technical problems in the field of natural resources and environment.

Learning outcomes:

Graduates of the undergraduate training program in Natural Resource and Environment Management at the University of Science and Technology - the University of Danang, who meet the requirements of learning outcomes at level 6 according to the Vietnam National Qualifications Framework, are able to:

- Ability to apply knowledge of Mathematics, basic science, technology and engineering in practice, analysis, evaluation and research problems in the field of Natural Resource and Environment Management.
- Have the ability to think critically, creatively, and start a business in the specialized field.
- Be responsible and ethical, behave professionally in dealing with specialized situations.
- Have a foreign language level TOEIC 450 or equivalent; have basic information technology skills as prescribed in Circular No. 03/2014/TT-BTTTT.
- Capable of teamwork; Able to communicate effectively and use foreign languages in the field of Natural Resource and Environment Management.

- Ability to apply management tools and legal regulations to solve problems in the field of Natural Resource and Environment Management.
- Ability to manage the environment of enterprises, industrial parks and urban areas; organize the implementation of solutions to manage occupational safety and minimize risks in professional activities in accordance with the context of the enterprise, society and environment."

The following **curriculum** is presented:

No.	Course name	Number of credits						ECTS	Course conditions		
		Theory	Exercise	Project (PBL)	Practice/ Experiment	Internship	Total		Prerequisite	Learn first	Parallel
	SEMESTER 1						**17**				
1	Calculus 1	3	1				**4**	**5.68**			
2	English A2.1	3					**3**	**4.26**			
3	Introduction to NREM	1		1			**2**	**3.34**			
4	General chemistry	2			1		**3**	**4.68**			
5	Environment	2					**2**	**3.34**			
6	Marxist-Leninist philosophy	3					**3**	**4.26**			
7	Physical Education 1										
	SEMESTER 2						**18**				
8	Calculus 2	3	1				**4**	**5.68**		Calculus 1	
9	English A2.2	4					**4**	**5.68**	English A2.1		
10	General law	2					**2**	**3.34**			
11	Linear algebra	3					**3**	**4.26**		Calculus 1	
12	Physics 1 (Thermal Mechanical)	3					**3**	**4.26**		Calculus 1	
13	Environmental ecology	2					**2**	**3.34**		Environment; Industry Introduction	
14	Physical Education 2										
	SEMESTER 3						**18**				
15	Environmental chemistry	2					**2**	**3.34**		Environment; Industry Introduction	
16	Environmental Analytical Chemistry	3			1		**4**	**6.68**		Environment; Industry Introduction	
17	Hydraulics in	2					**2**	**3.34**		Environment;	

No.	Course name	Number of credits						ECTS	Course conditions		
		Theory	Exercise	Project (PBL)	Practice/ Experiment	Internship	Total		Prerequisite	Learn first	Parallel
	environmental engineering									Industry Introduction	
18	Graphics - Technical drawing	3					**3**	**4.26**			
19	Marxist-Leninist political economy	2					**2**	**3.34**		Marxist-Leninist philosophy	
20	Mass transfer	3					**3**	**4.26**		Environment; Industry Introduction	
21	Environmental microbiology	2					**2**	**3.34**		Environment; Industry Introduction	
22	Physical Education 3										
	SEMESTER 4						**17**				
23	Environmental monitoring	3			1		**4**	**6.68**		Environment; Industry Introduction	
24	Probability and Statistics	3					**3**	**4.26**		Calculus 2	
25	Specialized math	2					**2**	**3.34**		Calculus 2	
26	Project management	2					**2**	**3.34**		Environment; Industry Introduction	
27	Hydraulic equipment	2					**2**	**3.34**			
28	Science socialism	2					**2**	**3.34**		Marxist-Leninist philosophy Economics - Politics Marx - Lenin	
29	Environmental	2					**2**	**3.34**		Environment;	

No.	Course name	Number of credits						ECTS	Course conditions		
		Theory	Exercise	Project (PBL)	Practice/ Experiment	Internship	Total		Prerequisite	Learn first	Parallel
	Toxicology									Industry Introduction	
30	Physical education 4										
	SEMESTER 5						**18**				
31	Waste air treatment	3					**3**	**4.26**		Hydraulics in environmental engineering; Hydraulic equipment	
32	Ventilation	2					**2**	**3.34**		Hydraulics in environmental engineering; Hydraulic equipment	
33	**PBL 1_Control air pollution**			3			**3**	**5.00**			Waste Air Treatment; Ventilation
34	Drainage network	2					**2**	**3.34**		Hydraulics in environmental engineering; Hydraulic equipment	
35	Wastewater treatment	3			1		**4**	**6.68**		Environmental monitoring; Environmental microbiology; Mass Transfer in Environmental Engineering	
36	**PBL 2_Wastewater treatment**			2			**2**	**3.34**			Drainage network; Wastewater treatment
37	History of the Communist Party of Vietnam	2					**2**	**3.34**		Marxist-Leninist philosophy Economics - Politics Marx - Lenin	
	SEMESTER 6						**16**				
38	Environmental law and policy	2					**2**	**3.34**		Environment; General law	
39	Environmental economics	2					**2**	**3.34**		Environment; Industry Introduction	
40	Specific English	2					**2**	**3.34**		English A2.1; English A2.2	
41	Ho Chi Minh Thought	2					**2**	**3.34**		Marxist-Leninist philosophy Marxist-Leninist political economy Science socialism History of the Communist Party of Vietnam	
42	Management of urban environment and industrial zones	2					**2**	**3.34**		Environment; Industry introduction; PBL 1; PBL 2	

No.	Course name	Number of credits						ECTS	Course conditions		
		Theory	Exercise	Project (PBL)	Practice/ Experiment	Internship	Total		Prerequisite	Learn first	Parallel
43	Land resource management	2					**2**	**3.34**		Environment; Industry Introduction	
44	Management of forest resources and biodiversity	2					**2**	**3.34**		Environment; Industry Introduction	
45	Occupational safety and hygiene	2					**2**	**3.34**		Environmental toxicology; PBL 1; PBL2	
	SEMESTER 7						**18**				
46	Applied Informatics	3					**3**	**4.68**		PBL 1; PBL2	
47	Solid waste management	2					**2**	**3.34**		Environmental monitoring; Environmental microbiology; Mass Transfer in Environmental Engineering	PBL 3 (Urban Solid Waste Collection Planning); Environmental impact assessment
48	**PBL 3_Urban solids collection planning**			2			**2**	**3.34**		Environmental monitoring; Environmental microbiology; Mass Transfer in Environmental Engineering	Solid waste management
49	Environmental impact assessment	2					**2**	**3.34**		Environmental monitoring; Drainage	Solid waste management

No.	Course name	Number of credits						ECTS	Course conditions		
		Theory	Exercise	Project (PBL)	Practice/ Experiment	Internship	Total		Prerequisite	Learn first	Parallel
										network; Ventilation; Waste Air Treatment; Wastewater treatment	
50	**PBL 4_ Environmental impact assessment**			2			**2**	**3.34**		Environmental monitoring; Drainage network; Ventilation; Waste Air Treatment; Wastewater treatment	Environmental impact assessment; Solid waste management
51	**Choose 2 of the following 3 courses**	**4**					**4**	**6.68**			
52	*Environmental quality management (2TC)*	*2*					***2***	**3.34**		Environmental monitoring	
53	*Integrated water resource management (2TC)*	*2*					***2***	**3.34**		PBL 2	
54	*Water quality model (2TC)*	*2*					***2***	**3.34**		PBL 2	
55	Application GIS	2			1		3	**4.68**		PBL1; PBL2	
	SEMESTER 8						**8**				
56	Graduation internship					2	**2**	**3.34**		PBL 3; PBL 4	
57	Graduation thesis			6			**6**	**10.00**	Graduation internship + PBL 1; 2	All modules of the training program	
							130	**207**			

According to the website (accessed 07.09.2023), the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Construction Economics:

"specific objectives:

University of Technology - University of Danang trains graduates of the undergraduate training program in Construction Economics:

- Having comprehensive professional knowledge, mastering the principles and laws of nature - society.
- Have basic vocational skills.
- Ability to work independently and creatively; capable of analyzing and solving problems in the field of economics and construction management; Ability to communicate and work in a team to meet job requirements.

Learning outcomes:

Graduates of the Construction Economics undergraduate program at the University of Technology - the University of Danang meet the requirements of Learning outcomes at level 6 according to the Vietnam National Qualifications Framework:

- Ability to apply knowledge of Mathematics, natural sciences and industry foundations to practice, analyze and evaluate problems in the fields of economics and construction management.
- Ability to assess economic and management issues in the construction sector, considering the business, social and environmental context.
- Skilled in building reasoning, analytical, problem-solving and systems thinking abilities.
- Ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
- Ability to demonstrate responsibility and professional ethics.
- Have skills in organizing, managing and practicing groups; Choose effective communication strategies in different contexts.
- Have the ability to achieve a minimum foreign language level TOEIC 450 or equivalent; acquire basic information technology skills as prescribed in Circular No. 03/2014/TT-BTTTT.
- Ability to effectively apply legal documents related to the Construction industry and specialized in Construction Economics.
- Ability to manage the process of investment and construction project development.
- Ability to establish entrepreneurship and innovation skills."

The following **curriculum** is presented:

0 Appendix: Programme Learning Outcomes and Curricula

No.	Code	Module	Credits	ECTs	Module conditions		
					Prerequisite	Previous	Parallel
SEMESTER 1			**16**	**22.72**			
1	3190111	Calculus 1	4	5.68			
2	1182230	Introduction to Engineering (Construction Economics)	2	2.84			
3	1073431	General Chemistry	2	2.84			
4	4130501	English A2.1	3	4.26			
5	2090150	Marxism Leninism's Philosophy	3	4.26			
6	1170011	Environment	2	2.84			
SEMESTER 2			**21**	**29.82**			
7	4130311	English A2.2	4	5.68		English A2.1	
8	3190121	Calculus 2	4	5.68		Calculus 1	
9	2170020	Political economics of Marxism and Leninism	2	2.84		Marxism Leninism's Philosophy	
10	3190041	Probability and Statistics	3	4.26		Calculus 1	
11	1182190	Economics	2	2.84			
12	2100010	General Law	2	2.84			
13	3050011	Physics 1	3	4.26		Calculus 1	
14	3050660	Experiments for General Physics 1	1	1.42			Physics 1
SEMESTER 3			**20**	**28.9**			
15	3190260	Linear Algebra	3	4.26		Calculus 1	
16	2090160	Scientific Socialism	2	2.84		Marxism Leninism's Philosophy; Political economics of Marxism and	

No.	Code	Module	Credits	ECTs	Module conditions		
					Prerequisite	Previous	Parallel
						Leninism	
17	1182193	Specialized mathematics 1	3	4.26		Economics	
18	1032170	Descriptive Geometry - Engineering Drawing	3	4.26			
19	1180043	Introduction to Engineering (Fieldtrip)	1	1.42	Introduction to Engineering (Construction Economics)		
20	3050641	Physics 2	3	4.26		Physics 1	
21	3050670	Experiments for General Physics 2	1	1.42			Physics 2
22	1210600	Architecture	2	2.84			Descriptive Geometry - Engineering Drawing
23	1182210	PBL 1: Architecture	2	3.34			Descriptive Geometry - Engineering Drawing
SEMESTER 4			**20**	**29.15**			
24	1182213	Investment project planning and appraisal	3	4.26		Economics	Financial management
25	1182223	Construction Accounting	2	2.84		Economics	
26	2090170	History of Vietnamese Communist Party	2	2.84		Marxism Leninism's Philosophy; Political	

No.	Code	Module	Credits	ECTs	Module conditions		
					Prerequisite	Previous	Parallel
						economics of Marxism and Leninism	
27	1101382	Structural Analysis	3	4.26		Physics 1	
28	1090372	Geodesy	2	2.84		Physics 2; Calculus 2	
29	1182203	Specialized Mathematics 2	3	4.26		Linear Algebra	
30	1182233	Financial Management	2	2.84		Economics	
31	1182220	PBL 2: Investment project planning and appraisal	3	5.01			Investment project planning and appraisal; Financial Management
SEMESTER 5			**17**	**24.89**			
32	1102141	Reinforced Concrete Structure	3	4.26		Structural Analysis	
33	1182503	Building System	3	4.26		Structural Analysis	
34	1090382	Construction Materials	2	2.84		Structural Analysis	
35	2090101	Ho Chi Minh 's ideology	2	2.84		Science socialism History of the Communist Party of Vietnam	
36	1182103	Technical norms in construction	2	2.84			Building System
		Elective 1: choose 1 in following modules	2				
37	1182473	*BIM applications for project management*	2	2.84		Introduction to Engineering (Construction Economics)	
38	1182483	*Applied Informatics in Project Management*	2	2.84		Introduction to Engineering	

No.	Code	Module	Credits	ECTs	Module conditions		
					Prerequisite	Previous	Parallel
						(Construction Economics)	
39	1182353	PBL3: Execution Technique in Construction Project	3	5.01			Building System; Technical norms in construction
SEMESTER 6			**15**	**22.05**			
40	1180143	Construction organization	3	4.26		Building System; Technical norms in construction	
41	1183050	Quantity Survey (QS1)	2	2.84			Construction organization
42	1180922	English in Project Management	2	2.84		English A2.1; English A2.2	
43	1182980	Construction Economics and Management	3	4.26		Economics	
		Elective 2: choose 1 in following modules	2				
44	1183060	*MEP system management for civil and industrial works*	2	2.84		Building System	
45	1183070	*MEP system management for transportation and technical infrastructure works*	2	2.84		Building System	
47	1183010	PBL4: Construction Organizations Project	3	5.01			Construction organization; Quantity Surveyor (QS1)
SEMESTER 7			**13**	**19.21**			
48	1180233	Pricing in construction	2	2.84		Technical norms in construction	

No.	Code	Module	Credits	ECTs	Module conditions		
					Prerequisite	Previous	Parallel
49	1182990	Transportation Construction	2	2.84		Building System	
50	1182423	Construction cost control (QS2)	2	2.84		Quantity Survey (QS1)	
51	1183000	Entrepreneurship and Innovation	2	2.84			
		Elective 3: choose 1 in following modules	2				
52	1182443	*Construction Project Management for civil and industrial works*	2	2.84		Construction Economics and Management	
53	1182453	*Construction Project Management for transportation and technical infrastructure works*	2	2.84		Construction Economics and Management	
54	183020	PBL 5: Construction Cost Management Project	3	5.01			Pricing in construction; Construction cost control (QS2)
SEMESTER 8			**8**	**13.36**			
55	1181160	Graduation Internship	2	3.34	PBL 1,2,3,4	PBL5	
56	1182463	Graduation Project	6	10.02	PBL 1,2,3,4	All modules	
		TOTAL	**130**	**190.1**			

(Note: PBL: Project – Based Learning)

According to the website (accessed 07.09.2023), the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Construction Management:

"**Specific programme objectives**

Research orientation:

The research orientation Construction Management master's program of the University of Science and Technology - University of Da Nang aims to train learners:

- Having in-depth scientific and technical knowledge in the field of construction management; Good understanding of economy, politics, law and society. Having a system of in-depth, advanced and comprehensive knowledge in the field of construction management and specialized economic - technical knowledge to practice the profession in reality.
- Having in-depth research skills in the field of construction management or effective construction management professional activities; Possess effective communication and teamwork skills; having the ability in foreign languages to meet the professional working environment.
- Capable of independent research, idea creation - design - implementation of construction investment projects; having the ability to critique, analyze, synthesize and evaluate data and information to come up with a scientific solution. Having the ability to work in research, teaching, consulting and policy-making positions or other positions in the field of construction management.

Application orientation:

The application orientation Construction Management master's program of the University of Science and Technology - University of Da Nang aims to train learners:

- Having in-depth scientific and technical knowledge in the field of construction management. Good understanding of economy, politics, law and society. Having a system of in-depth, advanced and comprehensive knowledge in the field of construction management and specialized economic - technical knowledge to practice the profession in reality.
- Having in-depth applied skills in the field of construction management or effective construction management professional activities. Possess effective communication and teamwork skills; having the ability in foreign languages to meet the professional working environment.
- Capable of forming and creating ideas - designing - implementing construction investment projects. Capable of operating and managing construction projects in a professional and volatile industry environment.

Programme learning outcomes

Research orientation:

Graduates of the research orientation master's program in Construction Management, University of Science and Technology - University of Da Nang:

- Having the ability to assess economic-management issues in the construction sector, and consider the impact on the economic, social, environmental and sustainable development;
- Have skills in in-depth research, critical thinking, systematic thinking to solve professional problems creatively; self-directing and guiding others in research activities in the field of construction management;
- Capable of teamwork; having the ability to impart knowledge in the field of construction management, demonstrate responsibility and professional ethics;
- Capable of independent research; improving professional activities and providing policy solutions in the field of construction management;
- Capable of effective application of innovative technologies in the field of construction management;
- Having a language proficiency level 4 according to the 6-level Foreign Language Proficiency Framework for Vietnam or equivalent.

Application orientation:

Graduates of the application orientation master's degree program in Construction Management, University of Science and Technology - University of Da Nang:

- Having the ability to assess economic-management issues in the construction sector, and consider the impact on the economic, social, environmental and sustainable development;
- Having the ability to apply management science to solve professional problems effectively; acquire and apply new knowledge when necessary, discuss professional and scientific issues;
- Capable of teamwork; having skills to impart knowledge in the field of construction management, demonstrate responsibility and professional ethics; choosing effective communication strategies in different contexts and international professional environments;
- Possess organizational and administrative skills; having the ability to effectively manage and improve professional activities in the field of construction management;
- Having the ability to effectively apply innovative technologies in the field of construction management;
- Having a foreign language level 4 according to the 6-level Foreign Language Proficiency Framework for Vietnam or equivalent."

The following **curriculum** is presented:

Research – oriented curriculum

No	Modules	Credits	ECTS	Type of module		Module's condition		
				Compulsory	Elective	Prerequisite	Previous	Parallel
Semester 1		**15**		**12**	**3**			
1	Scientific Research Methodology	2	2.84	x				
2	Principles of management	2	2.84	x				
3	Philosophy	3	4.26	x				
4	Special topic on contract management	2	2.84	x				
	Electives on technology (choose 1)	3			x			
5	*Advanced Building Technology*	3	4.26		x			
6	*Application of BIM to project schedule management*	3	4.26		x			
7	*Construction quality management*	3	4.26		x			
8	*Engineering and Organization of high-rise construction*	3	4.26		x			
9	Research seminar 1	3	4.26	x				
Semester 2		**15**		**8**	**7**			
10	Special topics on bidding management	2	2.84	x				
11	BIM application to project management	3	4.26	x				
	Electives on sustainability (choose 1)	3			x			
12	*Sustainable development in construction*	3	4.26		x			
13	*Sustainability indicators in construction*	3	4.26		x			
14	*Built environment and life cycle assessment*	3	4.26		x			
	Electives on management (choose 1)	2			x			
15	*Leadership and Management*	2	2.84		x		Principles of management	
16	*Legislation in business*	2	2.84		x		Principles of management	
17	*Business communication*	2	2.84		x		Principles of management	
	Electives on Information technology (choose 1)	2			x			

No	Modules	Credits	ECTS	Type of module		Module's condition		
				Compulsory	Elective	Prerequisite	Previous	Parallel
18	*Computer applications in construction management*	2	2.84		x			
19	*Application of SPSS to construction management*	2	2.84		x			
20	Research seminar 2	3	4.26	x			Scientific Research Methodology	
Semester 3		**15**		**12**	**3**			
21	Advance Construcstion Project Appraisal	3	4.26	x				
22	Special topics on risk management	3	4.26	x				
	Electives on innovative technology (choose 1)	3			x			
23	*Applications of Artificial Intelligence in Construction Management*	3	4.26		x			
24	*Python and R for data analytic in construction*	3	4.26		x			
25	*Revit architecture and structure*	3			x			
26	Research seminar 3	3	4.26	x			Scientific Research Methodology	
27	Research seminar 4	3	4.26	x			Scientific Research Methodology	
Semester 4		**15**		**15**				
28	Graduation Thesis	15	25.05	x		Scientific Research Methodology	Research topic 1, 2,3	
	TOTAL	**60**	**88.95**					

Application-oriented curriculum

No	Modules	Credits	ECTS	Type of module		Module's condition		
				Compulsory	Elective	Prerequisite	Previous	Parallel
Semester 1		**15**		**12**	**3**			
1	Scientific Research Methodology	2	2.84	x				
2	Principles of management	2	2.84	x				
3	Philosophy	3	4.26	x				
4	Applied Statistics in Construction Management	3	4.26	x				
5	Special topic on contract management	2	2.84	x				
	Electives on technology (choose 1)	3			x			
6	*Advanced Building Technology*	3	4.26		x			
7	*Application of BIM to project schedule management*	3	4.26		x			
8	*Construction quality management*	3	4.26		x			
9	*Engineering and Organization of high-rise construction*	3	4.26		x			
Semester 2		**15**		**8**	**7**			
10	Quantitative Analysis in Construction Management	3	4.26	x				
11	Special topics on bidding management	2	2.84	x				
12	BIM application to project management	3	4.26	x				
	Electives on sustainability (choose 1)	3			x			
13	*Sustainable development in construction*	3	4.26		x			
14	*Sustainability indicators in construction*	3	4.26		x			
15	*Built environment and life cycle*	3	4.26		x			
	Electives on management (choose 1)	2			x			
16	*Leadership and Management*	2	2.84		x		Principles of management	

17	*Legislation in business*	2	2.84		x		Principles of management	
18	*Business communication*	2	2.84		x		Principles of management	
	Electives on Information technology (choose 1)	2			x			
19	*Computer applications in construction management*	2	2.84		x			
20	*Application of SPSS to construction management*	2	2.84		x			
	Semester 3	**18**		15	3			
21	Advance Construcstion Project Appraisal	3	4.26	x				
22	Advanced Construction Project Management	3	4.26	x				
23	Financial management in construction	3	4.26	x				
24	Special topic on risk management	3	4.26	x				
	Electives on innovative technology (choose 1)	3			x			
25	*Applications of Artificial Intelligence in Construction Management*	3	4.26		x			
26	*Python and R for data analytic in construction*	3	4.26		x			
27	*Revit architecture and structure*	3	4.26		x			
28	Internship 1	3	5.01	x				
	Semester 4	**12**		12				
29	Internship 2	3	5.01	x				
30	Graduation project	9	15.03	x		Scientific Research Methodology	Internship 1	
	TOTAL	**60**	**88.95**					