Report on

Evaluation of Master's Degree Programme

Environmental Engineering

120 ECTS credits

Faculty of Science and Technology

15.11.2024

Introduction

The Norwegian authorities require the University of Stavanger to supervise study programmes in accordance with the provisions of the Act relating to Universities and University Colleges, the Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education (Ministerial Regulations) and the Regulations concerning Supervision of the Educational Quality in Higher Education (Academic Supervision Regulations)[1].

Section 4-1(3) of the Academic Supervision Regulations states: "Institutions must systematically ensure that all study programmes meet the requirements set out in sections 3-1 to 3-4 of the Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education and chapter 2 of the Regulations concerning Supervision of the Educational Quality in Higher Education."

The comments on the paragraph state: "This entails that the institution has satisfactory procedures and practices for the accreditation of programmes and the revision of accreditations. In this context, the term 'revision of accreditation' entails a review of whether the programme meets the requirements for accreditation and whether it produces satisfactory results."

The Ministerial Regulations include a requirement for periodic evaluations. Section 2-1(2) states: "The institutions shall carry out periodic evaluations of their study programmes. Representatives of employers or society at large, students and external experts, who are relevant to the study programme, shall contribute to the evaluations."

At the University of Stavanger, revision of a study programme's accreditation pursuant to section 4-3(3) of the Academic Supervision Regulations must be based on periodic evaluations of the study programme in line with section 2-1(2) of the Ministerial Regulations.

The Dean must appoint an Evaluation Committee: The Committee must produce a report describing how the study programme satisfies the regulations' accreditation criteria and any additional requirements stipulated by the university. The report must also highlight areas where further development is desirable. Reference is made to the following documents:
Accreditation of Study Programmes at the University of Stavanger and
Guidelines and Procedures for Periodic Evaluations and Reaccreditation of Study Programmes.

This template was produced by the Director of Academic Affairs to aid the work of the Committee and Faculty. Contents of the document:

1. Composition and mandate of the Evaluation Committee
2. Overview of the documentation that must be procured for the committee's work
3. General overview of the study programme
4. The Committee's evaluations in relation to the accreditation criteria
5. The Committee's evaluation of the study programme's results
6. The Committee's overall evaluation
7. The Dean's evaluation, recommendations, and action plan

The report containing the Dean's recommendations and action plan must be submitted to the Director of Academic Affairs for further consideration.

[1] In Norwegian: Studiekvalitetsforskriften and Studietilsynsforskriften.

1 Composition and mandate of the Evaluation Committee

The Committee's composition:

- Krista Michelle Kaster, assoc. prof. at the Department of Chemistry, Bioscience and Environmental Engineering
- Ilke Pala Ozkok, assoc. prof. at the Department of Chemistry, Bioscience and Environmental Engineering
- Kåre Bredeli Jørgensen, prof. at the Department of Chemistry, Bioscience and Environmental Engineering
- Gulsum Emel Zengin Balci, assoc. prof at Istanbul Technical University, Environmental Engineering Department
- Mathias Sandvik, student at Master's in Environmental Engineering
- Kjetil Bårdsen, senior engineer at the Department of Chemistry, Bioscience and Environmental Engineering
- Unni Synnøve Lea, senior engineer at IVAR

The Committee's mandate:

- To evaluate whether the accreditation criteria of the Academic Supervision Regulations have been satisfactorily met, or in which areas the study programme does not satisfy the accreditation criteria
- To evaluate whether the programme's results are satisfactory
- To provide evaluations and recommendations of potential use for the further development of the programme

The members of the Committee:

Write in the members of the Committee

2 Overview of the documentation that must be procured for the Committee's work

- Programme description
- Matrix illustrating the programme's structure
- Course descriptions for all courses, with reading lists
- Template for Diploma and Diploma Supplement
- Titles of all master's theses submitted by the students who have graduated in the past three years
- Schedules of all three cohorts for the academic year 2023-2024
- Overview of the academic year's scope of 1,500-1,800 hours distributed by self-study, organised learning activities, the examination and preparation for examinations

- The academic environment's publications registered in Cristin 2019-2023
- Any other publications from the academic environment that are relevant to the programme 2019-2023
- Overview of the academic environment 31 December 2023 (table)
- CVs of everyone included in the academic environment
- Student exchange agreements quality assured by the academic environment
- Supervised professional training agreements (if relevant)
- Overview of existing arrangements for cooperating with hosts for the supervised professional training (if relevant)

- The following student data and results data (the faculty can supplement as needed):

Data	Source
No. of admissions places 2024	15 10 Norwegian and 5 internationals The board's decision
Applications and admissions 2019-2023	2024 32 international
Admission quality 2019-2023 - Numbers of qualified applicants - Average admission points - Admission points limits	Tableau
Number of starting students 2019-2023	Tableau
Number of students 2019-2023	Tableau, Database for Statistics on Higher Education (DBH)
Throughput cohort 2018-2020	Tableau
Drop-out rate cohort 2018-2020	Tableau
Qualifications and student exchange 2020-2023	Tableau
Outgoing exchange students 2019-2023	Tableau
Passed credits per student 2019-2023	Tableau
Internal mobility - Internal recruitment - Change study programme from/to	Tableau
Evaluation data	Studiebarometeret, UiS Quality Kiosk, internal data

Examination data, time series 2020-2023 Grade distribution Fail rate Passed/registered	Tableau, Database for Statistics on Higher Education (DBH)

A separate report for periodic evaluation has been created in Tableau. Choose your study program from the box, and the data related to your study program will appear on the dashboard. Some of the requested data is also available in the tabs, so remember to use them.

Number of Application Places 2024

As of 2024 the Environmental Engineering Master's program has place for 10 Norwegian students and 5 international.

Applications an Admissions 2019-2024

International

Year	No. of International admission places	International Applicants	Number of 1 priority Qualified International Applicants	No. of Norwegian admission place	Norwegian Applicants	Number of Norwegian Qualified 1st priority Applicants	Number of Starting students Total	Number of Students	Admission points limits
2018	10	240	104	15			13		Minimum C average from Bachlor's degree
2019	10	294	27	15			20		
2020	10	398	23	15	165	17	13		
2021	10	280	33	15	122	16	17		
2022	10	162	32	10	107	16	18		
2023	5	148	20	10	86	18	10		
2024	2	32	7				8		
Source	The board's decision	Tableau	Tableau	Boards decision	Tableau	Tableau			

Year of Admission	Currently Active-Students	Current Throughput	Current Drop out Rate	Passed Credits per Student	Study barometer results
2018	0	84.62 %	15.38 %	46.93 %	3.9
2019	10 %	80 %	10 %	43.86 %	4.0

2020	15.38 %	76.92 %	23.08 %	43.80 %	No data
2021	23.53 %	70.59 %	23.53 %	48.45 %	2.9
2022	27.78 %	44.44 %	27.2 %	46.30 %	3.4
2023	70 %		30 %	46.12	No data
Source	Tableau	Tableau	Tableau	Tableau	Tableau

Year of admission	Students finished on normal time (normal+1 semester)	Early drop-out (first and second semester)	Drop-out after normal education time (normal+1 semester)
2018	56.3 %	11.2 %	
2019	57.7 %	10.2 %	
2020	51.2 %	10.6 %	22.1 %
2021			25.63 %
Source	Tableau	Tableau	Tableau

Year	Fail rate in the Study program	Average Grade in the Study program
2020	6.0 %	3.2
2021	7.3 %	3.2
2022	7.9 %	3.1
2023	8.2 %	3.1
Source	Tableau	Tableau

Year	Outgoing exchange		Internal mobility	
	Number of Students	Bilateral Deal (> 3 months)	From	To
2018	1	Seoul National University of Science and Technology	1	
	1	Technical University of Denmark		
2019				
2020				
2021			2	
2022			2	1
2023				
Source	Tableau	Tableau	Tableau	Tableau

EMNE	ARSTALL	Antall kandi..	Antall kandi..	Bestått kan..	Antall kandi..	Strykprosen..	Snittkarakt..
AB-333 Freshwater Ecology of Arctic Lakes and Ponds	2023	1	1	1	0	0,0%	4,0
AT-327 Arctic Offshore Engineering	2022	1	1	1	0	0,0%	3,0
AT-330 Arctic Environmental Toxicology	2019	1	1	1	0	0,0%	3,0
	2022	1	1	1	0	0,0%	3,0
AT-331 Arctic Environmental Pollution: Atmospheric Distribution and Processes	2019	1	1	1	0	0,0%	4,0
	2022	1	0	0	0		
AT-332 Physical Environmental Loads on Arctic Coastal a..	2022	1	1	1	0	0,0%	3,0
AT-334 Arctic Marine Measurements Techniques, Operations and Transport	2018	3	3	3	0	0,0%	4,0
	2021	1	1	1	0	0,0%	3,0
	2022	1	1	1	0	0,0%	3,0
BIO110 Anatomi og fysiologi	2018	2	0	0	0		
BIO600 Næringsmiddelmikrobiologi	2021	1	1	1	0	0,0%	4,0
BIO700 One Health: one health prospective, a key for a sustainable future	2018	5	5	5	0	0,0%	
	2019	7	7	7	0	0,0%	
	2022	1	1	1	0	0,0%	
BYG125 Vann og avløp	2022	2	1	1	0	0,0%	5,0
FYS630 Numerisk faststoffysikk	2020	1	0	0	0		
GEO620 Utvikle forsknings- og presentasjonsferdigheter	2023	3	3	3	0	0,0%	
IND510 Prosjektledelse	2018	3	3	2	1	33,3%	1,0
	2019	1	1	0	1	100,0%	
	2020	4	2	2	0	0,0%	2,5
	2021	2	1	1	0	0,0%	5,0
IND550 Prosjektkostnadsestimering og risikostyring	2022	1	1	1	0	0,0%	
IND600 Project Management 2	2019	1	1	1	0	0,0%	3,0
IND610 Kontraktinngåelse og -gjennomføring	2019	2	0	0	0		
	2020	1	0	0	0		
EMNE	ARSTALL	Antall kandi..	Antall kandi..	Bestått kan..	Antall kandi..	Strykprosen..	Snittkarakt..
ING200 Ingeniørfaglig systememne - Teknologiledelse	2022	2	1	0	1	100,0%	
KJE500 Organisk spektrometri	2023	2	1	1	0	0,0%	5,0
MAF300 Numerisk modellering	2020	1	0	0	0		
MAT100 Matematiske metoder 1	2021	1	1	1	0	0,0%	3,0
	2023	2	1	0	1	100,0%	
MAT110 Lineær algebra	2019	1	0	0	0		
	2021	2	2	2	0	0,0%	3,5
	2023	1	1	1	0	0,0%	4,0
MAT200 Matematiske metoder 2	2021	1	0	0	0		
MAT240 Matematikkens historie	2018	1	1	1	0	0,0%	4,0
	2020	1	1	1	0	0,0%	4,0
	2021	1	1	1	0	0,0%	1,0
MAT250 Abstrakt algebra	2022	1	0	0	0		
MAT320 Differensialligninger	2022	2	2	1	1	50,0%	2,0
MEE100 Societal Transition and Transformation - Energ..	2022	1	1	1	0	0,0%	3,0
MEE200 Geopolitics of the Energy Transition	2020	2	2	2	0	0,0%	2,5
MLJ500 Vannkjemi	2018	25	17	17	0	0,0%	3,7
	2019	23	19	19	0	0,0%	3,4
	2020	16	13	13	0	0,0%	3,8
	2021	16	14	13	1	7,1%	2,2
	2022	22	15	15	0	0,0%	3,1
	2023	10	8	8	0	0,0%	2,3
MLJ510 Naturlige vannsystemer	2018	16	14	14	0	0,0%	3,7
	2019	30	24	22	2	8,3%	3,5
	2020	17	16	15	1	6,3%	3,5
	2021	21	18	17	1	5,6%	3,6
	2022	23	17	16	1	5,9%	3,3

	2023	15	12	10	2	16,7%	2,8
MLJ520 Miljømikrobiologi	2018	21	13	12	1	7,7%	3,1
	2019	29	25	21	4	16,0%	3,0
	2020	20	13	11	2	15,4%	3,0
	2021	26	18	16	2	11,1%	2,5
	2022	21	15	13	2	13,3%	2,5
	2023	13	10	6	4	40,0%	2,7
MLJ522 Miljømikrobiologi	2020	1	1	1	0	0,0%	4,0
MLJ530 Miljøprosess analyse	2018	31	20	14	6	30,0%	2,9
	2019	28	23	21	2	8,7%	2,8
	2020	22	14	13	1	7,1%	2,9
	2021	28	20	17	3	15,0%	2,8
	2022	23	17	13	4	23,5%	3,0
	2023	9	8	8	0	0,0%	2,4
MLJ540 Instrumentell analyse	2018	13	7	6	1	14,3%	3,2
	2019	9	9	6	3	33,3%	3,2
	2020	5	3	2	1	33,3%	3,5
	2021	3	2	2	0	0,0%	4,0
	2022	2	2	1	1	50,0%	4,0
	2023	4	4	4	0	0,0%	4,0
MLJ550 Videregående organisk kjemi	2018	3	2	2	0	0,0%	4,0
	2019	3	2	2	0	0,0%	3,5
MLJ560 Oljefeltskjemi	2021	5	4	4	0	0,0%	4,0
	2022	1	1	0	1	100,0%	
	2023	4	4	3	1	25,0%	3,7

EMNE	ARSTALL	Antall kandi..	Antall kandi..	Bestått kan..	Antall kandi..	Strykprosen..	Snittkarakt..
MLJ600 Grenseflatekjemi i vann	2018	29	23	22	1	4,3%	3,7
	2019	21	13	13	0	0,0%	4,0
	2020	22	18	18	0	0,0%	4,7
	2021	17	14	14	0	0,0%	3,4
	2022	17	14	14	0	0,0%	3,3
MLJ610 Vann- og avløpsvannsrensing	2018	22	21	20	1	4,8%	3,5
	2019	19	15	15	0	0,0%	4,1
	2020	23	21	20	1	4,8%	
	2021	18	12	12	0	0,0%	3,7
	2022	25	18	12	6	33,3%	3,2
	2023	25	19	15	4	21,1%	2,6
MLJ615 Environmental Engineering Process Lab	2023	16	16	15	1	6,3%	
MLJ620 Renseteknikk	2018	14	14	11	3	21,4%	2,7
	2019	16	12	12	0	0,0%	3,6
	2020	1	1	1	0	0,0%	3,0
MLJ630 Separasjon og opprensningsteknologi	2018	28	21	20	1	4,8%	3,6
	2019	19	14	13	1	7,1%	2,7
	2020	26	24	23	1	4,2%	
	2021	15	13	13	0	0,0%	4,0
	2022	17	16	15	1	6,3%	3,9
	2023	15	12	12	0	0,0%	3,3
MLJ640 Miljøbioteknologi	2018	6	4	4	0	0,0%	3,0
	2020	11	11	11	0	0,0%	
	2021	9	7	7	0	0,0%	4,0
	2022	10	7	7	0	0,0%	2,4
	2023	6	6	6	0	0,0%	2,3

EMNE	ÅRSTALL	Antall kandi..	Antall kandi..	Bestått kan..	Antall kandi..	Strykprosen..	Snittkarakt..
MLJ650 Akvatisk økotoksikologi	2018	25	15	14	1	6,7%	3,0
	2019	27	19	18	1	5,3%	3,0
	2020	17	13	13	0	0,0%	4,2
	2021	13	12	11	1	8,3%	3,3
	2022	17	12	8	4	33,3%	
	2023	14	13	11	2	15,4%	
MLJ660 Bærekraftig ressursgjenvinning	2020	6	6	6	0	0,0%	4,2
	2021	7	5	5	0	0,0%	4,2
	2022	8	7	6	1	14,3%	4,0
	2023	7	7	7	0	0,0%	4,3
MLJ680 Bioprosessmodellering	2020	2	2	2	0	0,0%	5,0
	2021	2	2	2	0	0,0%	4,0
MLJ690 Metoder i vannvitenskap og teknologi	2018	22	22	21	1	4,5%	
	2019	14	14	13	1	7,1%	
	2020	16	16	15	1	6,3%	
	2021	14	14	12	2	14,3%	
	2022	13	13	12	1	7,7%	
MLJMAS Masteroppgave i miljøteknologi	2018	19	19	19	0	0,0%	4,0
	2019	20	20	19	1	5,0%	3,8
	2020	15	14	13	1	7,1%	4,3
	2021	16	14	14	0	0,0%	3,9
	2022	15	15	15	0	0,0%	3,9
	2023	15	14	14	0	0,0%	4,0
MOD510 Modeling and Computational Engineering	2022	3	3	2	1	33,3%	3,0
	2023	1	1	1	0	0,0%	4,0
MSA265 Energy, Societal Safety and Sustainable Develo..	2021	1	1	1	0	0,0%	4,0

EMNE	ÅRSTALL	Antall kandi..	Antall kandi..	Bestått kan..	Antall kandi..	Strykprosen..	Snittkarakt..
	2020	16	16	15	1	6,3%	
	2021	14	14	12	2	14,3%	
	2022	13	13	12	1	7,7%	
MLJMAS Masteroppgave i miljøteknologi	2018	19	19	19	0	0,0%	4,0
	2019	20	20	19	1	5,0%	3,8
	2020	15	14	13	1	7,1%	4,3
	2021	16	14	14	0	0,0%	3,9
	2022	15	15	15	0	0,0%	3,9
	2023	15	14	14	0	0,0%	4,0
MOD510 Modeling and Computational Engineering	2022	3					
	2023	1					
MSA265 Energy, Societal Safety and Sustainable Develo..	2021	1					
MSB415 Sustainable Entrepreneurship	2023	2					
MSB416 Applied Innovation Management	2023	4					
MSK520 Korrosjon	2020	1					
MSK600 Beregningsassistert fluiddynamikk (CFD)	2020	1					
	2021	2	2	2	0	0,0%	4,0
	2022	3	1	1	0	0,0%	4,0
	2023	4	3	3	0	0,0%	4,0
MSK610 Beregningsassistert fluiddynamikk (CFD)	2023	1	1	0	1	100,0%	
MØA305 Perspectives on Strategic Innovation	2018	1	1	1	0	0,0%	4,0
MØA416 Strategies for Innovation Management	2020	1	1	1	0	0,0%	3,0
OFF510 Drift og vedlikeholdsstyring	2018	1	1	1	0	0,0%	4,0
	2020	1	0	0	0		
	2021	4	4	4	0	0,0%	4,3
	2022	3	1	1	0	0,0%	4,0

Variabler beskrivelse:
Andel kandidater som har fått karakteren «F»

STUDIEPROGRAM: M-ENVTEC Miljøteknologi - master i teknologi/siv.ing.
EMNE: MLJMAS Masteroppgave i miljøteknologi

Snittkarakter: 4,0

3 General overview of the study programme

Name, qualification, and starting date
Miljøteknolgi
Environmental Engineering
Master's

Type of study programme (check box)	
X	Campus/location-based study programme
	Session-based study programme
	Decentralised study programme at another location (specify the location)
	Online study programme
	Online/Assembly-based study programme
	Experience based
	Joint degree

The study programme is offered as (check box)	
X	Full-time study programme
	Part-time study programme

4 The Committee's evaluations in relation to the accreditation criteria

The study programme must be evaluated in relation to the following accreditation criteria specified in NOKUT's Academic Supervision Regulations (ASR) and the Ministerial Regulations (MR)[2] laid down by the ministry:

Requirements for study programme

4.1 **Information provided about the programme must be correct and show the programme's content, structure, and progress of study, as well as opportunities for student exchanges.** ASR, section 2-1(2)

In this context, the term 'information' refers to what is indicated in the programme description and associated information about the programme.

Committee's evaluation: The committee found that there were no weakness or shortcomings in the program. The content of the program is correctly described and introduces clearly the program. The committee feels that the master's program is well designed. The program content supports the bachelor's program and covers components that are missing from the bachelor's programs. The outline and contents of the master's program is quite good. The information provided shows that there are opportunities for exchange.
Committee's recommendations: The committee recommends offering the possibility of part-time study for students, whom work full-time, but the part-time study places should not come at the expense of full-time student seats.

4.2 **The learning outcomes for the programme must be in accordance with the National Qualifications Framework for Lifelong Learning, and the programme must have an appropriate title.** ASR, section 2-2(1)

Learning outcomes must be described as what a candidate shall have achieved upon completion of the programme. The learning outcomes for programmes subject to professional requirements, for example programmes subject to national curriculum regulations must meet both the professional requirements and the requirements of the National Qualifications Framework for Lifelong Learning (NQF).

Committee's evaluation: The learning outcomes are properly described, and the title of the study program reflects the content of the program.
Committee's recommendations: No recommendations for the learning outcomes. The committee recommends the program committee to consider a program title that is more appealing for the prospective students which should include keywords like "green" and "sustainable".

[2] In this section, the text from the regulations is highlighted in bold font and the comments are in ordinary font (generally taken from the comments on the regulations and NOKUT's guidance). The evaluations and any recommendations must be written in the text boxes.

4.3 **The programme must be academically up-to-date and have clear academic relevance for further studies and/or employment.** ASR, section 2-2(2)

The requirement that the programme must be academically up to date entails that it must be up to date in relation to knowledge development in both academic and professional arenas, society, and the labour market. Relevance and updated knowledge in academic and professional arenas, society, and the labour market, are ensured through schemes for interaction with the labour market and/or society adapted to the programme's content and level. The institution is expected to have assessed the recruitment base based on expected demand/need and overall capacity related to the same or similar programmes at its own and other institutions.

Committee's evaluation: The current program is up to date. The list of elective courses in the program covers a wide subject range. However, looking at the list of electives, the students took some electives which were not relevant for the program.
Committee's recommendations: The committee recommends including relevant elective courses that provide additional scientific depth and specialization for the program. The program would also benefit from courses that focus on infrastructure. Students should be directed to take electives which are relevant to the degree programs content, therefore the program will benefit from stricter control of relevance of the electives chosen. The committee recommends that the program finds a way to assure that a sufficient number of relevant electives are taken by the students (an option might be asking the students to take a minimum number of credits from the recommended electives).

4.4 **The total workload of the programme must be between 1,500 and 1,800 hours per year for full-time students.** ASR, section 2-2(3)

Workload is a calculation of how much time the typical student will take to complete the various academic activities required to achieve the learning outcomes. Such a calculation must include self-study, preparation for examinations and organised learning activities. The learning activities a study programme contains will vary but could include lectures, seminar teaching, laboratory work, academic supervision, and supervised professional training. The amount of self-study included in a programme will vary based on the profile of the study programme. The study programme must achieve a balance between self-study and organised learning activities that enables students to achieve the learning outcomes within the normal length of study.

Committee's evaluation: The workload was very varied between the semesters with the second the semester having the heaviest workload; however, the overall workload is adequate.
Committee's recommendations: The committee recommends to redistribute/balance the workload across the courses in the same semester to better reflect the workload given as ECTS.

4.5 **The programme's content, structure and infrastructure must be adapted to the programme's learning outcomes.** ASR, section 2-2(4)

The study programme's learning outcomes are achieved through the courses. A course is the smallest credit providing unit. The content and structure of the study programme must show how the courses in the study programme, as well as the progression from semester to semester, leads to the learning outcomes.

The study programme must have adequate access to suitable premises, equipment, library services, administrative and technical services, adequate and suitable ICT services, network support, suitable learning platforms, etc., that support the student's learning and learning environment, as well as the academic staff's teaching, research and/or artistic development work and academic development work.

Committee's evaluation: The study program structure has a clear progression in the mandatory courses, but the electives could be strengthened with more in-depth advanced technical courses building on the mandatory courses. The library and Learning Management System (Canvas) facilities are good. The scientific equipment is sufficient. However, the webpages describing the study programme and courses are not user friendly, and it is difficult to find information about the programs and courses on this webpage.
Committee's recommendations: The committee recommends including an interactive table showing all the courses for the program, which the students can click on is the information linked to the course description on the webpage. The committee recommends including relevant tags like "chemistry", "biology", "environment", "water", "green transition", "biotechnology" and "sustainability" on the University's webpage and study program search engine.

4.6 **The teaching, learning, and assessment methods must be adapted to the programme's learning outcomes. The programme must facilitate students taking an active role in the learning process.** ASR, section 2-2(5)

The different teaching and learning methods must be adapted to the programme's content and structure. This means that teaching, learning, and assessment methods must be adapted to a digital society.

Teaching and learning methods must be structured such that students achieve the study programme's described learning outcomes. Assessment methods must be suitable for measuring whether the student has achieved the learning outcomes.

How the academic environment facilitates students taking an active role will depend on the study programme's profile and also relates to ensuring and safeguarding a good learning environment.

Committee's evaluation: Homework assignments, weekly exercises, projects, lab reports, final exams are used for evaluation of student performance. Assessment methods are suitable for measuring the students' achievements of the learning outcomes. Program appeared to have low emphasis on oral presentation skills.
Committee's recommendations: The student performance is evaluated with a wide range of assessment tools, however larger projects like the master's theses should also include an oral presentation of the final work.

4.7 **The programme must have relevant links to research and academic development work and/or artistic research.** ASR, section 2-2(6)

The academic environment must be able to point to an adequately relevant mutual connection between R&D/artistic development activities and the programmes and how the students are introduced to R&D/artistic development during the programme.

The academic environment can ensure this connection through the use of its own research results, but also by using other research results in the education.

Committee's evaluation: The academic staff in the environment engineering program do relevant research in the field and the students' masters' projects are all related to the research conducted at the department, or externally relevant companies. The master's projects are all in relevant areas and related to the study program.
Committee's recommendations: No recommendations were made by the committee.

4.8 **The programme must have internationalisation schemes adapted to the programme's level, scope, and other characteristics.** ASR, section 2-2(7)

This requirement entails that the study programme must be placed in an international context and students thusly exposed to a variety of perspectives. Students at different levels in the study programme will experience the international dimension differently and it will also vary from subject area to subject area.

In this case, the programme is the central point for the internationalisation and the arrangements can include activities such as the use of international literature, international guest lecturers, incoming international students on exchanges, or the students' participation in international conferences or workshops, etc.

Committee's evaluation: Exchange possibilities exist for the students, along with the possibility of taking a summer course in Brazil. Erasmus students are continuously coming into the program, as well. Additionally, all textbooks and courses are in English. The academic teaching staff in the program is also international. A monthly seminar series is arranged in the department, where international speakers are invited.
Committee's recommendations: No recommendations were made by the committee.

4.9 **Programmes that lead to a degree must have schemes for international student exchanges. The content of the exchange programme must be academically relevant.** ASR, section 2-2(8)

This provision entails that the institution must ensure that students in all programmes that lead to a degree are offered an opportunity for academic student exchange through updated and binding agreements, and that the relevance of the student exchange is guaranteed by the programme's academic environment. The scheme must be visible and predictable for the students such that they improve the students' opportunities and motivation to take part in student exchanges. The agreements must describe the timing of the exchanges in the study programme (exchange semester) and, insofar as it is possible, describe preapproved courses (student exchange packages).

Committee's evaluation: Exchange possibilities exist and the content on the webpage seems adequate. However, there are almost no students doing outgoing exchange. The reasoning given by the students was that this was due to the economical load the exchange semester would exert on the students.
Committee's recommendations: The committee recommends the university to establish additional agreements with partner universities for accommodation, which might be helpful to the outgoing and incoming students. Moreover, the short-term Erasmus program (BIP) can also be offered as an option for exchange in this program.

4.10 **Programmes that include supervised professional training must have formal agreements between the institution and the host for the supervised professional training.** ASR, section 2-2(9)

Agreements with hosts of supervised professional training must be in place to ensure and regulate the academic implementation of the supervised professional training and makes it possible for the supervised professional training to be quality assured in the same way as that implemented at the institution.

Committee's evaluation: Not applicable for this program
Committee's recommendations:

4.11 **The second-cycle degree programme must be defined, delineated, and have adequate academic breadth.** ASR, section 3-2(1)

The delineation of the second-cycle degree programme must be clear from the description of the subjects, disciplines, and areas of knowledge covered by the study programme. The study programme's profile and possible specialisations must be described in a way that ensures that the breadth of the study programme is clear.

Committee's evaluation: The program is well defined with the learning outcomes, and the course plan. The academic breadth of the program is adequate, but it can be improved by adding specialized elective courses.
Committee's recommendations: The specialized elective courses recommended in section 4.3 of this report will improve the academic breadth of the program.

Requirements for the academic environment

4.12 **The second-cycle degree programme must have a broad and stable academic environment that consists of an adequate number of staff with a high level of academic competence within education, research, or artistic development work, and academic development work within the programme. The academic environment must cover subjects and courses that make up the programme. The staff in the academic environment must have relevant competence.** ASR, section 3-2(2)

The academic environment associated with the programme includes persons who directly and regularly contribute to the development, organisation, and implementation of the programme.

The academic environment must be broad and composed of staff with relevant competence within education, research or artistic development work, and academic development work in all parts of the programme. It is not sufficient for the competence to be relevant to the programme. Overall, the academic environment must have a high level of competence that covers the subject area. The academic environment must include persons with Associate Professor qualifications and senior qualifications, including Docent and Professor. This regulation introduces stronger and stricter rules, while it also it allows for flexibility in the composition of the academic environment.

Committee's evaluation: The current academic environment is adequate, and the academic staff are competent in the required field of study. However, the core competence of the program is maintained by a small number of permanent academic staff.
Committee's recommendations: The small number of academic staff makes the program vulnerable, therefore the committee recommends increasing the number of permanent academic staff.

4.13 **The academic environment must have relevant educational competence.** ASR, section 2-3(2)

Educational competence includes University and University College Pedagogy and Didactics, as well as the competence necessary to use digital technology to promote learning. Universities Norway's guidelines for basic pedagogic competence specify minimum requirements for academic staff. In accordance with the guidelines, UiS assumes that it requires 150-200 hours of work to develop the desired basic competence and thus satisfy the requirement for educational competence.

Committee's evaluation: All teaching staff involved in the master's program degree have PhDs in relevant fields and all staff have completed the required hours of pedagogical training.
Committee's recommendations: No recommendations.

4.14 **The programme must have a clear academic leadership with defined responsibilities for quality assurance and the development of the study programme.** ASR, section 2-3(3)

The requirement all institutions must satisfy is that the academic leadership must consist of staff in teaching and research positions and bear formal responsibility for ensuring that the study programme is completed in accordance with the programme description and that the programme description is developed. Those who hold academic responsibility must have the competence necessary to carry out quality assurance and develop the study programme.

Committee's evaluation: The study plan is prepared by the collegium made up of the departments academic staff. The study program leader runs the program with the help of the study program coordinator (administrative personnel) and makes sure that the program quality is maintained. However, some of the academic work appear to be taken over by the administration, for example admission committees.
Committee's recommendations: The committee recommends the University to be aware of the scientific background requirements for the administrative personnel such as the study program coordinator and admissions personnel, for some administrative tasks like advising the master's students and admission committees that have to assess applicants' qualifications required for the uptake into the master's program.

4.15 **At least 50 % of the academic full-time equivalents affiliated to the programme must be staff with their primary employment at the institution. Of these, academic staff with at least Associate Professor qualifications must be represented among those who teach the core elements of the programme. In addition, the following requirements apply to the academic environment's level of competence:**

For second-cycle programmes, at least 50 p% of the members of the academic environment must hold at least Associate Professor qualifications. Within this 50 %, at least 10 % must hold Professor or Docent qualifications. ASR, section 2-3(4)

Academic environment includes the persons who directly and regularly contribute to developing, organising, and implementing the programme. Staff in primary employment are staff in at least 50 % full-time equivalent positions at UiS.

In other words, only the academic environment linked to the study programme in the form of man-year is evaluated under this point. Positions from and including 0.1 man-years are included in the calculation.

Committee's evaluation: All staff involved in the program including the supervision of master's projects are qualified at least at the associate professor level and have PhDs in the relevant field. In addition, more than 10% of the staff have a professor position, when considering staff involved in the supervision of master's projects.
Committee's recommendations: No recommendations.

4.16 **The academic environment must be able to document results of a high standard and results from partnerships with other national and international academic environments. The institution's assessments must be documented so it can be used in NOKUT's work.** ASR, section 3-2(3)

The academic environment must be able to point to documented results of a high standard. What is considered a high standard must be assessed based on what is regarded as a high standard in the field of study, nationally and internationally.

In other words, what must be documented is not just the academic environment's results from its own institution, but also results from R&D/artistic development partnerships with other academic environments, both nationally and internationally. More research activity is required for a second-cycle degree programme than a first-cycle degree programme. As part of its supervision, NOKUT will also require all activities in academic environments that run study programmes within a third-cycle degree platform to maintain a 'high international quality' at all levels of study.

Committee's evaluation: The results found in Cristin, Google scholar and Scopus, prove that the academic staff involved in the master's program are active and participate actively in research.
Committee's recommendations: No recommendations.

4.17 **The academic environment for programmes that lead to a degree must actively participate in national and international partnerships and networks that are relevant for the programme.** ASR, section 2-3(6)

Partnerships and networks must be relevant for the study programme and provide the academic environment with experience that can be used in the study programme, and that can contribute to the development of quality. This could be research cooperation, participation in international conferences, partnerships on educational quality, etc. The networks that the academic environment actively takes part in must be evaluated. How the partnerships contribute to the quality of the environment's R&D activities must also be evaluated.

Committee's evaluation: The academic staff of the study program participate in international projects, international academic networks and have both academic and industrial partners at national and international level.
Committee's recommendations: No recommendations.

4.18 **For programmes involving mandatory supervised professional training, the members of the academic environment must have relevant and updated knowledge from the field of the professional training. The institution must ensure that professional training supervisors have relevant competence and experience in the field of the professional training.** ASR, section 2-3(7)

The term 'professional training supervisors' refers to persons who facilitate and supervise students during the professional training period.

The term 'relevant competence' in the second sentence refers to relevant academic knowledge of and competence in supervision and support.

For programmes that include supervised professional training, institutions and academic environments are expected to ensure systematic contact with the professional field so that the programmes' and academic environments' own professional experience is up to date and in line with developments in the professional field. It is important for the quality of the programme that there is continuous interaction between competent individuals in the professional field and key individuals who have their principal position at the institutions. The academic environment at the institution must itself possess knowledge about supervised professional training so they can partner well with the supervised professional training field and integrate/build bridges between theory and supervised professional training in the education.

Committee's evaluation: N/A we do not have obligatory practice.
Committee's recommendations:

5 The Committee's evaluation of the study programme's results

5.1 The study program should have satisfactory outcomes:
Based on student and result data (according to the committee's mandate and template point 2), the committee is requested to assess:

- whether the study program has satisfactory outcomes relative to what is considered satisfactory within the program's field of study
- the trend in the program's outcomes over the past three years

Committee's evaluation:

The master's program is a good environmental engineering program and is well designed. The program content supports the bachelor's program and covers the important components which are missing in the bachelor's program.

The student numbers have been dwindling the last few years. The number of international applicants has decreased dramatically due to the implementation of tuition fees for non-European students. In addition, also fewer Norwegian students applied which resulted in decrease in number of students enrolled in the program. Moreover, there are problems with the admissions as only first priority qualified Norwegian students were sent offers for the program. A contributing factor to the low number of master student is the bachelor program, which feeds the master's program, which also has a very low number of students.

Committee's recommendations:
It would be good if academic staff could be involved in the applicant evaluation to better evaluate the applicants as the academic staff have a better understanding of the bachelor student's transcripts and are able to assess the qualifications correctly. This would further decrease the workload of the admissions office

6 The Committee's overall evaluation

Committee's evaluation:
The master's program is a good environmental engineering program and is well designed. The program content supports the bachelor's program and covers the missing components from the bachelor's programs.

The webpage of the program is difficult to navigate and find information so this should be fixed.

Despite the master's program being a good quality program, the student numbers enrolled to the program are low therefore time and money need to be allocated to students' recruitment in the form of advertising.

The webpage could be changed so that the students could see the whole overview instead of seeing one course at a time. Moreover, attention should be paid to have adequate keywords attached to the study programs internal search engine on the university's webpage and google search engines. If possible, sufficient funding should be allocated to the marketing of the program. More flexibility may be needed on the webpage design to market the program more efficiently.

7 The Dean's evaluation, recommendations, and action plan

The Dean must provide their evaluation and recommendation before the report is submitted to the Director of Academic Affairs for further consideration. Please state selection in advisor boards and committees.

If all accreditation criteria are deemed to have been met:

- It is recommended that the study programme's accreditation is continued.

If all the evaluated criteria are *not* met, but restructuring necessary to satisfy the criteria can be carried out within a reasonable period of time:

- It is recommended that the study programme's accreditation is continued with an action plan for satisfying the criteria.

If all the evaluated criteria are *not* met, and restructuring necessary to satisfy the criteria cannot be carried out within a reasonable period of time:

- It is recommended that admissions be temporarily postponed while development work necessary for the study programme to satisfy the criteria is carried out, or
- Recommendation and plan for phase-out and discontinuation

The report was considered by the following committees:

The Dean's evaluation and recommendations:

Prioritised measures for further development:

UiS, <date>

<Dean's name>

Dean

<Faculty's name>

The document has been personally approved by the Dean in Public 360[3]

[3] Please do not submit signed and scanned documents

Report on Evaluation of Master's Degree Programme

Environmental Engineering

120 ECTS credits

Faculty of Science and Technology

Committee's Evaluation – Short summary

The MSc program in Environmental Engineering is well-designed and complements related bachelor's programs effectively, addressing key gaps in undergraduate education. However, declining student enrollment, a less user-friendly webpage, and reduced faculty motivation (shortage of staff and students) are critical issues that require immediate attention. Despite being a high-quality program, the low enrollment numbers threaten its sustainability.

Addressing these challenges through targeted marketing, enhanced student engagement, and faculty support will help strengthen the program's contribution to global sustainability education.

Observations and Issues

1. **Student Recruitment Challenges:**
- Declining enrollment, exacerbated by tuition fees for non-European students.
- Strict admissions processes have reduced the number of Norwegian students.
- Low enrollment in related bachelor's programs directly impacts MSc intake.

2. **Student Learning Experience:**
- MSc students lack sufficient opportunities for oral presentations, on design for example wastewater plant design, and internships ("praksis plasser").
- Although exchange opportunities exist, students rarely participate. Barriers such as lack of accommodation and limited Erasmus partnerships need exploration.

3. **Webpage Usability:**
- The program webpage is difficult to navigate and lacks an engaging structure.
- Key information, such as course overviews and the program's relevance to sustainability goals, is not prominently featured.

4. **Engagement:**
- Study program may be vulnerable since most courses have only one person with the background to teach it.

Recommendations

1. **Student Recruitment:**

- Allocate resources for targeted marketing, emphasizing the MSc program's role in addressing critical sustainability challenges globally.
- Develop a clear and engaging recruitment campaign, showcasing testimonials, alumni success stories, and the program's unique features.
- Introduce part-time study options for working professionals without reducing full-time student seats.

2. **Admissions Process:**

- Involve academic staff in evaluating applications to ensure a more comprehensive assessment of student qualifications and reduce the admissions office workload.

3. **Enhancing Student Learning:**

- Increase oral presentations, and internships to enhance skills and employability.
- Expand Erasmus and international exchange options while addressing barriers such as accommodation and administrative challenges.

4. **Webpage Improvement:**

- Revamp the webpage to make it visually appealing and user-friendly. Include an overview of all MSc courses, program highlights, and its significance for achieving sustainability goals.
- Optimize the webpage for search engines (both internal and external) using appropriate keywords.

In conclusion, The MSc program is a well-structured and impactful program that addresses critical gaps in undergraduate education and contributes significantly to sustainability. By implementing these recommendations, the program can secure its position in sustainability education and attract a larger, more diverse student cohort.

FSTN 08/25 Resultat fra periodisk evaluering av Miljøteknologi, master, 2024

Saksnr.: 23/17500-22 **Saksansvarlig:** Øystein Lund Bø, *dekan*
Møtedag: **Informasjonsansvarlig:** Aksel Hiorth, *prodekan*

Vedlegg i saken:
Vedlegg 1: Rapport fra periodisk evaluering av Miljøteknologi, master, 2024
Vedlegg 2: Instituttleders kommentarer til den sakkyndige rapporten
Vedlegg 3: Referat fra studieprogramrådets behandling av sakkyndig rapport, sak 3

Bakgrunn:
Alle høyere utdanningsinstitusjoner skal etter krav fra Kunnskapsdepartementet (KD) systematisk gjennomgå studieporteføljen sin for å sikre at alle studietilbud tilfredsstiller kravene i gjeldende forskrifter. Ved UiS gjør vi dette gjennom periodiske evalueringer, med ekstern deltakelse, av alle studieprogram hvert femte år.

I 2024 ble følgende studieprogram evaluert ved TN-fakultetet:
- Master i Robotteknologi og signalbehandling, Institutt for data- og elektroteknologi (IDE)
- Master i Konstruksjons- og maskinteknikk, Institutt for maskin, bygg og materialteknologi (IMBM)
- Master i Miljøteknologi, Institutt for kjemi, biovitenskap og miljøteknologi (IKBM)
- Bachelor i Kjemi og miljø (Teknisk miljøvern), (IKBM)

Denne saken omhandler periodisk evaluering av Miljøteknologi – master i teknologi.

Miljøteknologi, master, ble evaluert av evalueringskomité bestående av:
- Krista Michelle Kaster, Førsteamanuensis, IKBM, Universitetet i Stavanger
- Ilke Pala Ozkok, Førsteamanuensis, IKBM, Universitetet i Stavanger
- Kåre Bredeli Jørgensen, Professor, IKBM, Universitetet i Stavanger
- Gulsum Emel Zengin Balci, Assoc. Prof., Istanbul Technical University, Environmental Engineering Department
- Unni Synnøve Lea, senioringeniør, IVAR
- Mathias Sandvik, student, Universitetet i Stavanger
- Kjetil Bårdsen, senioringeniør, IKBM, Universitetet i Stavanger

I denne saken blir resultater fra evalueringen presentert. Dekan ber Fakultetsstyret om råd når det gjelder videre akkreditering av studiet.

Rapport fra sakkyndig komité
Evalueringsrapporten fra den sakkyndige komiteen er lagt ved i vedlegg 1. Vi viser til denne rapporten for fullstendige kommentarer rettet mot de enkelte evalueringskriteriene. Komiteens samlede vurdering av studieprogrammet er:

The master's program is a good environmental engineering program and is well designed. The program content supports the bachelor's program and covers the missing components from the bachelor's programs.

The webpage of the program is difficult to navigate and find information so this should be fixed.

Despite the master's program being a good quality program, the student numbers enrolled to the program are low therefore time and money need to be allocated to students' recruitment in the form of advertising. The webpage could be changed so that the students could see the whole overview instead of seeing one

course at a time. Moreover, attention should be paid to have adequate keywords attached to the study programs internal search engine on the university's webpage and google search engines. If possible, sufficient funding should be allocated to the marketing of the program. More flexibility may be needed on the webpage design to market the program more efficiently.

Behandling ved instituttet
Faglig ledelse ved instituttet skal behandle den sakkyndige rapporten og foreslå tiltak for videre utvikling av studiet, før dekanen kan gi sin endelige anbefaling. Kommentarer fra instituttleder, med anbefalte tiltak for videre utvikling av studier, er lagt ved i vedlegg 2. Viser til denne for utfyllende kommentarer til komiteen sine anbefalinger.

Den sakkyndige rapporten, med kommentarer fra instituttleder, ble behandlet i instituttets studieprogramråd 17.01.2025. Vedlagt er referat fra studieprogrammets behandling av saken, med studieprogramrådets kommentarer til rapporten (vedlegg 3).

Behandling i Studieporteføljeutvalget ved fakultetet
Resultater fra evalueringen ble presentert for Studieporteføljeutvalget i møte den 04. mars 2025.
Vedtaket ble:

> Studieporteføljeutvalget (TN) tar resultater fra periodisk evaluering av Miljøteknologi, master, til orientering. Studieporteføljeutvalget gir følgende anbefaling til dekan angående studiets akkreditering, med eventuelle kommentarer fra møtet i referatet:
>
> *Akkrediteringen av Miljøteknologi – master i teknologi, anbefales videreført.*

Behandling i Fakultetsstyret ved fakultetet
Evalueringsrapporten fra den sakkyndige komiteen og fakultetets behandling av resultatene gir grunnlag for dekanen sin endelige anbefaling av akkreditering.
Dersom alle akkrediteringskriterier anses oppfylt:

- ✓ Studiets akkreditering anbefales videreført

Dersom ikke alle kriterier anses oppfylt, men nødvendige omstillinger for å oppfylle kravene kan gjøres innen rimelig tid:

- ✓ Studiets akkreditering anbefales videreført med en tiltaksplan for å oppfylle kravene

Dersom ikke alle vurderte kriterier anses oppfylt, og nødvendig omstilling for å oppfylle kravene ikke kan gjøres innen rimelig tid:

- ✓ Anbefaling om midlertidig utsatt opptak mens nødvendig utviklingsarbeid gjøres for at studiet skal oppfylle kravene, eller
- ✓ Anbefaling og plan for nedlegging med overgangsordninger

Før dekan gir sin endelige anbefaling, ber dekan Fakultetsstyret om råd når det gjelder videre akkreditering av studiet. Dekan tar også imot innspill til videre oppfølging av evalueringen.

Forslag til vedtak:
Fakultetsstyret ved Det teknisk-naturvitenskapelige fakultetet (TN) tar resultater fra periodisk evaluering av Miljøteknologi, master, til orientering. Fakultetsstyret gir følgende anbefaling til dekan angående studiets akkreditering:

> *Miljøteknologi, master, anbefales videreført.*
>
> Fakultetsstyret gir følgende råd til dekan angående oppfølging av evalueringen:
> -

Stavanger, 14. mars 2025

Øystein Lund Bø
dekan

Saksbehandler: Elena Therese Wulff-Vester
Rådgiver

Dokumentet er elektronisk godkjent og har derfor ikke håndskrevne signaturer