Faculty of Engineering

Agenda

May 2022

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Subject	Advisory board meeting for Environmental Engineering
Date and time	May 25, 1-2pm
Location	https://syddanskuni.zoom.us/j/66562266240?from=addon
Invited	Teis Løgstrup Bro (Erhvervshus Fyn) Charlotte Moosdorf (Miljøstyrelsen), Mette Smedegaard Hansen (NGF Nature Energy), Jan Thrane (Odense Renovation), Tina Maria Lund Kristensen (Fjernvarme Fyn), Mogens M. Møller (Nyborg Kommune), Janus Kirkeby (Rambøll), Vivian Andersen (Odense Kommune), Ciprian Cimpan (SDU, Head of Programme), Morten Birkved (SDU, Professor MSO), Birgitte Lilholt Sørensen (SDU Associate Professor), Mette Smølz Skau (SDU, Programme Coordinator) Thomas Kristian Molbech (Student)
Cancellation from	
Moderator	Ciprian Cimpan

Welcome

Welcome /Ciprian – new head of programme
Short “roundtable“ introduction

Discussion points

1. Our MSc. Environmental Engineering programme today /Ciprian and Birgitte
   a. Structure and courses
   b. Student competence profile

2. Advisory Board past developments /Birgitte
   Work market challenges/ solutions approached in the past

3. The student perspective /Thomas (2nd semester)

4. Setting a future agenda (plan for a late August or September meeting – MST visit?)

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Overview of the education programme

Master of Science in Engineering (Environmental Engineering)

Link on SDU website: https://www.sdu.dk/da/uddannelse/kandidat/miljoeteknologi
The Curriculum: https://odin.sdu.dk/sitecore/index.php?a=sto&id=42532&lang=en&kas-sogram=51966
To find the interactive programme structure and competence profile open the tree structure as below:

▾ § 3 - Detailed programme specific information

▾ § 3 - Programme title and profiles

▾ Master of Science in Environmental Engineering 2022

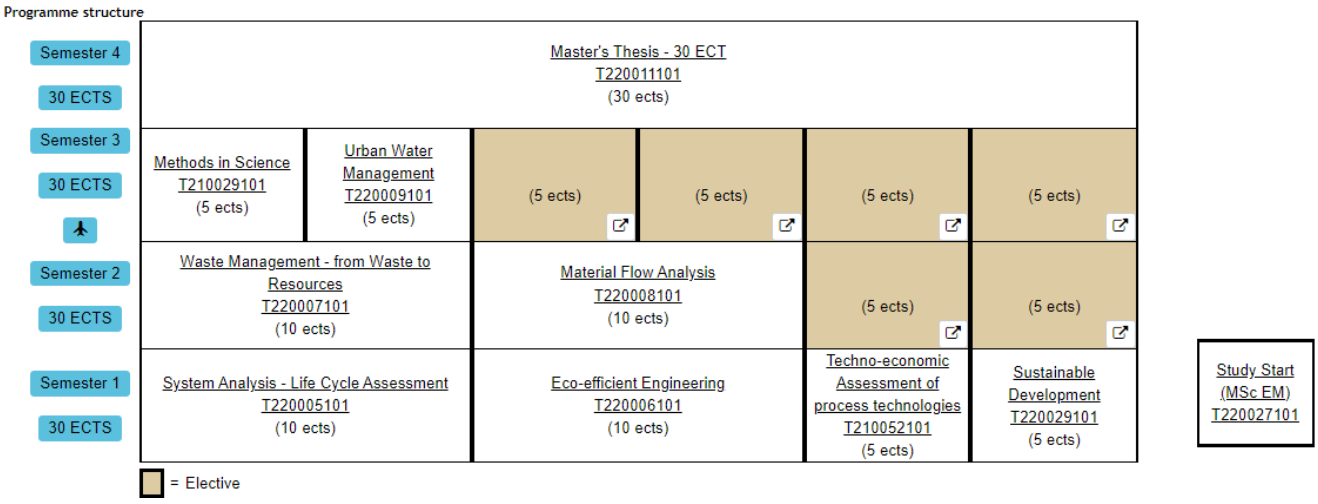
Name
Master of Science in Environmental Engineering 2022

Competence profile
The learning outcomes of the programme are based on laws and regulations in the subject area. I

Link to Student thesis projects on SDU LCE website
https://www.sdu.dk/en/forskning/lifecycleengineering/education/msc

(extract)

Programme structure



(extract)

Competence profile

The learning outcomes of the programme are based on laws and regulations in the subject area. In addition, they are based on the job functions that graduate engineers are expected to master and on the requirements to post-graduate personal and academic development.

Especially for graduates in Environmental Engineering it is expected that they:

A. have acquired specific knowledge within the academic profiles of the programme based on high level international research
B. are able to disseminate and discuss scientific knowledge and results to people with different aca-demic and professional qualifications

C. are able to understand and describe scientific problems based on own or other's research based knowledge, including develop working hypothesis for scientific work
D. can apply the methods and tools associated with the specific subject areas of the programme's academic profiles related to the job profile described in §1
E. are able to initiate and contribute to academic and interdisciplinary collaborations, including as-suming responsibility for own work
F. are able to plan and carry out own academic and personal development

Based on this knowledge the graduate engineer must be able to solve complex technical problems, and design and implement complex technological products and systems in a social context. For environmental engineers this means that they:

G. are able to design environmentally optimised and efficient solutions that match the social infra-structure. A holistic approach is the backbone of our teaching enabling the student to manage and assess environmental consequences of engineering solutions and decisions
H. can analyse and optimise products, processes and productions based on considerations related to especially resources and the environment. Including understand and apply tools such as Life Cycle Assessment, Material Flow Analysis, Process Integration, among others
I. can contribute to and partake in the research areas of sustainable waste management (technologies and systems), carbon management and bio-systems, design of sustainable energy systems, water management and industrial and household technologies as well as design and innovation of industrial products and processes, etc.
J. are able to undertake planning, consultancy and specialist tasks in the following key competences of the programme: System analysis (life cycle assessment), energy system optimisation, Cleantech (cleaner technology) related to products and productions, as well as waste management and optimisation of resource utilisation in a social perspective.

The above-mentioned learning outcomes are based on the general engineering skills as described in DSMI as well as on academic competences in a variety of technical, scientific and socio-related disciplines and shown in the subject columns of the programme.

Professional competence

Virtually every sector of society is concerned with the environment and sustainability. This provides the environmental engineer with a variety of job opportunities:

At companies: e.g. at the environmental department, the development department or production. The environmental engineer participates in the development of new environmentally friendly technologies in products and in manufacturing processes. Here the environmental

engineer is usually responsible for the development, selection, dimensioning, establishment and management of environmental technology facilities. Moreover, many environmental engineers work closely with the management in strategy and communication, especially at companies with large market shares.

At the manufacturer of environmental technologies/CleanTech: development, design, dimen-sioning, marketing and sale of products and facilities with environmental aim and content. It could, for example, be suppliers of purification installations for waste water, air, soil, groundwater or waste facilities (collecting, sorting, combustion, recycling, composting, etc.), but it could also be other products and facilities for which the environmental aspect is important such as, for example, sustainable energy facilities (wind turbines, biogas plants, solar collectors, solar cells, etc.).

In municipal, regional or governmental administration (e.g. Danish Environmental Protection Agency, Danish Energy Agency and other government agencies): environmental governance, including environmental approval of companies, waste management, strategic action plans, and environmental services, etc.

At the environmental plant: Dimensioning, design, management and maintenance of waste water plants and waste management plants.

At the consultancy: Consultancy work and project management related to all areas of environmental management, i.e. the same tasks as above only as a consultant.

At the university/knowledge institution: research, development and innovation in relation to the chain of cause and effect, theory, methods, models, tools for analysis and assessment of environmental aspects and to create environmentally friendly technologies and solutions.

With NGO's, trade associations, interest groups and other major social players: e.g. The Danish Society for Nature Conservation, The Danish Competition and Consumer Authority, trade associations for the industry, agriculture, fishery, etc., and similar social players. Here the environmental engineer will work in project management, environmental assessment, environmental strategies, environmental law, communication, etc., within subjects of current interest.

Some Key indicators

Frafald

	2016	2017	2018	2019	2020	2021
Lampe	✗	✓	!	✗	✓	✓
Frafaldsprocent	16.0	0.0	7.3	15.8	5.0	4.5
Grænseværdi Grøn	7.5	6.5	6.5	5.3	5.5	5.0
Grænseværdi Gul	9.8	8.5	8.5	7.3	7.5	7.0
Lille uddannelse	Nej	Nej	Ja	Nej	Nej	Nej
Antal optagede	25	17	55	19	20	22
Antal afbrudte	4	0	4	3	1	1

Ledighed

	2016	2017	2018	2019	2020	2021
Lampe				✗	✓	✗
4-7 kvartal, pct.	30.8	2.5	26.1	34.9	7.4	24.0
4-7 kvartal, 3 år, pct.				25.0	23.0	22.4
Lille uddannelse				Nej	Nej	Ja
Grænseværdi Grøn	9.7	9.5	9.6	9.3	9.8	11.5
Grænseværdi Gul	13.0	12.6	12.8	12.4	13.0	15.3
Antal dimittender	9	9	13	19	16	11
Antal dimittender 3 år				41	48	46
Dimittendår	2014	2015	2016	2017	2018	2019

TEK - Overblik over eksamensresultater og undervisningsevalueringer - Fag

Vælg Fag

ODIN Studie: T22 - Kandidat miljøteknologi | UVA: All | Fag: All

UVA	Fag	Tilmeldte fag	Karakter Gennemsnit	Andel kvalificeret til og bestået eksamen	Andel bestået eksamen	Undervisnings-evalueringer respondenter	Undervisnings-evalueringer svarpct.	Undervisnings-evalueringer score
T220005101	System Analysis - Life Cycle Assessment	88	6.9	95.5 %	95.5 %	60	68.2 %	3.21
T220006101	Eco-efficient Engineering	19	8.6	89.5 %	89.5 %	17	89.5 %	3.59
T220011101	Master's Thesis - 30 ects	1		0.0 %	0.0 %			
T220014101	Master Thesis - 40 ects	1		0.0 %	0.0 %			
T220016101	Energy System Analysis - tools and cases	22	8.9	90.9 %	90.9 %	13	59.1 %	3.00
T220020101	Business Economics and Management	13	7.3	92.3 %	92.3 %	5	38.5 %	3.20
T220021101	Fagligt selvstudie - selvstændig studieaktivitet 5 ECTS	1		100.0 %	100.0 %			
T220022101	Sustainable Engineering	72	9.2	94.4 %	94.4 %	50	69.4 %	3.37
Total		**217**	**8.0**	**93.1 %**	**93.1 %**	**145**	**66.8 %**	**3.29**