

Curriculum for the Master's Programme in

Sustainable design

The Faculty of Engineering and Science

Aalborg University
2012

Preface

Pursuant to Act 685 of June, 22, 2011 on Universities (the University Act) with subsequent changes, the following curriculum for the Master's programme in Sustainable design (Danish: Bæredygtigt design) is stipulated. The programme also follows the Framework Provisions and the Examination Policies and Procedures for the Faculty of Engineering and Science and The Faculty of Medicine.

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Chapter 1: Legal Basis of the Curriculum, etc.

1.1 Basis in ministerial orders

The Master's program in Sustainable design is organised in accordance with the Ministry of Science, Technology and Innovation's Ministerial Order no. 814 of June 29, 2010 on Bachelor's and Master's Programmes at Universities (the Ministerial Order of the Study Programmes) and Ministerial Order no. 857 of July 1, 2010 on University Examinations (the Examination Order) with subsequent changes. Further reference is made to Ministerial Order no. 233 of March 24, 2011 (the Admission Order) and Ministerial Order no. 250 of March 15, 2007 (the Grading Scale Order) with subsequent changes.

1.2 Faculty affiliation

The Master's program falls under the Faculty of Engineering and Science, Aalborg University.

1.3 Board of Studies affiliation

The Master's program falls under the Study Board of Planning and Geography.

Chapter 2: Admission, Degree Designation, Program Duration and Competence Profile

2.1 Admission

Admission to the Master's program in Sustainable design requires a Bachelor's degree in Sustainable design, design and innovation, industrial design, interaction design or the like.

Students with another Bachelor's degree, upon application to the Board of Studies, will be admitted after a specific academic assessment if the applicant is deemed to have comparable educational prerequisites. The University can stipulate requirements concerning conducting additional exams prior to the start of study.

2.2 Degree designation in Danish and English

The Master's program entitles the graduate to the designation *Civilingeniør, cand.polyt. i bæredygtigt design*. The English designation is: Master of Science (MSc) in Engineering (Sustainable Design).

2.3 The program's specification in ECTS credits

The Master's program is a 2-year, research-based, full-time study programme. The program is set to 120 ECTS credits. The teaching language is English.

2.4 Competence profile on the diploma

The following competence profile will appear on the diploma:

A graduate of the Master's programme has competencies acquired through an educational programme that has taken place in a research environment.

The graduate of the Master's programme can perform highly qualified functions on the labour market on the basis of the educational programme. Moreover, the graduate has prerequisites for research (a Ph.D. programme). Compared to the Bachelor's degree, the graduate of the Master's programme has developed her/his academic knowledge

and independence, so that the graduate can independently apply scientific theory and method in both an academic and occupational/professional context.

2.5 Competence profile of the program

The graduate of the Master's programme will acquire the following competences:

- | | |
|-------------|---|
| Knowledge | <ul style="list-style-type: none">• Has knowledge, which in chosen areas, is based on the highest international level of research, within the following areas:<ul style="list-style-type: none">• Sustainable design• Innovation processes• Practice theory• User-oriented design• Can understand and critically respond to these knowledge fields and their methodologies, as well as identify scientific problem areas within and across them |
| Skills | <ul style="list-style-type: none">• Masters engineering and science related methods, methods from innovation studies and methods from network-based analysis of organizations, institutional and interest related context and can with these analyze sustainable technological innovation• Can critically consider above-mentioned theories and methods, develop new models for sustainable technological innovation and in collaboration with networks of different actors transform these into strategic plans of action• Can discuss and communicate professional and scientific issues regarding sustainable innovation with technical experts, decision-makers, senior executives, government officers a, NGO's and the remaining population |
| Competences | <ul style="list-style-type: none">• Can manage work- and development situations that are complex, unpredictable and require new solutions• Can independently initiate and complete professional and cross-disciplinary collaboration and take a professional responsibility within design- and transition processes• Can independently take responsibility for own professional and cross-disciplinary development within the scientific fields of design, technology and sustainability |

Chapter 3: Content and Organisation of the Program

The program is structured in modules and organised as a problem-based study. A module is a program element or a group of program elements, which aims to give students a set of professional skills within a fixed time frame specified in ECTS credits, and concluding with one or more examinations within specific exam periods. Examinations are defined in the curriculum.

3.1 Teaching methods and exams

The programme is based on a combination of academic, problem-oriented and interdisciplinary approaches and organised based on the following work and evaluation methods that combine skills and reflection:

- lectures
- classroom instruction
- project work
- work in laboratories and workshops
- experimentation
- workshops
- exercises (individually and in groups)
- teacher feedback
- reflection
- portfolio work
- external activities
- case work
- peer assessment
- study groups

All modules are assessed through individual grading according to the 7-point scale *or* Pass/Fail. All modules are assessed by external examination (external grading) or internal examination (internal grading or by assessment by the supervisor only).

3.2 Curriculum content

The masters program is an engineering education with special emphasis on design and the development and innovation of sustainable solutions. The program includes interdisciplinary components to satisfy the need for combining methods from social science and technology studies with technical subjects and design practice.

The education will provide the student with the ability to understand, stage and carry out innovative processes leading to design and the implementation of sustainable products, services and socio-material system solutions through involving relevant actors.

The programs' focus on sustainability is reflecting the challenges that development, production consumption and dismantling of technologies poses for resource utilization and climate. It builds on the broad notion of sustainability that includes the environment, the social and the economy. The realization of these societal goals implies a focus on sustainable transitions that include the systems approach that is core to the program's activities.

3.3 Overview of program and semesters

The tabel below shows all project and course modules on the masterprogram, the amount of ECTS's and the assessment for each.

Semester	P=project C=course M=Merit/ credit transfer	Module	ECTS	Assessment	Exam	
1st	P	Exploring design and innovation possibilities	15	7-point scale	Internal	
	C	Design in organisations	5	7-point scale	Internal	
	C	Market creation	5	Pass/Fail	Internal	
	C	Electives (choose 1)	Staging co-design	5	Pass/Fail	Internal
			Sustainable design	5	7-point scale	Internal
2 nd	P	Sustainability challenges	15	7-point scale	External	
	C	Sustainable consumption	5	7-point scale	Internal	
	C	Project economy	5	Pass/Fail	Internal	
	C	Electives (choose 1)	People centred design	5	7-point scale	Internal
			Sustainable transition	5	7-point scale	Internal
3 rd	Option 1	P	Design research project	20	7-point scale	Internal
		C	Concept driven change	5	7-point scale	Internal
	Option 2	P	International design project	20	7-point scale	Internal
		C	Introduction to engineering work in multicultural environments	5	Pass/Fail	Internal
		C	Society and development - a country study	5	Pass/Fail	Internal
	Option 3	M	Semester at another university	30	Credit transfer	Credit transfer
	4th	P	Master'sthesis	30 (or 60)	7-point scale	External
	In total			120		

The master program is based on a progression in which the complexity of the themes is progressively increasing:

1st semester: Exploring design and innovation possibilities

On this semester the focus is on exploring design and innovation possibilities in relation to organisation, economics and market. The organisational context that design and innovation processes are happening in is introduced through the course module *Design in organisations* and the economic dimension of design is introduced through the course module *Market creation*. The students are to selective between two elective modules: *Staging co-design* and *Sustainable design*. In the project module *Exploring design and innovation possibilities*, the students use knowledge gained from the two course modules and the selective elective module and explore how design and innovation can be realised in organisations and on the market, with point of departure in a realistic problem definition.

2nd semester: Sustainability challenges

On this semester the focus is on sustainability challenges and how it is possible to face these challenges through a design approach. In the course module *Sustainable consumption* the user and the users' behaviour with regards to sustainability is introduced.

The students are to select between the two elective modules: *People centred design* and *Sustainable transition*. In the project module *Sustainability challenge* the students will be given a sustainability challenge to work with that fits with the selective elective module.

3rd semester: Holistic design

On this semester the students are given the opportunity to take a semester at another university, do a design project in an international context or do a research project.

International design project

If the students choose to do an international design project the two electives available this semester will be used for two specific elective courses that will prepare the students for travelling to a foreign country and engage with locals during a design project.

Research project

If the students choose to do a research project the 10 elective ETCS credits will be used for taking the course module *Concept driven change* that feeds the students with knowledge about design concepts and how they can drive change in companies. This the students will use to do their research project in a large company context.

The figure below shows a schematic view of the masterprogram. The green modules are project modules. They are supported by the grå course modules.

Point	5	10	15	20	25	30	
Semester	1	Exploring design and innovation possibilities			Design in organisations	Market creation	Staging co-design
							Sustainable design
	2	Sustainability challenges			Sustainable consumption	Project economy	People centred design
							Sustainable transition
	3	International design project				Introduction to engineering work in multicultural environments	Society and development - a country study
							Design project
		Semester at another university					
	4	Master thesis					

3.4 Elective modules

During the master program the students have two elective course modules, one on the first semester and one on the second semester. In both semesters two courses are offered to choose from. In the first these are: Staging co-design and Sustainable design, while they in the second semester are: People centred design and Sustainable transition.

3.5 Descriptions of modules

1st Semester

Title: **Exploring design and innovation possibilities (15 ETCS project module)**
Undersøgelse af design og innovations muligheder

Prerequisites: Bachelor in Sustainable design or similar qualifications.

Objective: A student who has been through the module:

Knowledge

- has knowledge of the complexities and interrelations between product/service/system development and business development when bringing solutions to market
- has knowledge and understanding of theories of innovation
- has an understanding of the elements of a business plan
- has knowledge of the theories and methods of project management and is able to use them during a design project

Skills

- can formulate a purpose for a development project
- can synthesise ideas, concepts and detailed design
- can deliver and communicate a thorough design solution
- has the ability to select an appropriate business strategy for a design solution, describe it in a business plan and evaluate the solutions business potential
- is able to create an implementation plan for a design solution with relation to the business related aspects of the implementation
- can professionally pitch a business idea based on a design solution

Competencies

- can give a reflected criticism of others design work and results
- can collaborate professionally with other stakeholders in design processes and define own role in the work
- ability to use and implement innovation theory as an integrated part of developing ideas and designing solutions

Type of instructions: Project assignment, carried out in groups of 2 to 5 students within a theme relevant to one of the master themes. The project should be planned in cooperation with a company or an institution.

Exam format: Evaluation of an oral internal examination as well as exercises/reports. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Design in organizations (5 ETCS course module)**
Design i organisationer

Prerequisites: Bachelor in Sustainable design or similar qualifications.

Objective: A student who has been through the module:

Knowledge

- has knowledge of current international research about tools and methods for product development
- can recognise tools, methods and situations related to product development and critically reflect on their value

Skills

- can analyse the role of phase models in product development and their usage
- can analyse drivers and constraints imposed on design and innovation processes in organizations
- is able to understand the role of social systems and political concerns in the development of products and services
- is able to Understand the role of knowledge sharing, knowledge management and learning in product development
- can understand interaction between design projects and other company functions, e g. manufacture, technological developments, human resources, etc.
- is able to understand design projects within the context of portfolio management.
- can define research topics and questions and analyse case studies with literature

Competences

- can justify the allocation of resources to development projects in an organizational setting
- can independently manage design and development projects in organizations and navigate the organisations social systems and political concerns

Type of instructions: Lectures, exercises and project work

Exam format: Internal evaluation of written reports. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Market creation (5 ETCS course module)**
Market creation

Prerequisites: Bachelor in Sustainable design or similar qualifications.

Objective: A student who has been through the module:

Knowledge

- knowledge of various conceptions of the market advanced in the course literature
- can explain fundamental concepts of neo-classical and industrial economics, business strategy, sensory branding, actor-network theory and the sociology of markets
- explain fundamental concepts of material culture studies and the anthropology of markets

Skills

- can assess the competitive situation of a product, a service or a system
- can describe the life of a product, service or system on the market and map out the processes it becomes part of
- can discuss how product, service and system design plays into the enactment of markets
- can discuss the implications of globalization processes for the design and marketization of products, services and systems

Competences

- can independently take part in discussions and reflections on how markets can be created

Type of instructions: Reading and analysing texts, lectures and case presentation as well as group discussions

Exam format: Evaluation of a written assignment. The assessment is performed as pass/fail

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Sustainable design (5 ETCS course module)**
Bæredygtigt design

Prerequisites: Bachelor in Sustainable design or similar qualifications.

Objective: Knowledge

- has understanding of the social implications of various sustainability challenges
- has broad knowledge of various and diverse approaches to addressing sustainability
- has understanding of various ontological and epistemological approaches in sustainability research.

Skills

- ability to identify and discuss societal structures that are linked to the sustainability challenges faced by modern societies
- can describe the complexity and multi-layeredness of the processes which shape innovative practices and structural adaptation
- can integrate knowledge across disciplines and fields.
- is able to demonstrate theoretically informed analyses of sustainability challenges
- can recognise, analyse and characterise the following perspectives:
 - Systems innovation perspective
 - Strategic Niche Management Perspective
 - Socio-technical regimes
 - Multi Level Perspective
 - Sustainable governance strategies
 - Practice oriented transition
 - Arenas as situated mappings

Competences

- can analyse conflicts of interest in relations between businesses, governments and civil society in connection to sustainability challenges, globalization and specific planning initiatives.
- can analyse viable strategic options for sustainable transition within a product area or technology area

Type of instructions: Reading and analysing texts, lectures and cases.

Exam format: The evaluation is based on an internal assessment of a written assignment. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Staging co-design (5 ETCS course module)**
Isenesættelse af co-design

Prerequisites: Passed the courses Applied ethnography (Anvendt etnografi) and Co-design and user-involvement (Co-design og brugerinddragelse) or have similar qualifications

Objective: A student who has been through the module:

Knowledge

- has the knowledge of the latest internal research describing staging processes
- has knowledge about user-centred approaches and co-design approaches and understand the differences between these approaches
- is able to critically reflect on the advantages and disadvantages of engaging stakeholders in design processes

Skills

- identify and use boundary objects in the staging of multidisciplinary dialogues
- explain the significance in and for the involvement of different types of players in design processes
- reflect on the difference between staging a dialogue 'in situ', or via a design laboratory and choose between the approaches
- explain benefits and drawbacks in modern constellations promoting cross disciplinary collaboration
- involve technological domain knowledge and strategic concerns

Competences

- independently take professional responsibility of planning and staging processes of socio-technical dialogue
- is able to critically reflect on own role as a facilitator of socio-technical dialogue processes and evaluate own performance

Type of instructions: Reading and analysing texts, lectures and cases, facilitating exercises etc.

Exam format: Internal oral examination and exercises. The evaluation is based on an overall assessment of a written project work and an oral presentation of the work. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

2nd Semester

Title: **Sustainability challenges (15 ETCS project module)**
Bæredygtighedsudfordringer

Prerequisites: Bachelor in Sustainable design or similar qualifications.

Objective: A student who has been through the module:

Knowledge

- has knowledge about a diversity of possible dimensions in the concept of sustainability such as environmental, social, economic, ethical sustainability
- understands current challenges concerned with sustainability on different levels of societal life

Skills

- can characterise and analyse current challenges concerned with sustainable development
- can develop scenarios and considerations concerning viable strategic options as a response to the sustainable challenges
- can plan sustainable solutions to specified challenges including how to stage and organise a process for sustainable transition at company level or in another chosen context
- can develop or redesign business models to support sustainable transitions
- can work together with and enrol interested parties in companies, governmental bodies and / or from the civil society in a sustainable transition project

Competences

- can reflect upon viable strategies for sustainable transitions and consider the possibilities in a design oriented approach
- can reflect upon viable ways of engaging and enrolling actors from a diversity of knowledge, institutional and business domains by taking into account the repertoire of transition strategies

Type of instructions: Project assignment, carried out in groups of 2 to 5 students. The project should be planned in cooperation with a company or an institution.

Exam format: External evaluation of oral exam as well as a report. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Sustainable consumption (5 ETCS course module)**
Bæredygtigt forbrug

Prerequisites: Bachelor in Sustainable design or similar qualifications

Objective: A student who has been through the module:

Knowledge

- understands current socio-technical changes within consumption in the light of a longer historical perspective and with regards to sustainability

Skills

- can analyse how technological changes in everyday life (at the micro level) are connected with broader social changes (at the macro level)
- can analyse the position of a product in a social context, including aspects related to culture, norms, social groups, gender, and age groups
- is able to apply a practice theory perspective in an empirical analysis of everyday use of technology
- can discuss how technologies and consumption co-develop with modern family life and the work-life balance
- is able to assess the possibilities for and the usefulness of including users in innovation processes for everyday products
- is able to carry out and analyse qualitative interviews, including coding of the material
- can apply systematic observation, ethnographic methods, studies of advertisements etc. as part of empirical studies on technology in everyday life
- can write about products and consumption in everyday life in a clear and accessible way

Competences

- can independently crystallize the main points in a scientific text and give an oral presentation of these points in an accessible and pedagogical way

Type of instructions: Reading and analysing texts, lectures and cases, facilitating exercises etc,

Exam format: Internal oral examination and exercises. The evaluation is based on an overall assessment of a written project work and an oral presentation of the work. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Project economy (5 ETCS course module)**
Projekt økonomi

Prerequisites: Bachelor in Sustainable design or similar qualifications

Objective: A student who has been through the module:

Knowledge

- has knowledge about economic calculations and models with regards to a development projects process and realisation cost

Skills

- is able to evaluate a development project and its intended results through rationales of valuation and cost-benefit analysis and engage in a reflective discussion of the advantages and disadvantages of the project
- is able to reflect on the socio-economic effects of a development project as well as the distribution of these effects across society

Competences

- is able to engage in development projects and evaluate the process and intended results with regards to economic and take reflective actions with regards to the evaluation result
- can collaborate professional with other professions (e.g. economists) and argue for the value of development projects with regards to the economy of the development process, the implement as well as the consequences of the implementation

Type of instructions: Lectures, exercises and project work. The course supports the project course Exploring design and innovation possibility on the Sustainable design master program. The students can therefore use their project as case in this course.

Exam format: Evaluation of a written report. The assessment is performed as pass/fail

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title:	Sustainable transition (5 ETCS course module) <i>Bæredygtig omstilling</i>
Prerequisites	Passed the courses Sustainability and society (Bæredygtighed og samfund) and Life cycle assessments of product life and systems (Livscyklus baseret miljøvurdering af produkter og systemer) or have similar qualifications
Objective:	A student who has been through the module: <ul style="list-style-type: none"> Knowledge <ul style="list-style-type: none"> • has knowledge about and understands Transition theory based on the latest international research within the area • understands the sustainability challenges faced by modern societies and how they are linked to processes which are embedded in existing social structures • is able to recognise, analyse and characterise different perspectives within transition research e.g. Systems innovation perspective, Strategic Niche Management perspective, Socio-technical regimes, Multi-Level Perspective, Sustainable governance strategies, Practice oriented transition, Arenas as situated mappings, Transition Management Skills <ul style="list-style-type: none"> • can discuss the sustainability challenges of modern societies • can discuss strategies for sustainable transition and argue for personal opinions on the topic Competences <ul style="list-style-type: none"> • is able to navigate in complex sustainable transition processes
Type of instructions:	A combination of lectures, exercises and task assignments.
Exam format:	Internal evaluation of exercises/reports. The assessment is performed as pass/fail
Evaluation criteria:	The criteria for evaluation are provided in the Framework Provisions

Title: **People centred design (5 ETCS course module)**

People centred design

Prerequisites: Bachelor degree in Sustainable design or similar qualifications, with knowledge of methods within the areas of user-centred design, participatory design and co-design

Objective: Knowledge

- has knowledge of rapid rural appraisal and participatory rural appraisal used by various NGO's as approaches to international development and critically reflect in their value in design processes
- has insight user-centred design, participatory design and co-design methods and can reflect on the possibilities of using these in people centred design processes in an international context
- has insight into theories on cultural differences and the management of these
- has a broad insight into product design and marketing strategies in different countries and be able to identify the differences in design as well as argue for the background behind these differences
- has an understanding of design ethics, as well as fair trade and sustainability

Skills

- is able to plan a people centred design process in an international context
- is able to design a simple product, service or system for a different culture than his/her own and argue for which aspects address this culture
- is able to develop a strategy for managing a multi-cultural design team

Competences

- is able to take part in professional people centred design projects in international context
- can reflect critically on the role of designers in the context of globalization and with relation to ethics, fair trade and sustainability

Type of instructions: Reading and analysing texts, lectures and cases, facilitating exercises etc,

Exam format: Internal oral examination and exercises. The evaluation is based on an overall assessment of a written project work and an oral presentation of the work. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

3rd Semester Option 1

Title: **Design project (20 ETCS project module)**
Design project

Prerequisites: Bachelor in Sustainable design or similar qualifications

Objective: A student who has been through the module:

Knowledge

- has knowledge on how to set project goals and manage design projects from start to finish

Skills

- can formulate a purpose for a design project
- is able to synthesise ideas and concepts in relation to a specific design project
- can articulate goals, define tasks and coordinate tasks in project work
- can plan and stage the work based on the scope, the complexity and the required results
- can balance off viewpoints and create an harmonic unity in a team
- is able to create concrete clarifications and systemize
- can understand the practical, complex execution of design processes and own role within these processes
- can deliver and communicate a thorough design solution
- can evaluate the vulnerability of concepts
- is able to communicate closely with

Competences

- can independently take part in collaborating with other stakeholders in design and define own role in the work
- can give a reflected criticism of others design work and results

Type of instructions: Class teaching going through theory and examples parallel with the project work, which is done in groups.

Exam format: Internal evaluation of experiments and reports. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

- Title:** **Concept driven change (10 ETCS course module)**
Konceptdreven forandring
- Prerequisites:** Bachelor in Sustainable design or similar qualifications, understanding of project management, organisation and product development
- Objective:** A student going through the module:
- Knowledge
- understands perspectives applicable on management concepts from political process theory, actor-network theory, symbolism and pragmatism
 - can identify important ideas and approaches in a number of current management concepts and reflect on these
- Skills
- is able to characterise the role of management concepts in the staging of change and design processes
 - can analyse implicit problem diagnosis and related modes of operation in different management concepts
 - can assess the effects of management concepts on innovative abilities and the handling of ideas
 - is able to assess the effects of various management concepts on knowledge flows in an organisation
 - can assess the suitability of a management concept to create change in different situations and contexts
 - is able to analyse the use of management concepts in practice and suggest improvements in staging and implementation of change
 - is able to assess the applicability and need for local adjustments of management concepts
- Competences
- can reflect on own experiences with the use of management concepts
 - can professionally engage in planning and staging concept driven change processes

Type of instructions: Lectures combined with exercises and project work in groups

Exam format: Internal oral examination and exercises. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

3rd Semester Option 2 – International

Title: **International design project (20 ETCS project module)**
Internationalt design projekt

Prerequisites: Bachelor in Sustainable design or similar qualifications

Objective: A student who has been through the module:

Knowledge

- has knowledge on how to set project goals and manage international design projects from start to finish

Skills

- can formulate a purpose for an international design project
- is able to synthesise ideas and concepts in relation to a specific international design project
- can articulate goals, define tasks and coordinate tasks in project work
- can plan and stage the work based on the scope, the complexity and the required results
- can balance off viewpoints and create an harmonic unity in a multi-cultural team
- is able to create concrete clarifications and systemize
- can understand the practical, complex execution of international design processes and own role within these processes
- can deliver and communicate a thorough design solution
- can evaluate the vulnerability of concepts
- is able to communicate closely with international stakeholders

Competences

- can independently take part in collaborating with other stakeholders (from other cultures) in design and define own role in the work
- can give a reflected criticism of others design work and results

Type of instructions: Project work with supervision, presentation seminars, etc.

Exam format: Internal evaluation of experiments and reports. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Introduction to Engineering Work in Multicultural Environments (5 ETCS course module)**
Introduktion til ingeniørarbejde i multi-kulturelt miljø

Prerequisites: A bachelor degree and planning to take part in an international development project

Objective: A student who has been through the module:

Knowledge

- has knowledge about theories describing cultures and intercultural communication
- has knowledge about institutions of development
- has knowledge about personal responsibilities and risks for engaging in engineering work in multicultural environments
- has knowledge about project management tools

Skills

- can identify the technical knowledge needed for a project, master it and apply it to the project. This includes both established engineering science knowledge and local technical knowledges (technical)
- can navigate the complexities of different structures of power to develop a project (power)
- can navigate the complex arrangement of non-governmental organizations, governmental organizations, and companies in the intervening countries to arrange the necessary resources for the development of a project (project management)
- is able to assess the different motivations that exist for conducting projects in multicultural environments and their implications for the project itself (character)
- can select appropriate methodologies for data collection, analysis and synthesis according to the social and technical needs of a project (methods)
- is able to describe, analyse and assemble the social aspects of technologies and the technical aspects of social organization (sociotechnical)

Competences

- can independently engage and take responsibility in engineering work in multi-cultural environments
- is able to independently establish and conduct a working relationship with people from other cultures (intercultural)

Type of instructions: A combination of seminars, exercises and task assignments.

Exam format: Internalevaluation of exercises/reports. The assessment is performed as pass/fail

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Title: **Society and Development – A Country Study (5 ETCS course module)**
Samfund og Udvikling – et landestudie

Prerequisites: A bachelor degree and planning to take part in an international development project

Objective: A student who has been through the module:

Knowledge

- has insight into the history of country X
- conceptions of development in country X
- has insight into theories of intercultural communication and can identify the challenges that might occur in communication processes between Danes and the citizens of country X
- can identify the institutions of development of country X

Skills

- can present and discuss the main historical developments of country X that have an impact on how cooperation projects in engineering might be carried out
- is able to discuss the main conceptions of development that serve as foundation for the work of cooperation organizations in country X
- can establish and develop a communication strategy with partners in country X for the development of a project, taking into account the limitations and opportunities that the differences in culture might provide

Competences

- is able to independently and professionally navigate the complex arrangement of non-governmental organizations, governmental organizations, and companies both in Denmark and in country X in order to develop a project

Type of instructions: A combination of seminars, exercises and task assignments.

Exam format: Internal evaluation of exercises/reports. The assessment is performed as pass/fail

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

4th semester

Title: **Master thesis (30 ETCS course module)**
Kandidatspeciale

Prerequisites: Bachelor in Sustainable design or similar qualification and has passed 60 ETCS credits on the master program in Sustainable design

Objective: A student going through the module:

Knowledge

- must demonstrate knowledge and understanding of sustainability and innovation of the latest international research in the field
- must be able to critically assess knowledge and identify problems with regards to sustainability, design and innovation, within the chosen subject
- must demonstrate the ability to select appropriate research-based knowledge for use in the design process and demonstrate a high degree of awareness regarding their value and limitations

Skills

- must demonstrate the ability to frame a design assignment or a sustainability challenge using professional tools and methods
- must be able to independently motivate their choice of methods or/and theoretical approach during a project
- must demonstrate the ability to argue for a solution with regards to its business potential
- must be able to analyse market conditions (users, technologies, competitors etc.) and describe how own solution will perform in this market
- must demonstrate the ability for staging design and innovation processes and
- must demonstrate the ability to communicate design and design proposals in a professional manner

Competences

- must be able to present the results of the project work in a project report and during an oral examination and argue for the approach taken and the results
- must demonstrate the ability to independently manage a project from start to finish and reflect on the processes, theories, methods and tools used

Type of instructions: Project work with supervision, presentation seminars, etc.

Exam format: External oral examination based on written report. The assessment is performed in accordance with the 7-point scale.

Evaluation criteria: The criteria for evaluation are provided in the Framework Provisions

Chapter 4: Entry into Force, Interim Provisions and Revision

The curriculum is approved by the Dean of the Faculty of Engineering and Science and enters into force as of 1st September 2013.

In accordance with the Framework Provisions and the Handbook on Quality Management for the Faculty of Engineering and Science and The Faculty of Medicine at Aalborg University, the curriculum must be revised no later than 5 years after its entry into force.

Chapter 5: Other Provisions

5.1 Rules concerning written work, including the Master's thesis

In the assessment of all written work, regardless of the language it is written in, weight is also given to the student's spelling and formulation ability, in addition to the academic content. Orthographic and grammatical correctness as well as stylistic proficiency are taken as a basis for the evaluation of language performance. Language performance must always be included as an independent dimension of the total evaluation. However, no examination can be assessed as 'Pass' on the basis of good language performance alone; similarly, an examination normally cannot be assessed as 'Fail' on the basis of poor language performance alone.

The Board of Studies can grant exemption from this in special cases (e.g., dyslexia or a native language other than Danish).

The Master's thesis must include an English summary.¹ If the project is written in English, the summary must be in Danish.² The summary must be at least 1 page and not more than 2 pages. The summary is included in the evaluation of the project as a whole.

5.2 Rules concerning credit transfer (merit), including the possibility for choice of modules that are part of another programme at a university in Denmark or abroad

In the individual case, the Board of Studies can approve successfully completed (passed) programme elements from other Master's programmes in lieu of programme elements in this programme (credit transfer). The Board of Studies can also approve successfully completed (passed) programme elements from another Danish programme or a programme outside of Denmark at the same level in lieu of programme elements within this curriculum. Decisions on credit transfer are made by the Board of Studies based on an academic assessment. See the Framework Provisions for the rules on credit transfer.

5.3 Rules for examinations

The rules for examinations are stated in the Examination Policies and Procedures published by the Faculty of Engineering and Science on their website.

5.4 Exemption

In exceptional circumstances, the Board of Studies can grant exemption from those parts of the curriculum that are not stipulated by law or ministerial order. Exemption regarding an examination applies to the immediate examination.

5.5 Completion of the Master's programme

The Master's programme must be completed no later than four years after it was begun.

¹Or another foreign language (upon approval from the Board of Studies).

² The Board of Studies can grant exemption from this.

5.6 Rules and requirements for the reading of texts

It is assumed that the student can read academic texts in his or her native language as well as in English and use reference works etc. in other European languages.

5.7 Additional information

The current version of the curriculum is published on the Board of Studies' website, including more detailed information about the programme, including exams.