

Sustainability Engineering and Management, Master's Programme

120 credits

Sustainability Engineering and Management,
masterprogram

6MSUS

Valid from: 2017 Spring semester

Determined by
Faculty Board of Institute of Technology

Date determined
2017-01-25

Purpose

A Master of Science in Sustainability Engineering and Management from Linköping University works with all aspects of development of resource efficient technical systems, complex products and industrial processes.

A graduate from this programme will be able to apply a multidisciplinary systems approach to proactive engineering with a strong focus on sustainability.

The programme is aimed at students with a Bachelor degree who would like to extend their knowledge in energy and environmental engineering. Graduates are suitable for employment in industry, business, academic institutions and at major research and development laboratories.

Aim

Mathematics, natural sciences and engineering subjects

A Master of Science in Sustainability Engineering and Management

- has solid foundations in mathematics and engineering sciences
- is able to effectively use computerised tools for modelling, analysis and visualization of engineering problems
- has specialized knowledge in the area of Sustainability Engineering and Management

Personal and professional skills

A Master of Science in Sustainability Engineering and Management

- has the ability to take a leading role in modern research and engineering
- is able to gain competency in new fields of engineering, rapidly and independently is able to participate effectively in multidisciplinary teams, either as team leader or in a specialist role

Interpersonal skills: teamwork and communication

A Master of Science in Sustainability Engineering and Management

- is capable of teamwork and active collaboration within the group by sharing in the tasks and responsibilities
- is able to initiate, plan, carry out and evaluate scientific and engineering projects
- is skilled in oral and written communication

Content

The programme embraces two years full time studies (120 ECTS). The first semester is used for compulsory, introductory courses. Semester two and three include specialisation and possibilities for diversification depending on the interest of the student. The programme ends with a one semester Master thesis.

Entry requirements

- Bachelor's degree with a major in an engineering subject
- 30 ECTS credits in mathematics/applied mathematics and/or application of mathematics relevant for the programme
- English corresponding to the level of English in Swedish upper secondary education (English 6/B)

Degree thesis

The thesis should be based on the high quality scientific content and carried out in close contact with the research groups involved in the programme and in the area of the profile chosen by the students. The major subject of the Thesis work should be Energy and Environmental Engineering.

Degree requirements

The programme is designed to give the Master's Degree "Teknologie masterexamen i energi och miljöteknik" translated to "Degree of Master of Science (Two Years) with a major in Energy and Environmental Engineering".

The requirements are the following:

- a Bachelor's degree as specified in the entrance requirements
- course requirements for a total of 120 ECTS credits from courses from the curriculum of the programme, or after special decision from the programme board, and thesis work.
- passed the requirements for all compulsory courses
- courses on advancement level A (advanced) 90 ECTS credits including:
 - at least 30 ECTS credits courses from the major subject (Energy and Environmental Engineering)
 - a 30 ECTS credits Master's Thesis in the major subject (Energy and Environmental Engineering)
- at least 45 ECTS credits from courses in mathematics or applications of mathematics from the Bachelor level (basic) or Master level (advanced), see list of specific courses
- a Master's thesis in major subject Energy and Environmental Engineering presented and passed as per Linköping Institute of Technology degree regulations.

Courses overlapping each other regarding contents are not allowed to be included in the degree. Courses used for the Bachelor's degree can never be included in the Master's degree

Degree in Swedish

Master of Science (two years) with a major in Energy and Environmental Engineering

Degree in English

Master of Science (two years) with a major in Energy and Environmental Engineering

Specific information

Graduate Level Courses

Certain PhD courses can be taken by master students. These course selections are subject to formal decision by the executive committee of the Program Board.

Common rules

See also common rules

Curriculum

Semester 1 (Autumn 2017)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TEIO32	Project Management and Organization	6*	G2X	3	C
TKMJ14	Large Technical Systems and the Environment	6	A1X	1	C
TMKT78	Product Development	6	G2X	2	C
Period 2					
TEIO32	Project Management and Organization	6*	G2X	1	C
TKMJ28	Management Systems and Sustainability	6	A1X	2	C
TMES12	Energy Systems	6	A1X	3	C

Semester 2 (Spring 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TKMJ10	Industrial Ecology	6	A1X	1	C
TMES17	Building Energy Systems	6	A1X	3	C
Period 2					
TEIO06	Innovative Entrepreneurship	6	A1X	2	C
TKMJ29	Resource Efficient Products	6	A1X	1	C
TMES21	Industrial Energy Systems	6	A1X	3	C

Semester 3 (Autumn 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TMPE01	Project Course Advanced - Energy Engineering	12*	A1X	-	C
TEIO90	Innovation Management	6	A1X	2	E
TKMJ31	Biofuels for Transportation	6	A1X	1	E
Period 2					
TMPE01	Project Course Advanced - Energy Engineering	12*	A1X	-	C
TKMJ32	Integrated Product Service Engineering	6	A1X	3	E
TMES51	International Energy Markets	6	A1X	1	E

Semester 4 (Spring 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TQXX30	Degree project - Master's Thesis	30*	A1X	-	C
Period 2					
TQXX30	Degree project - Master's Thesis	30*	A1X	-	C

ECV = Elective / Compulsory / Voluntary

*The course is divided into several semesters and/or periods