MSc in Resource Recovery - Sustainable Engineering

Masterutbildning i energi- och materialåtervinning - hållbara tekniska system

120 credits

Ladok Code: KMARE
Version: 7.0
Level: Second cycle
Approved by: Research and Education Board 2012-01-19
Valid from: Autumn 2011
Valid for:

General Objectives

Second level education shall essentially build on the knowledge that students acquire in first level education or corresponding knowledge. Second level education shall involve a deepening of knowledge, skills and abilities relative to first level education and, in addition to what applies to first level education, shall

- further develop the students' ability to independently integrate and use knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable independence or for research and development work.

(The Higher Educations Act, Chapter 1, Section 9)

Objectives

The education is aimed at providing the student with skills and knowledge to be able to develop and introduce sustainable systems and technology in the material, energy and recycling sectors. The central focus of the programme is resource management and recycling of energy and materials. The education also aims at preparing the student for PhD studies.
Upon graduation, the student is expected to:

- be well prepared for PhD studies,
- have good knowledge about recycling of energy, materials and nutrients,
- have good knowledge about production of renewable fuels, such as bioethanol and biogas,
- have good knowledge about planning of facilities for recycling of energy and of facilities for production of alternative fuels,
- have good knowledge of biotechnical techniques to solve problems concerning waste,
- have acquired experience of working in projects,
- orally and in writing be able to present projects and investigations in English.

Content

Study year 1
Unless otherwise stated, a course comprises 7.5 ECTS credits.

- Resource Recovery
- Energy Recovery Processes
- Energy Recovery - Thermal Treatment
- Modelling of Combustion Processes - Theory and Application
- Life Cycle Assessment
- Biofuels and Biological Treatments of Wastes
- Case study - Recovery of Energy and Material, 15 ECTS

Study year 2

- Degree Thesis, 60 ECTS. The degree thesis, 60 ECTS, includes a series of seminars in theory of science and scientific methods comprehending 4 ECTS.

Or

- Degree Thesis, 30 ECTS, course in Scientific Method, 7.5 ECTS, and elective courses within the area Resource Recovery comprehending 22,5 ECTS.

Admission Requirements

- Bachelor´s degree in Engineering with a specialisation in Mechanical, Industrial, Chemical, Energy or Civil Engineering or a Bachelor of Science in Chemistry, 180 credits, or equivalent.
- Courses in Thermodynamics.
- Verified knowledge of English corresponding to the course *English B* in the Swedish Upper Secondary School *or* a Bachelor´s degree from a university in Sweden, Denmark, Norway, Finland or Iceland.

For further information about English language proficiency, please view: *www.hb.se/wps/portal/engtest*

Degree

Degree of Master of Science (Two Years) with a major in Energy and Material Recovery - specialisation Sustainable Engineering.

Degree certificates are issued upon application on a special form. More information is available at www.hb.se.

Student Influence and Evaluation

Every course in the programme is evaluated (see to the university policy on course evaluation). The head of the programme is responsible for regularly and in a systematic fashion collecting the student's opinions on the education. The head of the programme, along with the prefect, is also responsible for evaluating the whole programme on a yearly basis. The evaluation is carried out in cooperation with the programme's teacher, the students and professional representatives. The evaluation is documented in writing and brought back to the students.

Miscellaneous

Study language: English

The language of instruction is English.