



Course syllabus

Hållbar utveckling med elektrotekniskt perspektiv Sustainable Development from an Electro-technological Perspective

FMIF35, 4 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED W

Date of Decision: 2023-03-27

General Information

Main field: Technology.

Compulsory for: E3

Language of instruction: The course will be given in Swedish

Aim

Masters of Science in Electrical Engineering will develop much of the technology of tomorrow. Sustainability requirements will involve significant changes in reducing environmental impact and resource usage but will also bring great opportunities to contribute positively through product development. Future engineers need a basic understanding of both the scientific and the social perspectives that drive future requirements in order to address these aspects of sustainable development. The course provides the students with an introduction to the concept of sustainable development; major environmental problems of relevance from an electrical engineering perspective, and the rules and regulations that a product developer must deal with. The course will provide strategic insight into what will shape the future requirements in terms of environmental policy and raw material constraints.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- * Be able to describe important environmental and resource issues in relation to the demands in modern society
- * Be able to describe and explain principles and concepts regarding societal frameworks such as policy instruments and legislation
- * Be able to describe and discuss environmental impacts from the electronics and power/energy industries, and discuss their future challenges

Competences and skills

For a passing grade the student must

- * Be able to gather information, critically evaluate and discuss the concepts of sustainable development and specific environmental problems, both in writing and orally
- * Be able to write a well-structured and concise group report

Judgement and approach

For a passing grade the student must

- * Demonstrate a critical approach to issues of sustainable development related to engineer's modus operandi

Contents

Instruction consists of lectures and seminars on some strategically important environmental issues such as climate change, air quality, resource issues and environmental toxins. The concept of "sustainable development" is discussed from a natural science, societal and business perspective. The following aspects are also included: relevant legislation, policy instruments and societal visions guiding long-term development; life cycle assessments (LCA) and legislation based on selected, relevant sectors such as waste and energy. Oral presentations at seminars based on written group reports are mandatory.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written exam with grade. Project with written essay as well as presentation and discussion at a seminar. The course as a whole is graded based on the written exam (U, 3, 4, 5).

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0123. **Name:** Examination.

Credits: 2,5. **Grading scale:** TH. **Assessment:** Written exam

Code: 0223. **Name:** Project.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Written report and presentation at seminar

Admission

The number of participants is limited to: No

The course overlaps following course/s: FMIF15, FMIF10, FMIF20, FMI031, FMIA01, FMIF01, FMIF05, FMIF45, FMIF50

Reading list

- Ammenberg, J., Hjelm, O. (red.): Miljöteknik - för en hållbar utveckling. Studentlitteratur, 2013, ISBN: 978 91 44 09275-1. Due to the quick

development in this field, the literature may change. This will be communicated eight weeks before the course starts.

- Scientific articles, reports.

Contact and other information

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Course administrator: Petra Malmquist, petra.malmquist@miljo.lth.se

Course homepage: <http://Canvas>