AL1504 Sustainable Development for Computer Science and Engineering 7.5 credits

Hållbar utveckling för datateknik

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for AL1504 valid from Autumn 2019

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

- ME1010 and DD1393
- Exemptions are made for students following the current transiton rules from OPEN to CDATE. Elegibility is determined by the student counsellor.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

1. explain and problematize (discuss criticise, explain relationships) the concept of sustainable development, mainly connected to environmental problems, social aspects and ethics.

2. identify national and international goals for sustainable development and explain in what way they are relevant for computer- and information-technology applications.

3. account for connections technical systems, how they influence one another and what the limitations are

4. explain and discuss the possibilities and limitations of computer and information science for sustainable development, from individual components to systems

5. analyse consequences for sustainable development in life cycle perspective of computer and information technological of applications, as well as suggest design of systems on the basis of those consequences

Course contents

Computer- and information technology is a strong growth factor in society that contributes to both solutions and problems for sustainable development. This course aims to give the student basic knowledge of how computer and information science may promote sustainable development, from individual components to systems.

The course will also highlight which social, environmental and ethical problems are associated with computer- and information-technology. You will gain knowledge of, and tools to work with sustainable development in the life cycle of computer- and information-technology applications, with special focus on the early phases of demand specification and development (design). i.e. the phase in which desired functions are translated to a concrete product, system or service. In the course, you will also get the opportunity to apply your knowledge of sustainable development in the form of a project that is carried out in teams of 3-5 students. The course will also train you in systematic reflection on the values, underpinning the concept of sustainable development, in particular ethical and justice aspects related to the distribution of resources across and between generations.

Disposition

The course is divided into three modules: a lecture and seminar module that is examined through a larger written assignment/hemtenta (INL1, 3 credits), a smaller written assignment where the students should work with problem-solving assignments integrated with the seminars (INL2, 1.5 credits) and a project work (PRO1, 3 credits). The lecture and seminar module and the small written assignment (3+1.5 credits) are scheduled during the first half of the course and the project during the second half, so that the acquired knowledge can be applied in the project. Each student has to submit a short reflection that describes his/her own work and his/her role in the project team.

Course literature

Is announced later.

Examination

- INL1 - Home exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project assignment, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Seminar Assignment, 1.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.