

# Green Computing

Programme course

4 credits

Grön IT

TDDD50

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Computer Science  
and Media Technology

**Date determined**

2017-01-25

## Main field of study

Information Technology, Computer Science and Engineering, Computer Science, Programming

## Course level

First cycle

## Advancement level

G2X

## Course offered for

- Computer Engineering, B Sc in Engineering
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- Computer Science and Engineering, M Sc in Engineering
- Information Technology, M Sc in Engineering

## Specific information

The course is not available for exchange students

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

Basic knowledge of electronics, digital systems, computer architecture, programming, operating systems, and computer networks.

## Intended learning outcomes

- Identifying and analyzing the environmental impact of the Information and Communication Technology (ICT), leading to its CO<sub>2</sub> footprint.
- Seeking information about the life cycle of ICT products and their energy impacts.
- Describing the standards and programs related to the sustainability of ICT products.
- Describing and analyzing current mechanisms to reduce the energy consumption of ICT products, in particular in data centres.
- Summarizing a research paper in the area of green computing, communicating it in English to an audience, and leading a discussion in a group.
- Summarizing a research paper in the area of green computing in a report written in English and seeking information about related topics.

## Course content

- Global perspective on ICT footprint.
- The life cycle of ICT products: product design, use, end of life cycle, including management of electronic waste.
- Green ICT related standards and certification approaches.
- Power-aware computing and power management.
- Data center sustainability.
- Tools and metrics to evaluate the energy consumption of products and approaches to improve energy efficiency.

## Teaching and working methods

Lectures providing overview on ICT and sustainability, field trip to a commercial data centre, followed by obligatory seminars with student presentations in groups of 10-15 students.

## Examination

UPG3 Active participation in seminars, and written report	3 credits U, 3, 4, 5
UPG2 Oral Presentation and Seminar Leadership	1 credits U, G

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Department

Institutionen för datavetenskap

## Director of Studies or equivalent

Ahmed Rezine

## Examiner

Simin Nadjm-Tehrani

## Course website and other links

<http://www.ida.liu.se/~TDDD50/>

## Education components

Preliminary scheduled hours: 24 h

Recommended self-study hours: 83 h

## Course literature

Valda artiklar för seminarier som annonseras på kurswebben.

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).