



# IF1330 Electrical Principles 7.5 credits

Ellära

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

## Establishment

Course syllabus for IF1330 valid from Autumn 2007

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Electrical Engineering, Technology

## Specific prerequisites

## Language of instruction

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

## Intended learning outcomes

After completion of the course the student should be able to

- explain the basic electrical and magnetic concepts
- describe passive components and electrical networks
- perform network calculation and simulation
- analyze basic circuits
- dimension circuits using passive components
- measure electrical circuits.

## Course contents

Charge, voltage, current, power, and energy. Electric and magnetic fields.

Knowledge of components (R, L, C) and ideal transformer. Direct and alternating current.

Safety considerations. Series and parallel circuits. Independent and dependent sources. Ohm's law and Kirchhoff's laws.

Superposition, Thévenin's Theorem, Norton's Theorem and Nodal analysis. Mathematical operations with complex numbers. R-C circuits and response circuits

## Course literature

Lärobok: Elkretnalys (kan köpas från studerandeexpeditionen STEX på KTH Campus).

Övningshäfte "Repetition om komplexa tal" (laddas ner från kurswebben).

## Examination

- TEN1 - Examination, 6.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 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.