

**SYLLABUS**

# **EMC technology 7.5 credits**

## **E7031E**

**EMC-teknologi**

**Course syllabus admitted: Autumn 2023 Sp 1 - Present**

**DECISION DATE**  
**2021-11-03**

# EMC technology 7.5 credits E7031E

## EMC-teknologi

### Second cycle, E7031E

**Education level**  
Second cycle

**Grade scale**  
G U 3 4 5

**Subject**  
Elektroteknik

**Subject group (SCB)**  
Electrical Engineering

## Entry requirements

English 6. Basic circuit theory (E0003E). Analysis of linear circuits in the time- and frequency- domain. Inductance and capacitance. Analysis of first- and second- order circuits. Laplace transform. Simulations using PSpice (E0007E, Electronics). Mathematical analysis and multi-variable analysis. Electromagnetic field theory (F0007T).

## Selection

The selection is based on 30-285 credits

## Course Aim

To be able to plan and execute measurements according to standards describing EMC testing. To be able to calculate and describe transmission lines in the time- and frequency- domain. To be able to describe antenna effects for systems and/or parts of a systems. To be able to plan for preventive measures and execute calculations supporting EMC proper design. To be able to choose and adapt filter components. To be able to describe principles for radiated and conducted emission and immunity. To be able to work with shielding of electromagnetic fields. To be able to work with preventive measures for electrostatic discharge (ESD). Be able to plan, execute and report practical laboratory work.

## Contents

Introduction to electromagnetic compatibility (EMC). EMC regulations. Transmission lines and crosstalk. Design for EMC. Radiated and conducted emission and immunity. Shielding. Electrostatic discharge (ESD). Numerical modeling within electromagnetics.

## Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures. Laborations with compulsory preparations.

## Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Written partials. Laboratory work presented as written reports.

## Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term “unauthorized aids” refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

## Course offered by

Department of Computer Science, Electrical and Space Engineering

## Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Partials	G U 3 4 5	4	Mandatory	S18	
0002	Laboratory work	U G#	3.5	Mandatory	S18	

## Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

## Last revised

by Jonny Johansson, HUL SRT 2021-11-03

## Syllabus established

by Jonny Johansson, HUL SRT 2017-02-15