Antenna Theory

Programme course

6 credits

Antennteori

TNE083

Valid from: 2017 Spring semester

Determined by
Board of Studies for Electrical Engineering, Physics and Mathematics

Date determined
2017-01-25

Main field of study
Electrical Engineering

Course level
Second cycle

Advancement level
A1X

Course offered for
- Electronics Design Engineering, M Sc in Engineering
- Communication Systems, Master's programme
- Electronics Engineering, Master's programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering

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
RF Electronics

Intended learning outcomes
The course will provide basic knowledge of antenna theory and technology, and introduce the basic theory that underpins antenna design technology. After this course the student should

- Be able to interpret different parameters and properties used to characterize antennas.
- Analyse the basic antenna problems.
- Perform and master fundamental descriptions of antenna properties.
- Critically formulate an appropriate model and calculate properties of common antenna types.

Course content

- Fundamentals of antenna
- Electromagnetic wave propagation and power flow
- Common antenna types
- Antenna array techniques
- Systems and characterization considerations
- Antenna matching techniques

Teaching and working methods

The course will include lectures, laborations, laboratory report and a written exam. The course includes three computer laborations and one measurment laboration.

Examination

LAB1	Laboratory work	1 credits	U, G
TEN1	Written examination	5 credits	U, 3, 4, 5

Grades

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

Department

Institutionen för teknik och naturvetenskap

Director of Studies or equivalent

Adriana Serban

Examiner

Magnus Karlsson

Education components

Preliminary scheduled hours: 44 h
Recommended self-study hours: 116 h

Course literature

Additional literature

Books

Physics handbook
or equivalent
Constantine A. Balanis, (2005) *Antenna Theory – Analyses and Design,* 3
ISBN: ISBN-978-0-471-66782-7
John Wileys and Sons Inc.
Vincent F. Fusco, *Foundations of Antenna Theory and Techniques*
ISBN: 0 130 26267 6
Pearson Education Limited

Compendia

Course specific formula sheet, handout

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://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.