Mobile Communication

Programme course

6 credits

Mobil kommunikation

TNK093

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial Engineering and Logistics

Date determined
2017-01-25

Main field of study
Electrical Engineering, Transportation Systems Engineering

Course level
First cycle

Advancement level
G2X

Course offered for
- Communication and Transportation 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
Basic course in computer networking, telecommunications or both

Intended learning outcomes
The students should after completing the course be able to:
- Identify the most important components and functions of a mobile communication system
- Explain the differences in characteristics between different types of mobile communication systems and motivate their existence
- Compare and explain areas of applications for different mobile communication systems
- Relate functions, terms and technologies to the correct level in a communication system architecture
- Argue for the role of the mobile communication systems in different applications
- Evaluate trade-offs between different mobile communication technologies and systems
- Define and calculate key performance metrics of a mobile communication system
- Assess the performance of different mobile commmunication technologies given a set of application requirements
- Apply models and methods for planning of cellular networks

Course content

The course aims to provide knowledge in mobile communications, especially different system characteristics and performance.
Mobile communication technologies include e.g. modulation, medium access control, mobility management, radio resource management, network planning and dimensioning. Covered mobile communication systems are e.g. GSM, GPRS, UMTS, LTE and WLAN.

Teaching and working methods

Lectures, tutorials, labs and smaller project assignment.
The course runs over the entire spring semester.

Examination

UPG2	Project	2 credits	U, G
LAB1	Laboratory work	1 credits	U, G
TEN1	Written examination	3 credits	U, 3, 4, 5

Grades

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

Other information

Supplementary courses:
Wireless Communication Systems, Network Simulation, Positioning Systems

Department

Institutionen för teknik och naturvetenskap

Director of Studies or equivalent

Erik Bergfeldt

Examiner

David Gundlegård

Education components

Preliminary scheduled hours: 48 h
Recommended self-study hours: 112 h

Course literature

Vijay Garg, Wireless Communications and Networking, Elsevier, 2007, ISBN 978-0-12-373580-5

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.