



# IK2560 Mobile Networks and Services 7.5 credits

Mobila nätverk och tjänster

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

## Establishment

Course syllabus for IK2560 valid from Spring 2018

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Electrical Engineering

## Specific prerequisites

IK1203 Networks and Communications, or equivalent course.

## Language of instruction

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

# Intended learning outcomes

Upon completion of the course, the student should be able to:

- Explain the basic functionality of mobile networks and be able to do performance calculations.
- Discuss the effect of the availability of affordable mobile services and IoT in a global society.
- Be able to explain the architecture of existing mobile and wireless networks and compare and contrast one network architecture with another.
- Describe the core network protocols and applications in the current generations of mobile networks.
- Explain, in a broad sense, the environmental and sustainability challenges of the ICT-industry (electromagnetic radiation, energy, limited natural resources, environmentally harmful effects, economic effects (of both infrastructures and devices), economic and social effects on society).
- Demonstrate your knowledge of this area both orally and in writing.
- Be able to follow the current literature, i.e. white papers, conference papers, and journal papers in the area.

## Course contents

- Transmission fundamentals, Signal encoding, Overview of Wireless Communications.
- Architecture of Wireless LAN, PAN, and BAN.
- Architecture of current generations of Mobile Networks.
- Mobile applications, Internet of Things (IoT), and device to device communication.
- Sustainability and ICT.

## Course literature

C. Beard and W. Stallings. Wireless Communication Networks and Systems. Pearson Education, 2016 Selected papers.

## Examination

- PRO1 - Project, 3.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - On-campus digital assessment, 4.0 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.