Welcome to the 2-year Master Program on Information and Network Engineering

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Welcome to KTH!

KTH, the Royal Institute of Technology
Excellence in Education, Research and Entrepreneurship
Welcome to Stockholm!

Welcome to Sweden!
KTH—Five Schools, Countless Opportunities

- School of Architecture and the Built Environment
- School of Chemistry, Biotechnology and Health
- **School of Electrical Engineering and Computer Science**
- School of Engineering Science
- School of Industrial Engineering and Management

School of EE Organization

- Information Science and Engineering
- Network and Systems Engineering
  - Automatic Control
  - Micro and Nanosystems
- Fusion Plasma Physics
- Space and Plasma Physics
- Electric power and Energy systems
- Electromagnetic Engineering
School of EECS - Research areas

- Automatic control
- Communication systems
- Computational science and technology
- Electric power and energy systems
- Electromagnetic engineering
- Electronics
- Fusion plasma physics
- Information science and engineering
- Media technology and interaction design
- Micro and nanosystems
- Network and systems engineering
- Robotics, perception, and learning
- Software and computer system
- Space and plasma physics
- Speech, music and hearing
- Theoretical computer science

Faculty at Information Science and Engineering Dept.

Professors
- Mikael Skoglund (head)
- Mats Bengtsson
- Peter Händel
- Joakim Jaldén
- Magnus Jansson
- Lars Kildehøj Rasmussen

Associate Professors
- Markus Flierl
- James Gross
- Tobias Oechtering
- Ragnar Thobaben
- Ming Xiao

Assistant Professors
- Saikat Chatterjee
Research at Information Science and Engineering (ISE) Department

- Wireless Networks
- Information and coding
- Processing and learning
- Multimedia communication
- Privacy and security
- Intelligent transportation
- Positioning and navigation

Research at Network and Systems Engineering Department

- Communication Networks
- Cyber Physical Systems Security
- Distributed Systems
- Game Theory
- Internet of Things
- Management of Technology
- Mobile Communications
- Mobile Edge Computing
- Network Analytics
- Networking
- Network Systems Management
- Opportunistic Networks
- Optimization Theory
- Privacy
- Product Development
- Project Management
- Quality Management
- Security
- Stochastic Modeling
- Wireless Communications
KTH Campuses in Stockholm

Like a small town in the middle of a big city, the KTH Campus offers a student clinic, a newly built library, the Info-Center, a sports centre, a housing agency, the President’s Administration and much more. There are also cafés and restaurants as well as the student union building Nymble.

KTH Campus – in Stockholm City (most courses)
KTH Kista (some elective courses)

KTH Kista is Sweden’s leading IT campus. Located in the middle of Kista, one of the world’s leading high-tech centres for IT and communications, the campus hosts more than 5,000 students from KTH and Stockholm University.

Structure of Education at KTH
Degrees at KTH

- The Swedish Engineering degree (civilingenjör)
  - 5 years (300 cu's) of full-time studies
  - Degree translates into "M.Sc. in Engineering"
  - BSc+MSc! Explicit Bachelor’s degree is optional

- *Master of Science with a major in … (teknologie magister i …)
- …

The Information & Network Engineering Master program degree:
- *Master of Science with a major in Electrical Engineering. Specialization in Information and Network Engineering.*

The Information & Network Engineering Master Program (TINNM)

- 2 years (3 semesters coursework, 1 sem. thesis)
- New! – First admissions Fall 2017
- Well established! – Based on two previous programmes,
  - Wireless Systems
  - Network Services and Systems
- Four study tracks:
  - Communications Engineering
  - Information Engineering
  - Multimedia Processing and Analysis
  - Networked Systems
Curriculum, Degree Requirements

- 90 cr.u. courses + 30 cr.u. degree project
- 5 compulsory courses
- Fulfil requirements of **at least one** of the 4 study tracks
- Strongly recommended: 6-15 cr.u. non-technical courses
- Registration on the 3rd program semester (i.e., to begin the 2nd year) requires 45 credits taken (up to and including the August re-exam period).
- Detailed information on Internet: [www.kth.se/social/program/tinnm/](http://www.kth.se/social/program/tinnm/) easiest accessible through your KTH menu.

The Academic Year

- Academic year divided into 4 quarters/periods ("perioder")
- Credit units ("poäng"): 1 week = 1.5 cr.
  1 quarter = 15 cr.
  1 semester = 30 cr.
Organization of Teaching

Voluntary: Lectures, Tutorials, Help Sessions, (Homework), …

Mandatory: Exams, Labs, Projects, (Homework), …

Exams: Usually written. The ECTS grading system is used.
Passing grades: A (highest grade), B, C, D, E.
Failing grades: FX (possibility to get passing grade if you do some extra assignment), F.
Students who fail an exam must take re-examination.
Typically, exams for a course are given twice per year.

Honor code: Academic dishonesty taken very seriously at KTH

Course Selection

• First quarter course selection already done, EQ1220+EP2120+EQ2222
• Hand in study plan as soon as possible to Cristina, deadline Tuesday August 28!
• Study plan template with course lists+links to detailed course information, available at program web page.
• Tuition fee only covers 60 credits/academic year.
• Courses in one study track are obviously elective also in other profiles.
• Elective courses with course code ID***/IK***=Kista Campus, consider travel time between campuses.
More on the Course Selection

- Elective courses marked in red are very demanding, offered jointly for PhD students and you. Think twice before selecting!
- Some of these are only offered every second year: "even" = 2018/19, "odd" = 2019/20
- Swedish courses (optional!!!):
  - On-line "SWELL"
  - Class-room (limited space in this fall semester)
  - Consider AK1213 Swedish Society, Culture and Industry in Historical Perspective as an alternative

Thesis Project

- Perhaps the most rewarding part of the program
- Within the general topic of your study track
- 30 credits (20 weeks)
- Carried out in industry or at university (same requirements!).
- Within Sweden or anywhere in the world!
- Student's own responsibility to find a project!
- Grade: Pass/Fail
Thesis Project, Requirements

- Must have taken >60 credits finished courses from the program, to start
- Preferably done during the spring semester, 2nd year
- Must have taken relevant courses
- Must be approved by examiner and program director before start.
- Course requirements:
  - Written report, approved by your supervisor and the examiner
  - Oral presentation at KTH, approved by KTH examiner
  - Attend two other presentations at KTH
  - Act as opponent on another student's presentation

Practicalities

- Course material:
  - Buy yourself!
  - Main text book – at book store
  - Often extra compendiums, … sold at the lab
- Time tables:
  - 8-10 means 8:15-9:00 + 9:15-10:00
  - Separate access cards at Kista campus!
- Mailing list: tinnm18@eeecs.kth.se Free to use for education related issues (Mats and Cristina are on the list).
- Programme web page, especially “Students admitted 2018…”
- Read your KTH email (watch out with email forwarding)!
EQ2222 (EQ2223) Sustainable Information & Network Engineer course

- Course objective and topics
- Organization and grading

Objectives

To cover some important topics of life as a student and as an engineer
- Study Information & Network Engineering – Why and How
- Studying and working in international environment
- Ethical aspects
- Sustainability – the engineers’ role
- ...

Regularly discuss program related issues

Meet the other students of the program – across years
Course setup

• 4 seminars per year, 2 hours per seminar – 3ECTS (EQ2222)
  – 1.5 ECTS version for Erasmus, DD, etc. students (EQ2223)
• First and second year students mixed, groups of 8-10 students
  – Groups are defined by the teachers and are fixed
• Reading-reflection-discussion

Course setup

• Read some material to prepare
• Write one page reflection
• Read reflections from all the others
• Discuss at the meeting
• If you miss a meeting, submit a written reflection on reflections

• Detailed instructions with reading material and questions for reflection are posted on the course webpage
Grading

- Based on points collected for reflections and seminar participation
- Both reflections and participation are compulsory

- Reflection:
  - Submitted on time: 1 or 2 points
  - Submitted with little delay: 0 point
  - Submitted very late: -2 points
- Active participation at seminar: 1 point
- "Reflection on reflections" for missed seminar
  - Agreed in advance and submitted on time: 1 point
  - Not agreed in advance and/or not submitted on time: 0 point
  - Submitted late: -2 points

- Max 8*3=24 points
- Grades:
  - A:24
  - B:21-23
  - C:18-20
  - D:15-17
  - E:12-14
- Fx: If you miss the E with n points (e.g., if you have 4 points, then n=8) write a 12-n page long document to pass the course. Topic: On the contribution of wireless system engineers to the sustainable society
First meeting and preparation

- First seminar on week 38 (exact date and time depending on group)
- Reading material and questions available on week 36 the latest
- Deadline to submit reflections: one week before the seminar
- Remember all these, since there will not be any additional information meeting before first seminar!