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

Mats Bengtsson, Prof., Program director, mats.bengtsson@ee.kth.se

Cristina La Verde, program coordinator, clv@kth.se

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 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 Division

Professors

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

Associate Professors

- Markus Flierl
- James Gross
- Ragnar Thobaben
- Ming Xiao

Assistant Professors

- Saikat Chatterjee

Research at Information Science and Engineering (ISE) Division
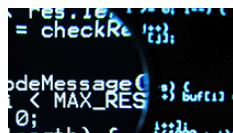
Wireless Networks

Information & coding

Proc. & learning

Multimedia comms.

Privacy and security

Intelligent transport.

Positioning & 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

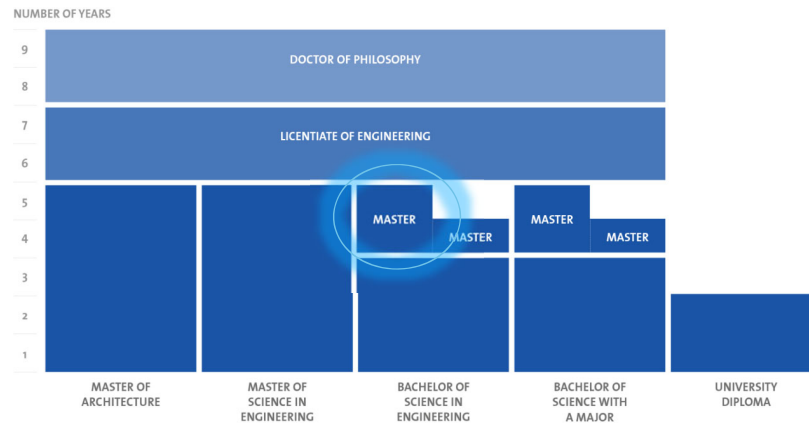
KTH Campus Valhallavägen

KTH Campus Kista

KTH Campus Södertälje

KTH Campus Flemingsberg

Structure of Education at KTH

NUMBER OF YEARS

9 8	DOCTOR OF PHILOSOPHY
7 6	LICENTIATE OF ENGINEERING

MASTER OF ARCHITECTURE

MASTER OF SCIENCE IN ENGINEERING

MASTER / MASTER — BACHELOR OF SCIENCE IN ENGINEERING

MASTER / MASTER — BACHELOR OF SCIENCE WITH A MAJOR

UNIVERSITY DIPLOMA

Degrees at KTH

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

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

- 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

- …

The Information&Network Engineering Master Program (TINNM)

- 2 years (3 semesters course work, 1 sem. thesis)
- Four study tracks:
  - Communications Engineering
  - Information Engineering
  - Multimedia Processing and Analysis
  - Networked Systems
- 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

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.
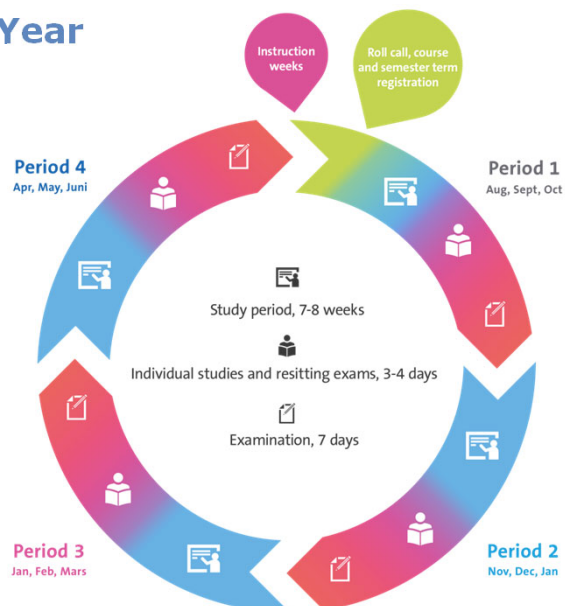
Organization of Teaching

- **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, especially at EECS. See also
  https://www.kth.se/en/eecs/utbildning/hederskodex/inledning-1.17237

Course Selection

- First quarter course selection already done, EQ1220+EP2120+EQ2222

- For period 2 (and possibly elective courses period 1), use form at the program web. **Deadline Aug. 27!**

- Following semesters: course selection on-line.

- Recommended: Prepare draft full study plan! Template with course lists+links to detailed course information, available at the program web. Email to mats.bengtsson@ee.kth.se

- 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.

- Detailed information on Internet: www.kth.se/social/program/tinnm/ easiest accessible through your KTH menu.

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: "odd" = 2019/20, "even" = 2020/21.

- 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 **completed** courses from the program, before starting thesis project.

- 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: tinnm19@eecs.kth.se Free to use for education related issues (Mats and Cristina are on the list).

- Programme web page, especially "Students admitted 2019…"

- 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

Grading

- Based on points collected for reflections and seminar participation
- Both reflections and participation are compulsory
- 1.5 credits reported after 1st year, full course credits after 2nd year.
- 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!