



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

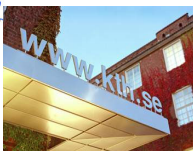
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## Welcome to KTH!

- **KTH**, the Royal Institute of Technology  
Excellence in Education, Research and Entrepreneurship





## Welcome to Stockholm!



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## Welcome to Sweden!



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## Agenda

- Presentation round
  - Name
  - Your bachelor: Where and what
  - Work (if any)
- Mixed Information
- Information from student representatives
- Introduction to the course EQ2222
- Walk around campus, socializing

Ask questions, at any time!



## 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

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



## Faculty at Information Science and Engineering Division

### Professors

- Mikael Skoglund (head)
- Mats Bengtsson
- James Gross
- Joakim Jaldén
- Magnus Jansson
- Tobias Oechtering

### Associate Professors

- Saikat Chatterjee
- Markus Flierl
- Ragnar Thobaben
- Ming Xiao

### Adjunct Faculty

- Bo Göransson (Ericsson)
- Zhibo Pang (ABB)





## Research at Information Science and Engineering (ISE) Division



Processing & learning



Information & coding



Wireless Networks



Multimedia comms.



Privacy and security



Intelligent transport.



Positioning & navigation



## ISE, Central (Basic) Research Questions

### *Fundamental limits in communication, processing, and learning*

- What are the fundamental limits in communication, processing, and learning?

### *Algorithms for efficient communication, processing, and learning*

- Which communications, processing, and learning strategies allow for an efficient and (close-to) optimal utilization of resources in achieving their task?

### *Security, privacy, and trust*

- How and under which conditions can we guarantee security, privacy, and trust by design of communications, processing, and learning techniques?

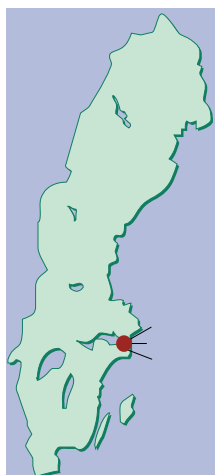


## Research at Network and Systems Engineering Department

- Cyber security and privacy, Ethical hacking, Threat modeling, Information and cyber physical systems security
- Communication Networks, network analytics and management
- Mobile networks, Internet of Things, Mobile edge computing,
- Internet of Things
- Management of Technology, Quality and Project management, Product development, Design thinking
- Software architecture, IT management, Enterprise architecture and computing,
- Distributed Systems, Game Theory
- Stochastic Modeling, Probabilistic inference, Optimization Theory



## KTH Campuses in Stockholm



KTH Campus Valhallavägen



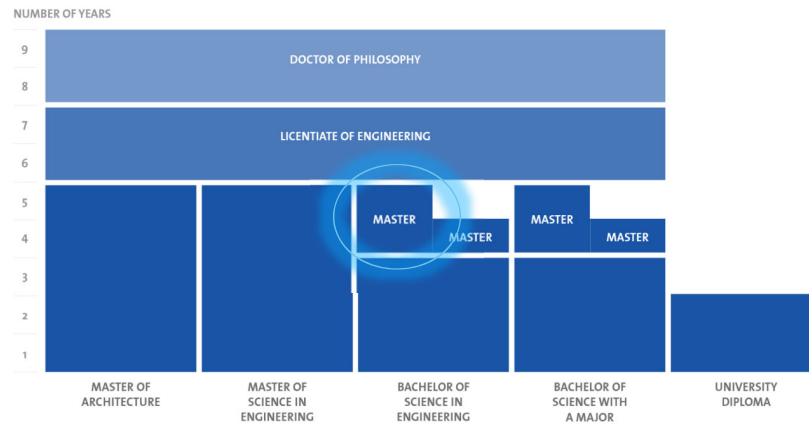
KTH Syd, Campus Telge



KTH IT University, Kista



## Structure of Education at KTH



## Degrees at KTH

- *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 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)

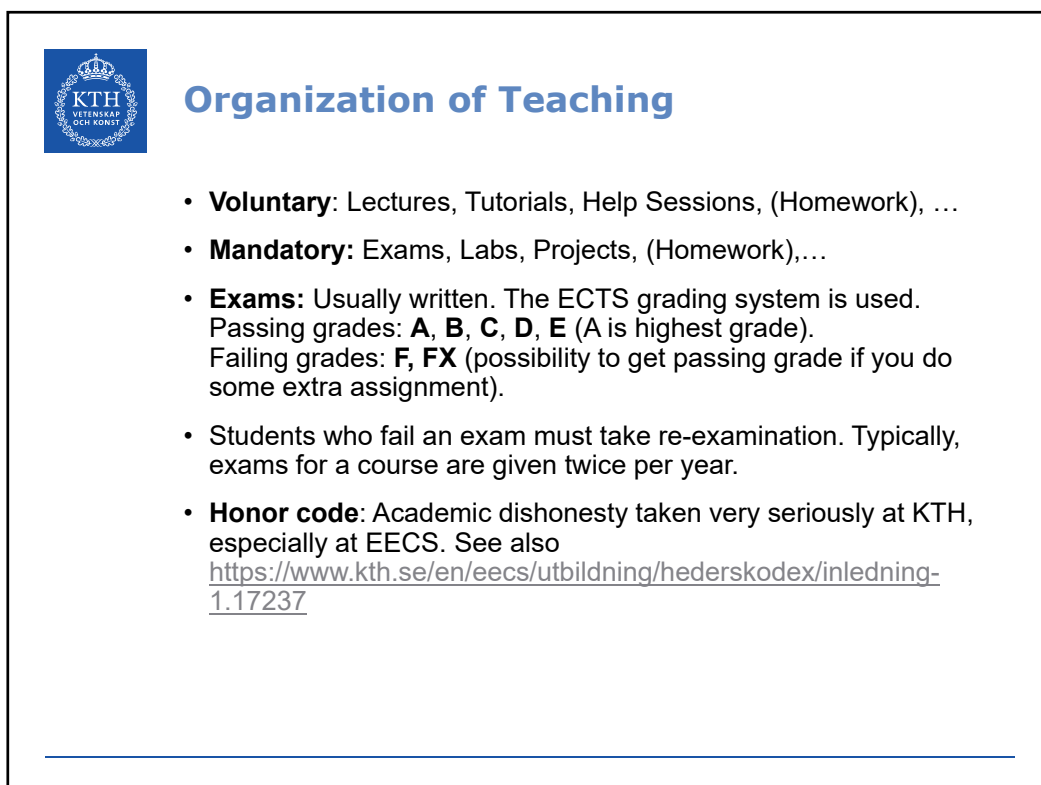
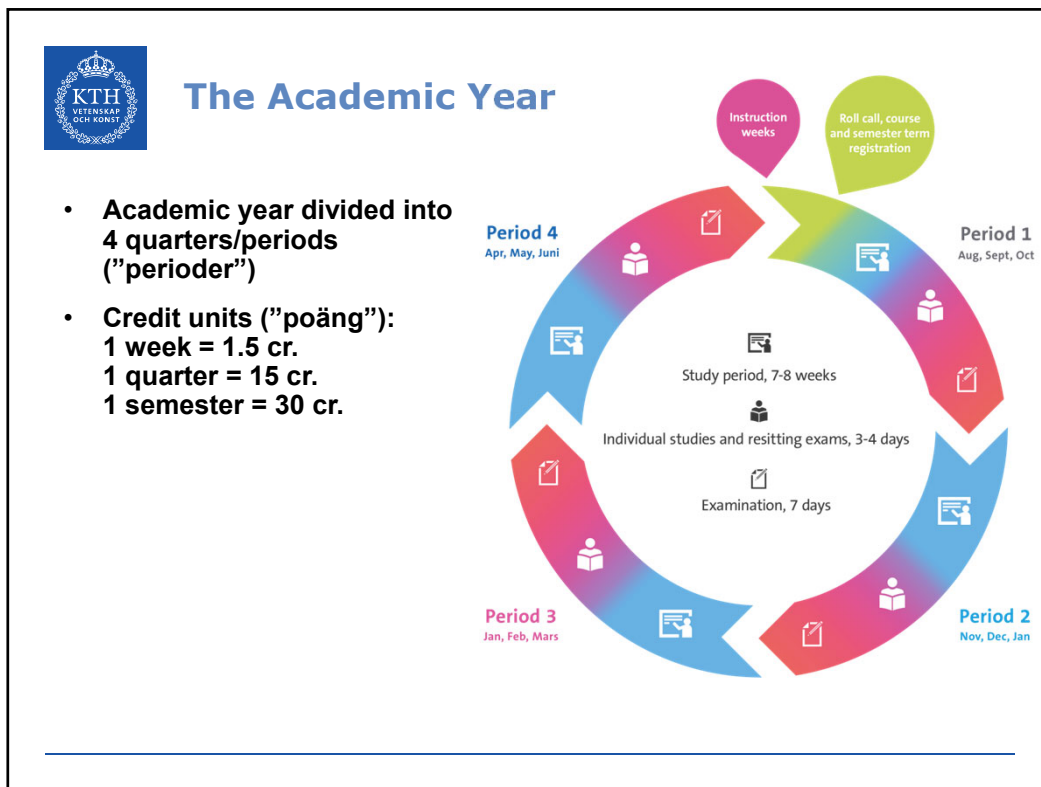
- 2 years (3 semesters coursework, 1 sem. thesis)
  - Four study tracks:
    - Communications Engineering
    - Information Engineering
    - Multimedia Processing and Analysis
    - Networked Systems
- 



## Curriculum, Degree Requirements

- 90 cr.u. (completed) courses + 30 cr.u. degree project
  - 5 compulsory courses (4 for students from KTH "CELTE" BSc program)
  - Fulfil requirements of **at least one** of the 4 study tracks
  - Strongly recommended: 6-15 cr.u. non-technical courses
  - Detailed information on Internet:  
[www.kth.se/social/program/tinnm/](http://www.kth.se/social/program/tinnm/)  
easiest accessible through your KTH menu.
-







## Course Selection, now

- First quarter course selection already done, EQ1220+EP2120+EQ2222
- For period 2, one compulsory and one elective course.
- Choose one elective course for period 2 (and possibly period 1) on-line, **deadline Sept. 5!**
- **Register** for all courses you take, before Sept. 5.
- Start planning your full studies!  
Study plan template with course lists+links to detailed course information, available at program web page. Use as working document for your planning.  
Recommended to send a copy to Mats [matben@kth.se](mailto:matben@kth.se) for feedback.



## Course selection for P2 (P1), Fall 2022

Nanna Schedule Courses Programme Groups **Services**

My services Help / feedback

**Ladok for students**


- Home page  
Relevant information right now. Course registration, Exam registration
- My education**  
Overview of your studies. Programmes, courses, results on courses
- Examinations  
Sign up for examinations
- Transcripts
- Degree Certificate  
Apply for degree certificate

**Services for students**

- Individual study plan for doctoral students (eiSP)
- Written exams  
Scanned paper exams. For other exams, see exam rooms under "Courses".


**Other selected services**

- Annual Bibliometric Monitoring
- Antagningsdata (Nya webben)
- Användardatabas (UG)
- Course participants
- Documentation wiki (Confluence)
- E-mail (Webmail)
- Egenrapporteringen (HR+)
- Employee benefits (KTH for me)
- Fakturahantering (Agresso)
- File storage in the cloud (KTH Box)
- File storage in the cloud (KTH OneDrive)
- Forms
- Kurs- och programplanering (KOPPS)
- Ladok for employees (administrators and teachers)
- Learning Management System (Canvas)
- Occurrences in the work environment (IA)
- Publications (DIVA)
- Service Management (Edge)
- The digital workplace (KTH Slack)
- Travels & expenses (KTH-RES)
- UG-groups
- Utbytesstudenter
- Video Platform (KTH Play)
- W3D3 Searchport
- Webbredigering (Polopoly)



## Course selection for P2 (P1), Fall 2022

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### Home page

#### Study option

Option within Master's Programme, Information and Network Engineering - TINNM  
Option opens in 21 days

[Show less](#)

**Selection period**  
2022-08-10 - 2022-09-05  
Select a maximum of 15.0 credits.  
Not all choices have to be made at once.  
Your selection: 15.0 credits left

- Music Informatics 7.5 hp  
Education code: DT2470  
Study period: 2022-08-29 - 2022-10-28
- Management of Projects 7.5 hp  
Education code: EH2720  
Study period: 2022-08-29 - 2022-10-28
- Build your own Radar System, Project Course 7.5 hp  
Education code: EK2370  
Study period: 2022-08-29 - 2022-10-28
- Ethical Hacking 7.5 hp  
Education code: EN2720  
Study period: 2022-08-29 - 2022-10-28
- Principles of Wireless Sensor Networks 7.5 hp  
Education code: EP2700  
Study period: 2022-08-29 - 2022-10-28
- Optimal Filtering 7.5 hp  
Education code: EQ2801  
Study period: 2022-08-29 - 2022-10-14
- Cyber-Physical Networking 7.5 hp  
Education code: EQ2871

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2022-08-24
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## Course Selection, later

- Following semesters: course selection on-line (another system, more information will come in November).
- 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 (unless they are given on-line).

2022-08-24
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## 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” = 2023/24, “even” = 2022/23.
  - 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!
  - Your own responsibility to find a project!
  - Grade: Pass/Fail
-



## Thesis Project, Requirements

- Must have taken >60 credits **completed** courses and all compulsory courses from the program, to start
  - Preferably done during the spring semester, 2<sup>nd</sup> year
  - Must have taken relevant courses
  - Must be approved by examiner 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 on campus*
  - Time tables easily accessible on-line.
    - *Note: 8-10 means 8:15-9:00 + 9:15-10:00*
  - Programme web page, especially “Students admitted 2022...”
  - Read your KTH email!
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## After COVID-19 — Consequences

- Mix of digital and on-site teaching
- Never come to campus if you feel ill!
- Examination: Mixed forms!

2022-08-24

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## 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
    - Ethical aspects
    - Sustainability – the engineers' role
    - Career planning
    - ...
  - Regularly discuss program related issues
  - Meet with other students of the program – across years
- 



## Course setup

- 4 seminars per year, 2 hours per seminar – 3credits (EQ2222)
    - > *1.5credit version for Erasmus, DD, ... 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 Activities, every period

- Read some material to prepare
  - Write one page reflection
  - Read reflections from all the others in your group
  - 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 web
- 



## Grading

- Based on points collected for reflections and seminar participation
  - Both reflections and participation are compulsory
  - Reflection:
    - 2 points: The reflection is submitted in time, is well-written in terms of structure, language, reference handling and argumentation, and shows good ability to discuss the given topic based on own analysis as well as other literature.
    - 1 point: The reflection is submitted in time and discusses the given topic. The document structure and language is at an acceptable level, or  
The reflection fulfils the criteria for 2 points, but is submitted late.
    - 0 points: The reflection is submitted very late (more than one week after the seminar), fails to cover the given topic, or is written in very poor English.
  - 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
-





## 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 2<sup>nd</sup> year.
  - Max  $8 \cdot 3 = 24$  points
  - Grades:
    - A:22-24
    - B:19-21
    - C:16-18
    - D:13-15
    - E:11-12
  - Fx: If you miss the E with  $n$  points (e.g, if you have 4 points, then  $n=7$ ) write an  $n$  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!
-