MSc in Embedded Systems
Intro to Programme and Courses

August 27, 13:15, room 1245
Outline for today

- Things to organise over the next days/weeks
- The Swedish/Uppsala/Bologna academic system
- Overview of programme courses
  (with Uwe Zimmermann and Christian Rohner)
- Presentation of the student union UTN
Questions upfront?
Least but not last: BBQ

Today from 17:00, outside on campus
Embedded Systems

- Computer systems **integrated** into a larger device
- Hardware + software tailored to a particular purpose
- About **99%** of all computers are embedded
- **Applied**, but also leads to **foundational** research questions

Pervasive:
Cell phones, cameras, trains, airplanes, traffic lights, home appliances, robots, industrial machines, etc.
Many Directions ...

- Software design, modelling, implementation
- Real-time aspects
- Electronics/hardware design (VHDL, Verilog, etc)
- Computer architecture
- Control theory
- Signal processing
- Networks, distributedness, wireless communication
- Concurrency, multicore computing
- Compiler design
- and more
Embedded Systems ...

- have huge industrial importance
- in Sweden, Europe, and all the rest
- In Sweden: companies like Ericsson, Volvo, Saab, Skanska, ABB, SKF, ENEA, ...

- is a large, well-funded academic area
- spans various fields of basic research
- numerous projects in Sweden, Europe, USA, and ...

→ Good career opportunities on either side
Things to organise ...
Create a student account

- Central web page for all course-related activities: www.studentportalen.uu.se
- Once registered as a student, you should activate your student account at the following webpage: https://konto.weblogin.uu.se/index-en.html
Get an Access card/Campus card

- https://mp.uu.se/en/web/info/stod/sakerhet/campuskort

- You first need to get a account details/activate the student account
Get a Swedish *personal number*

- “Temporary” numbers: 123456-T123
- “Proper” number: 123456-1234
- Administered by the tax authorities [http://www.skatteverket.se](http://www.skatteverket.se)
- Once you have a “proper” number, tell the student office about it

- (also needed for a bank account)
- **Apply soon!**
Join a student nation
(if you wish)

- [https://www.uu.se/en/admissions/student-life/the_student_nations/](https://www.uu.se/en/admissions/student-life/the_student_nations/)
- The nations have their own Orientation Program.
Join the student union UTN
(if you wish)

- https://www.utn.se/en
- More from UTN representative visiting today.
The Academic System ...
The Academic Year in Uppsala

- 1 year = 2 terms = 4 periods
- Autumn term: periods 1 + 2
- Spring term: periods 3 + 4
- Courses cover 1 or 2 successive periods
- Summer: vacation, summer courses, time for individual studies or projects
- 1 period ≈ 10 weeks ≈ 8 weeks courses + 2 weeks exams
Credits (högskolepoäng, hp)

- Master degree = 120hp
  (90hp courses + 30hp thesis)
- 1 year = 60hp
- 1 term = 30hp
- 1 period = 15hp
- 1.5hp = 1 week full-time studies
- Full-time = 40 hours per week
Courses

- Most courses are 5hp, 10hp, or 15hp
- Various formats:
  - Lectures
  - Assignments, labs
  - Projects
  - Flipped classrooms
  - Seminars
Choosing Master's Courses

• Courses should complement your Bachelor; no courses that overlap too much with your Bachelor courses

• For your degree, you need:
  • 120hp of courses altogether
  • including 30hp thesis (also possible: 45hp)
  • including at least 60hp ES courses
  • including at most 30hp basic courses

• There is also a 60hp (one year) Master degree, with effectively half of everything above.
Course levels

- G1N  First cycle / basic level
- G1F
- G2N
- G2F
- A1N  Second cycle / advanced level
- A1F
Course registration (“regular”)

- Step 1: Attend **course fair/course information meeting**
  (normally: end of March, end of Sept.)

- Step 2: **Apply** for courses
  (deadlines: April 15, October 15)
  antagning.se, universityadmissions.se

- Step 3: At beginning of period, **register** for courses you were admitted to; on studentportalen.uu.se

- Overall: Apply → Get admitted → Register
Course registration ("regular")

• Important:
  If you do not apply on time, chances are (much) worse for getting a place in your favourite courses!

• You may apply for up to 45hp per semester, though usually you would only register for 30hp
Course registration (now)

- We decide on your courses for the first semester (periods 1 and 2) during the individual meeting.

- You will get registered directly for these courses.
Dropping courses

Can be done
**within 3 weeks of course start**
(then course credits will not be counted)

**After 3 weeks, in general it is not possible to remove courses**

Contact the student office, or talk to us if you want to drop a course
(as early as possible)
Tuition fees

• Fee-paying students can always apply for courses, but **registration** is only possible once tuition fees for a term have been received by the university

• For all questions about fees, contact: feemaster@uu.se
Exams

- Many courses end with a written exam
- Registration deadline is always 2 weeks before the exam (link on student portal) → **Important to register in time!**
- Exams are anonymised
- At least two re-examination options per year
Grades

- Possible grades: U, 3, 4, 5
- Sometimes only U, G

U = Underkänd = Failed
G = Godkänd = Passed
Course registration

Autumn 2018

• Courses are discussed at individual meetings later this week
• Outcome is an “individual study plan” for the first term
• We then directly register the courses
Changing courses
Autumn 2018

• There will be a drop-in day end of next week for changing the study plan
• More information via mail!
Offices and web pages...
Student counsellor

Liselott Dominicus
studievagledare@it.uu.se
https://www.timecenter.com/uthenheten/

Drop-in: Thursdays, 10:30 – 12:00, room 4213

Other times by appointment, use webpage:
https://www.timecenter.se/uthenheten/
(Select “Study Guidance - MSc at IT-dept.”)
Student office (IT Kansliet)

Building 4, floor 2

Open Monday – Thursday, 10:00 – 12:30

Dealing with: course registrations, exams, study results, etc.

https://www.it.uu.se/student/contact?lang=en
Important webpages

- **Programme syllabus**,  

- **Programme course outline**,  
  http://www.uu.se/en/admissions/master/selma/studieplan/?planId=1207&pKod=TIS2M

- **Education pages** of the IT department (including list of all courses offered),  
  http://www.it.uu.se/education

- **TimeEdit**,  
  https://se.timeedit.net/web/uu/db1/

- **Studentportalen**,  
  https://studentportalen.uu.se/portal/portal/uusp

- **Admissions**,  
  https://www.antagning.se/se/start  
  (English,  
  https://www.universityadmissions.se/intl/start)
Courses and Topics ...
See the **Programme Outline** for the full list of recommended and optional courses.
Degree project / Master thesis

- Usually done in the last term (i.e., in spring semester 2020)
- Detailed information on 
  http://www.it.uu.se/student/thesis_project/master
- There is a mandatory start-up meeting
- It is your own responsibility to find a suitable project and supervisor!
Main courses this autumn

- Introduction to studies in ES
- Real-time systems
- Microcontroller programming
- Programming Embedded Systems
- Wireless communication and Networked embedded systems
The introductory course

- 5hp, period 1
- Recap in C programming, OS, multicores, parallelism/concurrency
- Technical/scientific writing and presentation
- Professional competency
- Working in teams and on projects
- Inter-cultural communication
- and some more
The introductory course (2)

After today, most of you will be registered for this course!

(But you can deregister if you wish...)
Real time systems

- 10hp, period 1 (there is also a 5hp version)

- **Goal:** How to create *timing predictable* systems
- Scheduling theory
- Real time operating systems (RTOS) basics
- Some Ada programming
- Models and formal verification (using UPPAAL)
- Lego robot lab
- *and more*
Remark

- Already now, think about courses that you find most interesting, and check their prerequisites!
- You might have to choose specific courses early on, to have prerequisites for later courses

- **Come prepared to the individual meeting!**
Enjoy your studies in Uppsala!

Questions?