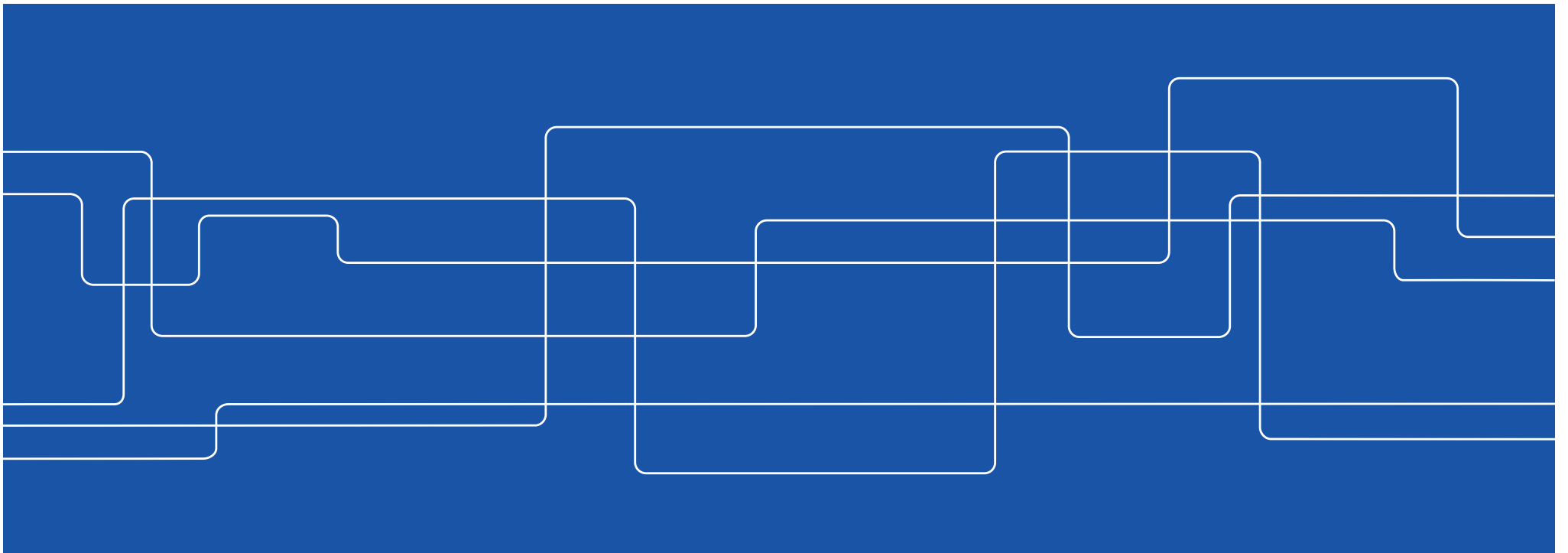




Systems, Control and Robotics Program information meeting

2022-08-25
Petter Ögren





Welcome meeting

- **Covid-19 information**
- Who is who
- Courses
 - Academic year with periods
 - Curriculum and requirements
 - Course selection
- Thesis Project work
- Mixed Information
 - Plagiarism, Grading ...



A safe study environment during COVID-19

Here you can find information for students regarding COVID-19. This may change as a result of recommendations and decisions by the government and other authorities.

> Last update 14 February 11.00 am

This applies at KTH regarding the covid-related restrictions lifted from 9 February

This applies to KTH because the restrictions ended on 9 February

Teaching and examination

Teaching and examination which benefit from being implemented in the digital environment, continue to be implemented digitally. Apart from this, teaching and examination will be carried out on campus. Re-furnishing of classrooms on campus will take place gradually from 9 February.



check for updated on kth.se



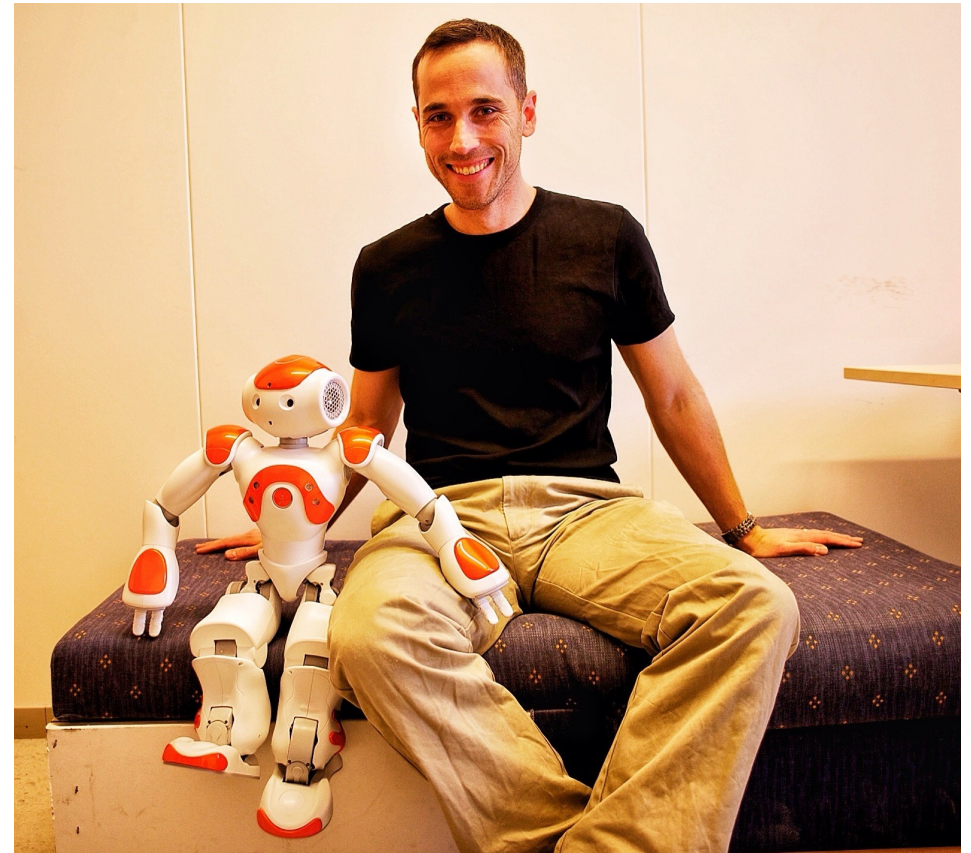
Welcome meeting

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Master Program Director: Petter Ögren

- Professor at
 - Department of Robotics Perception and Learning (RPL)
 - School of Electrical Engineering and Computer Science (EECS)
- petter@kth.se
- Lindstedsvägen 24, floor 4
- Email to make appointment





Co-Program director

- Cristian Rojas
- Associate Professor in Automatic Control
- <https://www.kth.se/profile/crro>
- crro@kth.se
- Malvinas väg 10
- Email for appointment





Master Coordinators for SCR

- Cristina La Verde and Sofia Norlander
- Lindstedsvägen 3
- ee-master@kth.se
- Ask all questions to Cristina and Sofia!





Who are you?

Quick round of presentations

- Your name
- Where you come from (Country)





Welcome meeting

- Covid-19 information
- Who is who
- **Courses**
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Program web page

Go to kth.se

Log in (top right corner)

Click on Programme

You will see (or will see when you are registered)

Master's Programme, Systems, Control and Robotics, 120 credits (TSCRM, 120 cr)

The screenshot shows a web browser window displaying the program page. The browser tabs include 'MSc-supervision-group 2019 | KTH', 'SCR Competition August 2019 - Google Sheets', and 'Master's Programme, Systems, Control and Robotics, 120 credits (TSCRM, 120...)'. The page header has navigation links: 'Petter', 'Schedule', 'Courses', 'Programme', 'Groups', and 'Services'. The main content area features a sidebar on the left with a 'My settings' button and a list of menu items: Overview, News feed, Calendar, Study abroad, Health care brochure, Master Degree Project, Programme Directors, Master and international coordinator, Student Service Support and Service Center EECS, Useful links, Study programme, SCR: Contact list, SCR: Curriculum, SCR: Master degree project, SCR: Social, SCR: Study abroad, and Student at KTH. The main content area has a title 'Master's Programme, Systems, Control and Robotics, 120 credits' and a 'Change description' button. Below the title is a photo of a woman holding a drone. The text below the photo reads: 'Welcome to SCR programme website! The theme of the Master of Science programme in Systems, Control and Robotics is analysis, design and control of complex technical systems. Within the program the students will learn the theoretical foundations of modeling, control and optimization of complex systems. The application areas for systems and control are many, and within'. On the right side, there is a 'Latest responsible posts' section with a list of posts: 'From your Master coordinator: Important ... 14 August at 10:23', 'ONLY FOR YEAR 1 STUDENTS Individual study plan ... 14 August at 10:05', 'Become a Student Ambassador for KTH! 14 August at 08:53', and 'Dear Students, between 20th and 24th of May 2019 ... 16 May at 14:44'. Below this is a 'Read entire news feed' link and a 'Write post...' button. At the bottom right, there is a 'Latest from your news feed' section with a list of posts: 'Master's Programme, Systems, Control and Robotics, 120 credits (TSCRM, 120 cr) Post " ONLY FOR YEAR 1 STUDENTS Individual study plan ..." edited by Cristina Janland La Verde Monday 10:43' and 'Master's Programme, Systems, Control and Robotics, 120 credits (TSCRM, 120 cr) Post "Become a Student Ambassador for KTH!" edited by Cristina Janland La Verde 14 August at 14:29'. A 'Feedback' button is visible on the far right edge of the page.



More details on courses on website

MSc-supervision-group 2019 | KTH

SCR Competition August 2019 - Google Sheets

Master's Programme, Systems, Control and Robotics, 120 credits (TSCRM, 120...

Petter Schedule Courses Programme Groups Services

Master's Programme, Systems, Control and Robotics, 120 credits
TSCRM | 120 CREDITS

My settings

Overview

News feed

Calendar

Study abroad

Health care brochure

Master Degree Project >

Programme Directors

Master and international coordinator

[Student Service Support and Service Center EECS](#)

Useful links

Study programme

SCR: Contact list

SCR: Curriculum

SCR: Master degree project >

SCR: Social >

SCR: Study abroad

Student at KTH

[KTH / Programme web / Master's Programme, Systems, Control and Robotics, 120 credits](#)

Master's Programme, Systems, Control and Robotics, 120 credits

Change description

Welcome to SCR programme website!

The theme of the Master of Science programme in Systems, Control and Robotics is analysis, design and control of complex technical systems. Within the program the students will learn the theoretical foundations of modeling, control and optimization of complex systems.

The application areas for systems and control are many, and within

Latest responsible posts

- From your Master coordinator: Important ... 14 August at 10:23
- ONLY FOR YEAR 1 STUDENTS Individual study plan ... 14 August at 10:05
- Become a Student Ambassador for KTH! 14 August at 08:53
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Read entire news feed

Write post...

Latest from your news feed

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Feedback

News



Academic year at KTH

Autumn Term Aug 29, 2022 - Jan 16, 2023

Spring Term Jan 17, 2023 - June 5, 2023

Today

First Exams

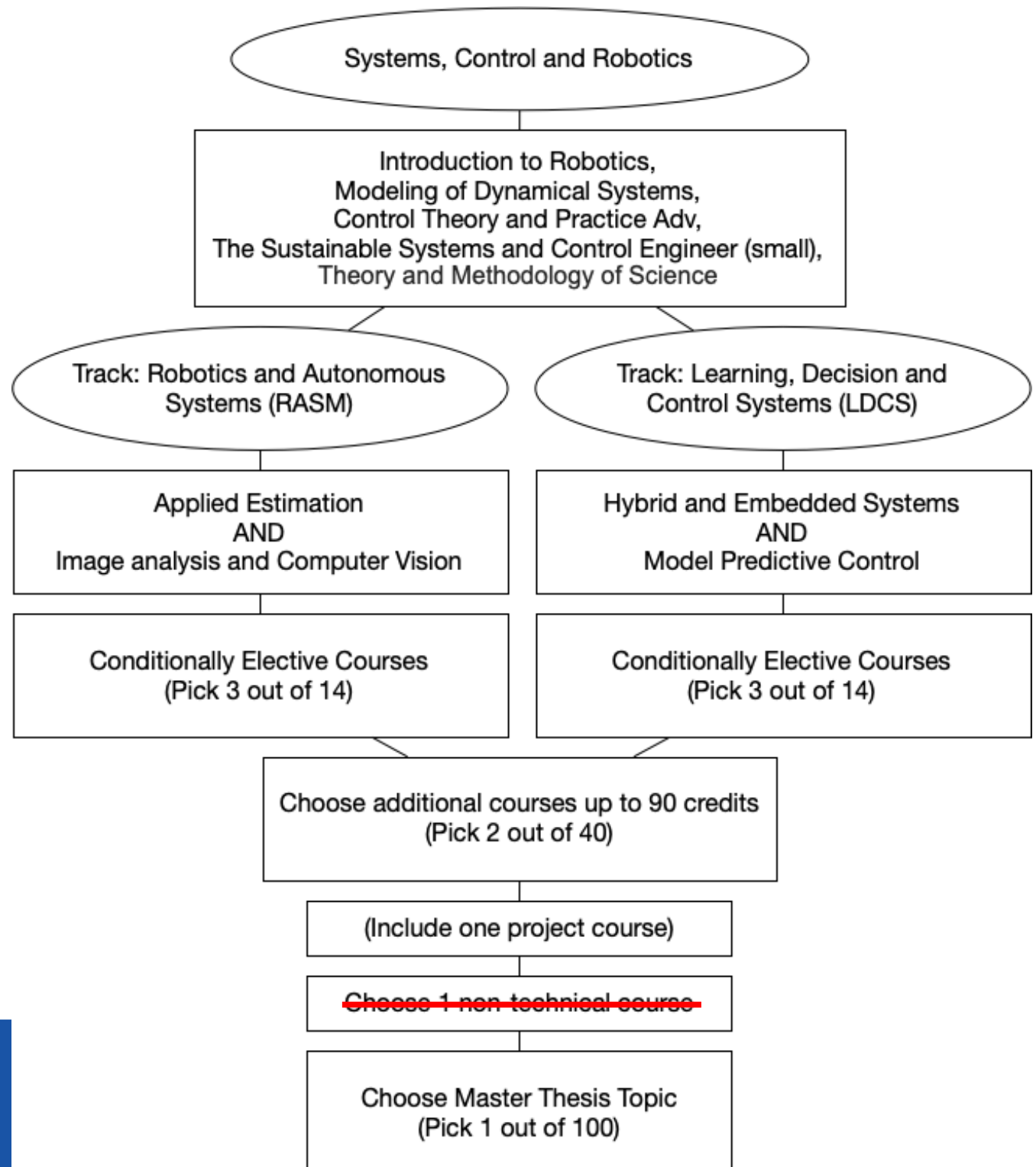
	Week	Mo	Tu	We	Th	Fr	Sa	Su
	32	I/R	I/R	I/R	I/R	I/R	I/R	21-Aug
	34	I/R	I/R	I/R	I/R	I/R	I/R	28-Aug
1 Sep	35	1	1	1	1	1	S	4-Sep
2	36	1	1	1	1	1	S	11-Sep
3	37	1	1	1	1	1	S	18-Sep
4	38	1	1	1	1	1	S	25-Sep
5 Oct	39	1	1	1	1	1	S	2-Oct
6	40	1	1	1	1	1	S	9-Oct
	41	1	1	1	1	1	S	16-Oct
8	42	O	O	O	E	E	S	23-Oct
9	43	E	E	E	E	E	S	30-Oct
10 Nov	44	2	2	2	2	2	H	6-Nov
11	45	2	2	2	2	2	S	13-Nov
12	46	2	2	2	2	2	S	20-Nov
13	47	2	2	2	2	2	S	27-Nov
14 Dec	48	2	2	2	2	2	S	4-Dec
15	49	2	2	2	2	2	S	11-Dec
16	50	2	2	2	2	2	S	18-Dec
17	51	O/R	O/R	O/R	O/R	O	S	25-Dec
18 Jan	52	H	O	O	O	O	S	1-Jan
19	1	O	O	O	O	H	S	8-Jan
20	2	E	E	E	E	E	E	15-Jan

	Week	Mo	Tu	We	Th	Fr	Sa	Su
	3	T	3	3	3	3	S	22-Jan 1
	4	3	3	3	3	3	S	29-Jan 2
Feb	5	3	3	3	3	3	S	5-Feb 3
	6	3	3	3	3	3	S	12-Feb 4
	7	3	3	3	3	3	S	19-Feb 5
	8	3	3	3	3	3	S	26-Feb 6
Mar	9	3	3	3	3	3	S	5-Mar 7
	10	3	O	O	O	E	E	12-Mar 8
	11	E	E	E	E	E	S	19-Mar 9
Apr	12	4	4	4	4	4	S	26-Mar 10
	13	4	4	4	4	4	S	2-Apr 11
	14	4	4	4	4	H	S	9-Apr 12
	15	H	O/R	O/R	O/R	O/R	S	16-Apr 13
May	16	4	4	4	4	4	S	23-Apr 14
	17	4	4	4	4	4	S	30-Apr 15
	18	H	4	4	4	4	S	7-May 16
	19	4	4	4	4	4	S	14-May 17
	20	4	4	4	H	O	S	21-May 18
	21	4	4	O	O	O	S	28-May 19
June	22	E	E	E	E	E	E	4-Jun 20
	23	E	H	O/R	O/R	O/R	S	11-Jun 21

- I Introductory weeks
- H National Holiday
- S Exam and tuition free day
- 1-4 Scheduled day within study period
- E Examinations
- R Re-examinations
- O Own work



Program overview





Handout of Track Descriptions





Track: Robotics and Autonomous Systems (Example)

Course ID	Name	When	Credits	Type
EL2220	The Sustainable Systems and Control Engineer	Y1-Y2	3	Mandatory
Year 1				
EL2820	Modelling of Dynamical Systems	P1	7,5	Mandatory
DD2410	Introduction to Robotics	P1	7,5	Mandatory
DD2423	Image Analysis and Computer Vision	P2	7,5	Track mandatory
EL2320	Applied Estimation	P2	7,5	Track mandatory
DD2419	Project Course in Robotics and Autonomous Systems	P3-P4	9	Project course and Conditionally elective
EL2450	Hybrid and Embedded Control Sys.	P3	7,5	Conditionally elective
DD2421	Machine Learning	P3	7,5	Conditionally elective
EL2520	Control Theory and Practice, adv.	P4	7,5	Mandatory
Year 2				
AK2036	Theory and Methodology of Science	P1	7,5	Mandatory
DD2380	Artificial Intelligence	P1	6	Conditionally elective
DD2415	Safe robot planning and control	P2	6	Recommended
DD2434	Machine Learning, Adv. Course	P2	7,5	Recommended
XXYYYY	Master Thesis	P3-P4	30	Mandatory

AK2030

4.5



Track: Learning, Decision and Control Systems (Example)

Course ID	Name	When	Credits	Type
EL2220	The Sustainable Systems and Control Engineer	Y1-Y2	3	Mandatory
Year 1				
EL2820	Modelling of Dynamical Systems	P1	7,5	Mandatory
DD2410	Introduction to Robotics	P1	7,5	Mandatory
EL2620	Nonlinear Control	P2	7,5	Conditionally Elective
DD2415	Safe Robot planning and control	P2	6	Conditionally Elective
DD2437	Artificial Neural Networks and Deep Architectures	P3	7.5	Recommended
EL2450	Hybrid and Embedded Control Sys.	P3	7,5	Track Mandatory
DD2424	Deep Learning in Data Science	P4	7,5	Recommended
EL2520	Control Theory and Practice, adv.	P4	7,5	Mandatory
Year 2				
AK2036	Theory and Methodology of Science	P1	7,5	Mandatory
EL2700	Model Predictive Control	P1	7,5	Track Mandatory
EL2425	Automatic Control, Project Course, Smaller Course	P2	7,5	Conditionally Elective (and Project Course)
EL2805	Reinforcement Learning	P2	7,5	Conditionally Elective
XXYYYY	Master Thesis	P3-P4	30	Mandatory

or AK2030

4.5



Your Responsibility

Requirements for Degree

The students must have completed

- all of the **mandatory courses** depending on track
- at **least 3 conditionally elective** technical courses depending on the chosen track
- one **project course** in the subject area
- other **recommended** courses for a total of 90 higher education credits
- **degree project** of 30 higher education credits.



Course selection

- Step 1
 - Choose track
 - (Track = predefined "package")
- Step 2
 - Select courses for that track
- Can I Change Track?
 - Yes
- Important: After 2 years, **your courses must** satisfy requirements of at least 1 track

Only in
your
head

Do online
in Ladok



Understanding the course code

The courses have codes like EL2520 or DD2380

The first character tells what area, second what department/group

- E = Electrical engineering (EL = control)
- D = Computer science etc. (DD = computer science)

The first digit tells what level it is

- 1 - basic ("bachelor")
- **2 - advanced ("master")**
- 3 - doctoral ("phd")



What Courses do I Choose?

- Fun
- Needed in Track
- makes Combined Schedule reasonable
- Is a prerequisite for future course



Practical approach to courses

1. Check out 2 example choices of the tracks
(<https://www.kth.se/social/program/tscrm/page/scr-curriculum/>)
2. Pick one track
3. Look though all conditionally elective and recommended courses
4. Try to swap IN the ones you like and REMOVE ones you do not like



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You can change these

and these



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You can change these

and these

and these



Decide soon on courses for P1 and P2 (fall)

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You can change these



Where do I choose courses?

- You use the Ladok-system
 - place where you can see what courses you completed etc
 - Ladok.se (use your KTH login)



Course selection for p1 and p2 (ht 2022)

- You will need to select in ladok **elective courses for P1 and P2** in order to reach 30 ECTS
- Deadline: The 5th of September 2022 (for P1 and P2)



Course selection for p1 and p2 (ht 2022)

- Under Services –My Education, you will find **all compulsory courses** for P1 and P2 (admission)

The screenshot shows the 'Services' page in a web application. The top navigation bar includes 'Nanna', 'Schedule', 'Courses', 'Programme', 'Groups', and 'Services' (highlighted). The main content area is titled 'My services' and contains several sections:

- Ladok for students**
 - [Home page](#): Relevant information right now. Course registration, Exam registration
 - [My education](#): Overview of your studies. Programmes, courses, results on courses (highlighted with a red box)
 - [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 p1 and p2 (ht 2022)



Home page

Study option

Option within Master's Programme, Information and Network Engineering - TINNM

Option opens in 71 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

Home page

My education

Examinations

Transcripts and certifi

Degrees and certifica

My pages

Change university

På svenska

Foreign merits

Log out

Ladok-test



Stick to the curriculum

If you go outside please ask me first

Prio1: Make sure that you finish the mandatory courses.

KTH restrictive on taking extra courses



Welcome meeting

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- **Thesis Project work**
- Mixed Information
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Master thesis

- Typically started in January of the second year
- Need “most courses” (check details) completed **to start**
- This is where you **put everything you learned to use**
- **Where?** in industry, at a KTH department or at other technical university or research institute
- Your responsibility **to find one**
- Need a **supervisor and examiner at KTH** and a local supervisor if you are outside KTH.



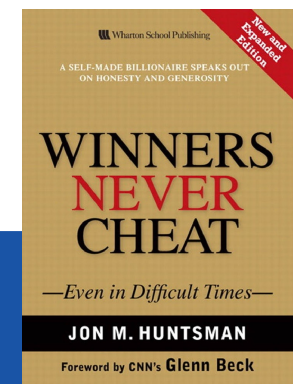
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Reading/writing and Plagiarism

- Technical reading and writing skills very important
- **Word by word copying is a big NO-NO**
- **Use your own words or use quotes and references.**
- **Do not share your solutions with others**
- It might not be explicitly stated but these rules are assumed
- If you are caught you will be reported and **can get suspended**



Word by word copying for a report (No!)



Sharing solutions with others (No!)

It is available online!

This is hard, can I look at your solution?



Both students are breaking the rules, and can be suspended for cheating!

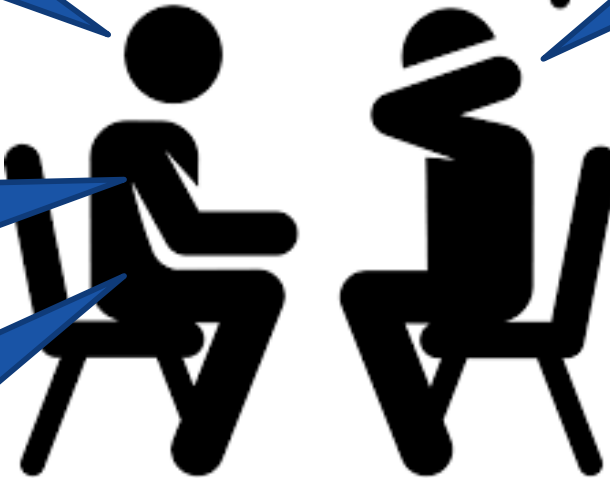


Sharing understanding with others (Yes!)

What part is hard?

Try reading Ch3 in the book!

I can explain the algorithm on page 25 to you



This is hard, can I look at your solution?



Code of Honour

- When studying at this level you will be given a lot of freedom.
- With freedom comes responsibility
- Think about this when working on homework assignments, projects, etc

- EECS Code of Honor
 - <https://www.kth.se/en/eecs/utbildning/hederskodex/inledning-1.17237>



Rules in Code of Honour

Rule 1: All members of a group are responsible for the group's work

Rule 2: In any assessment, every student shall honestly disclose any help received and sources used

Regulation 3: In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution

Rule 4: Do not copy from other people's solutions

Rule 5: Handle attendance lists correctly

Rule 6: Give help in the right way



Grading



- Grades A (excellent) – E (lowest passing grade)
- Grade Fx means you can get to E by some extra task(s)
- Goal oriented and absolute grading system at KTH (and not relative grades)
 - All can fail, **All can get an A**
- Failing an exam is not a total failure
 - re-exams are allowed



Going abroad



If you go abroad you can swap courses at KTH for courses in the other university. This way you do not have to “lose time” toward the degree.

It is mandatory to talk to the director/coordinator **before** going abroad to work out a curriculum.

All courses in the curriculum can be exchanged for courses in other universities but the requirements for the match are higher for compulsory courses.



Teacher student relation



- Ask for help if you need it!
- Ask other students
 - (no copying)
- Ask teachers
 - In brakes between lectures
 - Make appointment



Why do they keep referring to me as an “undergraduate student”???

At KTH

- Undergraduate = Bachelor + Master
- Graduate = PhD



Reading email

- People will **expect you to read your email**
 - **Check** your kth.se-address, or
 - **Forward it**

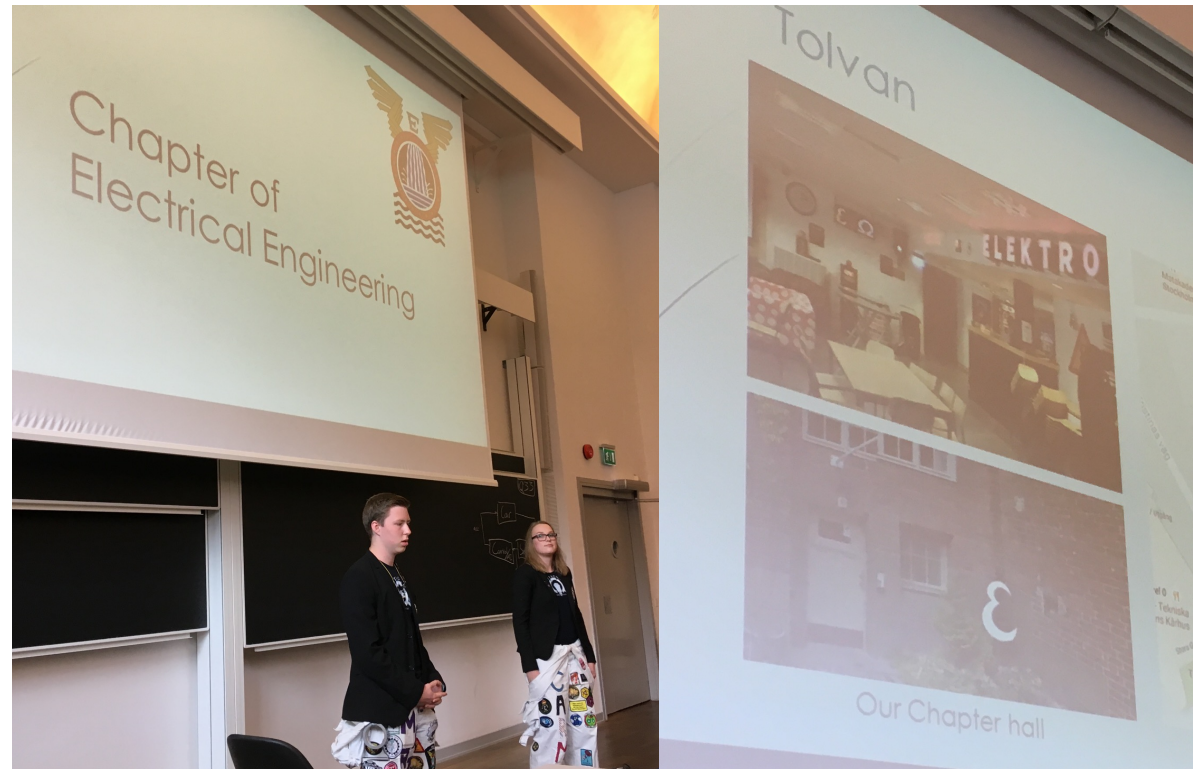


Electrical Engineering Student Chapter at KTH

- Sports
- Boardgames
- Parties

- Facebook: EMI TGlobal
- intsekt@e.kth.se

- Excellent opportunity to get into Swedish student life!





BSc Program Welcoming at KTH





Did I tell you all you need to know?

NO!

If you want good answers, ask the right person!

- **Other students:** How are things done in practice
 - Swedish students at SCR
 - EE Student Chapter
- **Teachers:** specifics about a course
- Cristina (**ee-master@kth.se**): Admin, course selection, etc
- **Petter:** Curriculum, program wide Q's
- ...
- (contract info on Program website)



Welcome meeting

- Covid-19 information
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**Next:
The robot building
competition...**

Questions?