Communication Systems Design (CSD) IK2200: 2015

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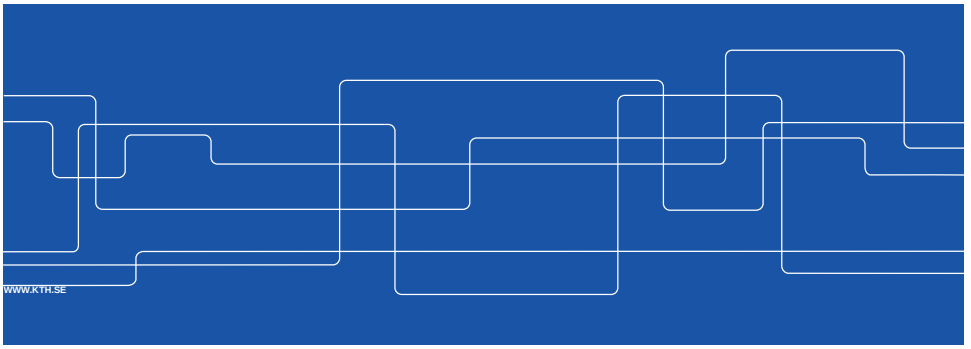


Teaching team

Teacher, examiner:	Dejan Kostic, dmk@kth.se
Teaching assistants	Georgios Katsikas, katsikas@kth.se
	Kirill Bogdanov, kirillb@kth.se
	Robert Olsson, roolss@kth.se
	Haris Celik harisc@kth.se

Course mechanics

Course web page

- KTH Social https://www.kth.se/social/course/IK2200/
- Notice *only* IK2200, 15-credit version

Project web pages

KTH Social https://www.kth.se/social/course/IK2200/

Kickoff, Lectures, Exercises, Midterm, and Final Workshop

Electrum, Ka-211

Workspace:

All project teams should use of the shared workspace in room 211 in the Electrum building for their work.

Communication with the teaching team

Moodle, https://moodle.ssvl.kth.se/course/view.php?id=37

Email dmk@kth.se for enrolment key if you don't have it

Course mechanics

Lectures/Exercises/Project meetings with TAs

Tuesdays 10:00-12:00

Thursdays 13:00-15:00 (Except Sep 24, 14:00-16:00)

Week 1 of course (35): Lectures

Week 2 of course (36): Lectures

Afterwards: Project meetings with TAs and Prof

Need to relinquish 50% of time in Ka-211

Update http://doodle.com/4bs9cz5d78rcp4cf with your free slots before 23:59 on Sept 4

Midterm Workshop moved from week 44 to week 45

Free to travel/work as you see fit in week 44

Tentative Agenda for Tuesday, September 1

10:00 Introduction, Students introduce themselves
11:00 Project presentations
12:00 Lunch
13:00 Project presentations
14:00 Project presentations
15:00 Discuss projects and group creation
17:00 End

Agenda for September 3

13:00-17:00 Discuss projects and group creation
On-demand meetings with the teaching team

Teaching team's expectations of students

Students taking this course are expected to:

- Fulfill the prerequisite requirements.
- Not underestimate the challenge of the course.
- Pull-their weight in the project.
- Contribute to the course by being engaged in the dialogue during seminars and on the web.
- Observe KTH rules and regulations.
  - No copying code from anyone (or the Internet) without the TA's permission
  - No using of libraries to speed up development without the TA's permission

Timing

Kickoff workshop week 35

Teams working on project plans week 36:

- Group website: 9 Sept. 12:00
- Draft Project plan posted on website: 10 Sept. 12:00
- Project plan posted on website: 14 Sept. 17:00

Midterm workshop week 45: 2-4 Nov.

- Including peer reviews, presentations, feedback

Final Workshop week 2(2016) 12-14 Jan. 2016

- Press release, Video, Report, and Presentations 12 Jan.
- Exhibition 14 Jan., Lessons learned report 15 Jan.

Progress reporting

- Reports are due every Monday noon
- Meetings with the teaching team every Tuesday/Thursday

Forming project teams

- Team size is six people
- Teams have to be formed by Sunday, Sept. 6, 23:59
- As soon you have formed a team, email dmk@kth.se with
  - Team name
  - Team members (⇒ **one** email per team): name, master program
  - Your ranking of ALL projects in decreasing order of preference (one ranking per team)
- If you fail to join a team, send an individual email to dmk@kth.se with project (ALL projects) ranking and a CV before Sept. 6, 23:59
  ⇒ The teaching team will assign you to team+project
- The teaching team announces the teams and projects on Sept. 7

Working within a team

- Decide if you want a team “leader” for the whole duration or a rotating role (~3 weeks at a time).
  - But you do need a team “leader” at all times
- Create a group on KTH social for the project web site
- Work together on the project plan
- Subdivide the work (volunteer?) and document in the plan
- Agree who will be updating the project web site, compiling weekly reports, midterm report, and the final report
- Decide who will give a demo, put together the poster, etc.
- Note: every team member should be able to give the final presentation (in full) and answer questions

Dealing with non-cooperating colleagues

- If a team member is not meeting his or her commitments, the team should notify the teacher as soon as possible
- Issues should be raised BEFORE the mid-term workshop.
  - After this point it becomes almost impossible to deal with students that are expelled from the team, and such requests will NOT be honored by the teaching team.

Project management

Agile rather than traditional methods, Scrum
www.rallydev.com/sites/default/files/intro_to_scrum_presentation.pdf

Individual weekly progress reporting: time spent on what with pointers to outcomes, input for grading

Analysis of deviation from the project plan with conclusions

Constructive vs. destructive frustration

Course Modules

- Project Website
- Technical Modules
  - Using Mininet
  - Lessons from Google
  - SDN in general
- Project Management
- Video production

Examination

Individual grades averaging on team result:

- Extra bonus possible for helping others to learn
- Individual grading based on progress reports, quality of deliverables and workshop performance

Conclusion: Make sure that individual contributions both to project results and to the learning of others are acknowledged

Research in (Experimental) Networked Systems

You “build” a system

⇒ Produce a piece of software

You evaluate your system

Publishable work satisfies one or both conditions:

- Your system is better (faster, more reliable more secure) than state-of-the-art
- Provides functionality that was not previously available

Research in (Experimental) Networked Systems

Benefits

- You build a working system (that becomes state-of-the-art!)
  ⇒ Immediate gratification
- You can deploy it over the Internet
- Others can use it
  ⇒ Get recognition in the research community and perhaps even global
- Often, it is impossible to correctly model a system
  ⇒ Have to demonstrate properties empirically

Detailed look at your projects (1/2)

- Research-inspired projects
- But you are **not** expected to create a contribution that goes beyond the state-of-the-art
- The aim is to get you ready to do your master thesis the following semester
- If you like what you are doing, you might take your software artifact and use it in your master thesis

Detailed look at your projects (2/2)

- Projects are open-ended real-world problems that require significant effort
  - Locating information
  - Programming
  - Understanding what the system is doing
  - Debugging
  - Evaluating
- But, if you devise a thorough project plan and follow it you can successfully complete your project

  In many cases the proposed projects are based on ideas that have been verified (e.g., in Python)

Group webpage on KTH social

1. Create a group named IK2200_HT15_<groupname>, visible publicly https://www.kth.se/social/group-create/

more instructions at
https://www.kth.se/social/group/virtuellt-campus/page/groups-2/

you need to add the teaching team, with Administrator rights.

dejanko@kth.se
kirillb@kth.se
katsikas@kth.se

Postings should be public, excluding weekly reports.
You can have a section Internal for group members.

Communication in Moodle

Once we announce groups/names, Voravit will create groups in Moodle that observe your chosen names

Group discussion will be open to the teaching team

- To make sure everything is going well
- This is where you can ask for help
- Tick box ‘send immediately’ when posting

Versioning control

For code you will use git

- We are investigating if KTH is providing something or,
- We can use bitbucket.org
- We will cover git, code reviews, working on the project:

Project plan (main points)

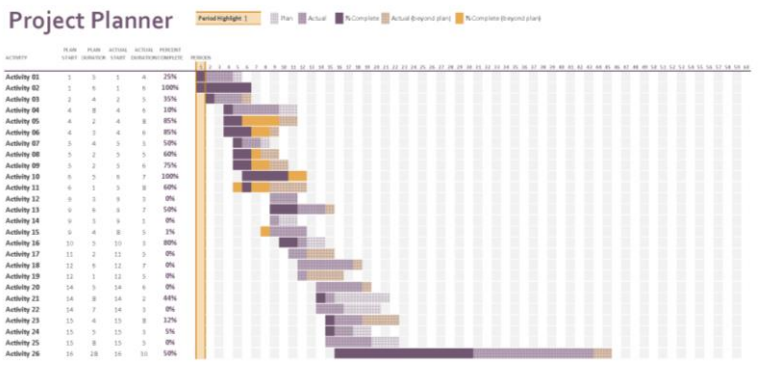
Project plan template adopted from II2202 with modifications to include items from the IK2200 template

1. Background
2. Problem statement, Problem, Hypothesis
3. Goal, Deliverables,
4. Approach, Tasks, Method
5. Gannt diagram and milestone chart (time schedule)
6. Risk analysis: risk, severity, mitigation, contingency
7. References

Project plan outline

1. Background
2. Problem statement, Problem, Hypothesis
3. Goal

Microsoft Excel 2013 Gantt example



You have access to MS Project at KTH!

Learning goals/Deliverables Matrix

1 = primary objective with the deliverable

2 = secondary objective with the deliverable

NA = not applicable

Learning goals/deliverables	Solve real-world problems	Independent learning skills	Effective project management	Communication skills when working	Communication skills when presenting	Work as a successful team
Project plan	1	1	1	2	1	2
Lessons learned	2	2	1	1	2	1
Midterm presentation	1	1	2	NA	1	2
Individual contribution	2	2	1	1	2	1
Final report	1	1	2	NA	1	2
Video	1	1	2	NA	1	2
Oral presentation	1	1	2	NA	1	2

Government-specified learning objectives: Master of Science

Master of Science

Target

- MSc students must demonstrate the knowledge and skills required to work independently as a civil engineer.

Knowledge and understanding

MSc students must:

- Demonstrate knowledge of the chosen technology, the scientific basis and proven experience and insight into current research and development, and
- Demonstrate both broad knowledge in the chosen field of engineering, including knowledge of mathematics and science, and substantially deeper knowledge of certain parts of the area.

Skills and abilities

MSc students must:

- Demonstrate an ability to holistic, critically, independently, and creatively identify, formulate and manage complex issues and to participate in research and development and thereby contribute to the development of knowledge;
- Demonstrate an ability to create, analyze, and critically evaluate different technical solutions,
- Demonstrate an ability to plan and use appropriate methods to carry out advanced tasks within specified limits,

Government-specified learning objectives: Master of Science (continued)

- Demonstrate an ability to critically and systematically integrate knowledge and demonstrate the ability to model, simulate, predict, and evaluate the events even with limited information,
- Demonstrate an ability to develop and design products, processes and systems with a view to human conditions and needs and society's objectives for economically, socially, and ecologically sustainable development,
- Demonstrate the capacity for teamwork and collaboration in groups of different composition, and
- Demonstrate an ability to both national and international, orally and in writing in dialogue with different groups clearly present and discuss their conclusions and the knowledge and arguments that form the basis for these.
- **Values and attitudes**

MSc students must:

- Demonstrate an ability to make judgments with regard to relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development activities;
- Demonstrate insight into the possibilities and limitations, its role in society and the responsibility for its use, including social and economic aspects, environmental and social aspects, and
- Demonstrate an ability to identify the need for further knowledge and to continuously upgrade their skills.