

## **Degree Project Course**

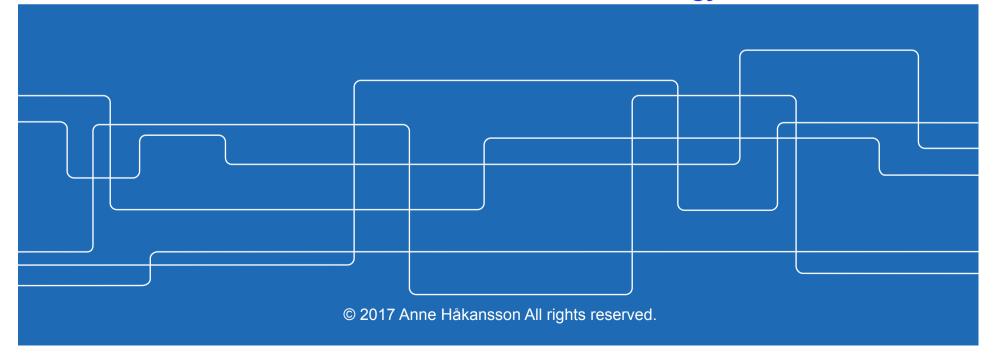
**BSc of Engineering, Bachelor Degree/ Civil Engineer Year 3** 

#### Anne Håkansson

annehak@kth.se

**Director of studies for degree projects** 

**Information and Communication Technology, KTH** 





## **Objectives for Degree projects**

According to Higher Education Ordinance
<a href="https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/The-Higher-Education-Ordinance/">https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/The-Higher-Education-Ordinance/</a>

Degree of Bachelor of Science [Bachelor examina] (Kandidatexamen)

Degree of Bachelor of Science in Engineering [Civil Engineering examina] (Civilingenjörsexamen)

Have the same course code



#### Objectives for Degree projects (example)

- Demonstrate ability to search, collect, evaluate and critically interpret relevant information in a problem statement
- Demonstrate ability to independently identify, formulate and solve problems as well as analyze and evaluate various technical solutions
- Demonstrate ability to, in English or in Swedish, verbally and in writing, report and discuss information, problems and solutions in dialogue with different groups
- Demonstrate the ability to (in the main subject of education) make assessments with regard to relevant scientific, social and ethical aspects
- -> For all objectives see Canvas /KTH Social
- "Assessment template Bachelor of Science and Bachelor of Science in Engineering (Civil engineer), Year 3 Degree projects, 170516"



#### **Prerequisites**

To start the degree project course:

Must have at least 120 credits completed courses

This requirement is checked by the administration <u>before</u> the student is registered for the degree project course and can start the course.

"Exceptions permission" – only if the student gets the credits in the beginning of the course & before registration



## **Degree Project course**

Starts three times per year:

Period 3 (Jan) – over two periods

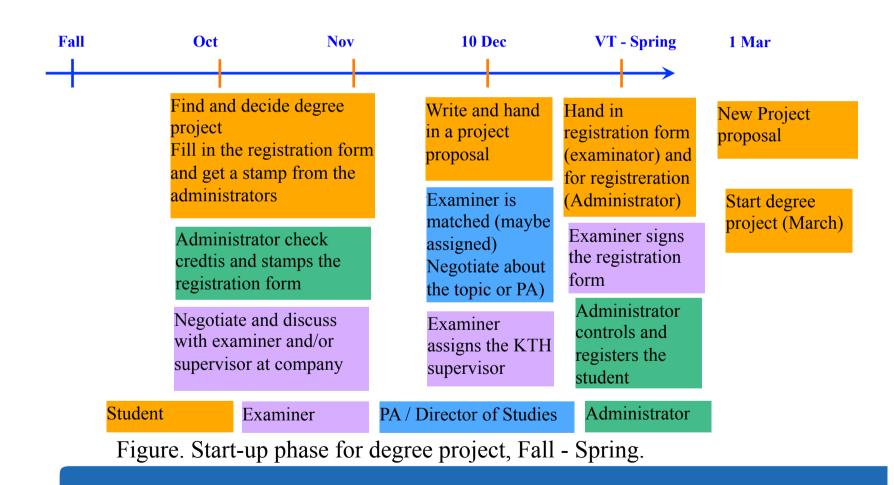
Period 4 (Mars/April) – over one period

Period 1 (Sept) – over one period

- -> Start the degree project = start finding a project
- 2-3 months before the course begins
- \* Write a project proposal, which is a memorandum for the project. Hand in 10<sup>th</sup> of Dec, 1<sup>st</sup> of March If changes last version *not later than* 3 weeks before course starts



## Before course starts (P3 Jan / P4 Mars)





#### **Before Course**

Number of students for a bachelor thesis:

2 students per thesis

Find a working partner – In Canvas / KTH Social

Not 3 students

-Note - Several students can work together with a Project solving a problem from different angels



#### @ICT-school

#### Task order:

- 1. Find a degree project
- 2. Registration form
- 3. Write a project description (project proposal)
  - Negotiate AND
  - Hand it in in Canvas!

@another KTH-school – talk to them – follow their routines! May have a start early in January, at a certain date with a certain task!



#### Find and decide on a degree project

#### ICT- school Degree project Fair

- Today, Electrum

$$11.30 - 15.30$$

Meet companies, and researchers

For more information see: https://www.kth.se/blogs/degreeprojectfair/

Contact - Visit

- companies
- researchers
- teachers



## Find degree projects/-thesis projects

Web sites (KTH, ICT KTH, External, Abroad)

KTH Degree Project Portal

http://www.kth.se/samverkan/exjobb/kth-exjobbportal-1.292786

KTH degree project pool

http:/xjobb.it.kth.se

Degree Project

http://www.kth.se/student/program/examensarbete/

Degree project abroad

https://www.kth.se/student/program/utlandsstudier/examensarbete?programme=tebsm



# @ICT-school How to get the registration form approved?

Fetch the registration form via:

Canvas: Examensarbete vid Skolan för Informations- och kommunikationsteknik - Kandidatnivå (Degree project Bachelor)

Fill it in

Take the registration form to the administrators Get a stamp!

#### Then:

Upload a copy of the registration form in Canvas system & Give it to the examiner for a signature



BLANKETT		Dnr
Blankettkod:	Reviderad datum	
UT-EXAR	2016-11-14	
Ansvarig avdelning		
UF/PLU		

Stamp &
Signature

#### ANSÖKAN OM EXAMENSARBETE, DEL 1/APPLICATION FOR DEGREE PROJECT, PART 1

Fylls i av studenten/To be filled in by the student

Förnamn/First name	Datum/Date					
1 or many 1 or many	Dutain Date					
Efternamn/Surname	Personnummer/Civic registration number					
E-postadress/E-mail						
Program vid KTH/Programme at KTH						
Planerad start för examensarbete/Degree project is planned to start						
Jag godkänner publicering via DiVA/I accept publication via DiVA						
l <u> </u>						
Jag godkänner inte publicering via DiVA/I do not accept publication via DiVA						
Signatur student/Signature student						



**Grades: P/F – ECTS A-F** 

Degrees with P/F or A-F:

Students that have started their education *before* **2015-07-01** have the *right to choose* grade A-F

Education program and Course code must be given when handing in the project proposal

Choice of course code is decided when the course is registered.

Cannot regret the choice later and choose another grade!



#### Hand in – start period 3 or period 4

HAND in project proposal by *upload* it in the Canvas system – *not later than* – 10<sup>th</sup> of Dec

(https://kth.instructure.com/courses/1585)

UPLOAD registration form together with project proposal in the Canvas system – 10<sup>th</sup> of Dec

USE both when talking to examiner! (i.e., if you have a project)

GIVE the registration form to your examiner (for additional information)!

You *or* the examiner hand in the registration form to the administrators - white post box, 3<sup>rd</sup> floor, A-elevator, Service center



#### Hand in – start period 1

HAND in project proposal by *upload* it in the Canvas system – *not later than* – 15 <sup>th</sup> of June (https://bilda.kth.se/)

UPLOAD registration form together with project proposal in the Canvas system – **15** <sup>th</sup> **of June** 



#### Why hand in a project proposal?

To get suggestions about a possible examiner

Examiners can read the project proposals and discuss the topic with the student

## **OBS** Examiners, themselves, pinpoint supervisors at KTH



# Project proposal = Announcement, *Not registration*

(template in Canvas or: https://www.kth.se/social/group/degree-projects-ict-/page/forms-application-form-project-proposa/)

Project Title + Date

Author information (individual work)
Organization and Supervisor, information
KTH Examiner and Supervisor, information
Keywords

1-6 keywords describing the degree project

**Background** 

Short description of the area

**Problem** 

Problem area, focusing on the area to work with

Problem statement

© 2017 ANNE HÅKANSSON ALL RIGHTS RESERVED

Concrete problem to work with during the project



#### Project proposal, cont.

**Purpose** with the degree project (e.g., present a computer system that provides possibilities to a better working process)

#### Goals

The goals of the project (e.g., an improved computer system that connects several already developed computer systems)

#### **Tasks**

Tasks to carry out during the project

#### Method(s)

Research methods that will be used to carry out the degree project and to write the thesis

#### **Delimitations**

What affect the project but will not be included

Milestone chart (time schedule)

Risks, Consequences and Ethics

#### **Summary**

short summary of the degree project and work including expected results

#### Reference(s)



# No idea what to work with? But will carry out degree project during spring semester

Hand in - in Canvas with:

Project Title "To be determine / decided"

That is if the degree project is not decided but will be carried out during spring.

**Students** Name of the students that will carry out the degree project

#### Keywords

Instead of keywords, write own areas of interests (preferable several):

1-6 keywords that shows what you are interested of (t ex, Artificial Intelligence, Programming, Development of a system ...)



## Examensarbete vid Skolan för Informationsoch kommunikationsteknik - Kandidatnivå (Degree project Bachelor)!





Degree Project at the School of Information and Communication Technology - First Cycle



Konto





Kurser







#### Hem

Uppgifter

Diskussioner

Betyg

Personer

Konferenser

Samarbeten

Media Gallery

Senaste aktiviteten i Degree Project at the School of Information and Communication Technology - First Cycle



Inga nya meddelanden Du har inga meddelanden att visa i din ström. När du börjar delta i kurser kommer du märka att den här strömmen börjar fyllas med meddelanden från diskussioner, betygsuppdateringar, privata meddelanden mellan dig och andra användare, osv.

#### Kommande



Inget i nästa vecka



#### In folder....

Målgrupp	Utbildningsprogram	Ämnesområde	Kursnamn	Högskolepoäng	Kurskod för A-F betygsskala	Kurskod för P/F betygsskala
Högskoleingenjör studenter	TIDAB, TIDAA	Teknik	Examensarbete inom datateknik, grundnivå	15	<u>II122X</u> ₫	<u>II142X</u> ₫
	TIEDB, TIELA		Examensarbete inom elektronik och datorteknik, grundnivå	15	<u>IL122X</u> ₫	<u>IL142X</u> ♂
kandidate studenter	CINTE, TCOMK		Examensarbete inom informations- och kommunikationsteknik, grundnivå	15	<u>II123X</u> ₽	<u>II143X</u> ₽

"TKOMK-II143X\_Amanda-Rise\_Roland-Tivo\_A-distributed-system-for-structured-data-Distributed-structured-data-storage-171210.doc"

"TKOMK-II143X-Sead-Mansfield—To\_be\_decided—distributed\_systems-embedded\_systems-121130.pdf"



#### Number of project proposals and alterations

Hand in *one* project proposal *per* degree project! Choose the code that corresponds to education programme!

If different programmes – still choose one code and tell that several education programmes are involved.

#### **Altered version:**

Course that starts in period 3 (January):

- Hand in the altered version *not later than* 10 of January! (if carrying out the degree project in period 3-4)

Period 4 (March):

- Hand in the altered version *not later than*15 February! (if period 4)

Period 1 (September):

- Hand in better version *not later than*15 of August! (if carrying out the degree project in period 1-2)



#### **Examiner and Supervisors**

- •Examiner and Supervisor at KTH
- Supervisor (Company)
- Find examiner and supervisor at KTH

Help from Director of Studies – from project proposals

Contact possible Examiner and/or Supervisor

(Examiner pinpoints KTH Supervisor)

Contact PA (Program Directors)

Contact Director of studies for the unit, education program

Canvas – support if Examiner and Supervisor are missing

\* Examiner signs the registration form



## **Program Directors (PA)**

http://www.kth.se/en/ict/kontakt/programansvariga-1.33074 Bachelor of Science in Engineering, Computer Engineering (TIDAB) <u>Anders Sjögren</u>

Bachelor of Science in Engineering, Electronics and Computer Engineering Bengt Molin

Bachelor of Science, Information and Communication Technology (TCOMK) Paolo Monti

Master of Science in Engineering Information Technology, 3<sup>rd</sup> year, (CINTE) Robert Rönngren



#### **Program Directors**

#### Older programs with no admission

Bachelor of Science, Information and Communication Technology (TKOMK) Anders Sjögren

Bachelor of Science, Business Engineering (TAFFK) Anders Sjögren

Bachelor of Science in Engineering, Electronics and Communication Engineering (TIEMB) Bengt Molin

Bachelor of Science in Engineering, Business IT Engineering (TIASB) <u>Anders Sjögren</u>

Bachelor of Science in Engineering, Mechatronics and Industrial IT Engineering (TIMIB) <a href="ITM-skolan">ITM-skolan</a>

Master of Science in Engineering, Microelectronics, 3<sup>rd</sup> year (CMIEL) Robert Rönngren



#### **Director of studies**

Software and Computer systems Alf Thomas Sjöland

**Communication Systems Fredrik Kilander** 

**Electronic Systems B Gunnar Malm** 

Degree Projects Anne Håkansson

Director of First and Second Cycle Education <u>Anders</u>
<u>Västberg</u>



#### Information about degree project

Find information about degree projects:

#### **CANVAS**

https://www.kth.se/social/group/examensarbete-ict-sk/ Forms, templates, evaluation template etc: CANVAS

https://www.kth.se/social/group/examensarbete-ict-sk/page/formular-registrering-projektforslag/

https://www.kth.se/student/program/examensarbete/ict-examensarbete-vid-skolan-for-informations-och-kommunikationsteknik-1.14065

#### **CANVAS**

Examensarbete vid Skolan för Informations- och kommunikationsteknik - Kandidatnivå (Degree project Bachelor)



## Lectures, in Canvas

2018

January – Introduction lecture

February - Misc: Content, Structure, Presentation / Opposition, Writing hints



# Questions





#### **About the course - Work Phase, half-time**

21 weeks of work (number of weeks, not calendar weeks)

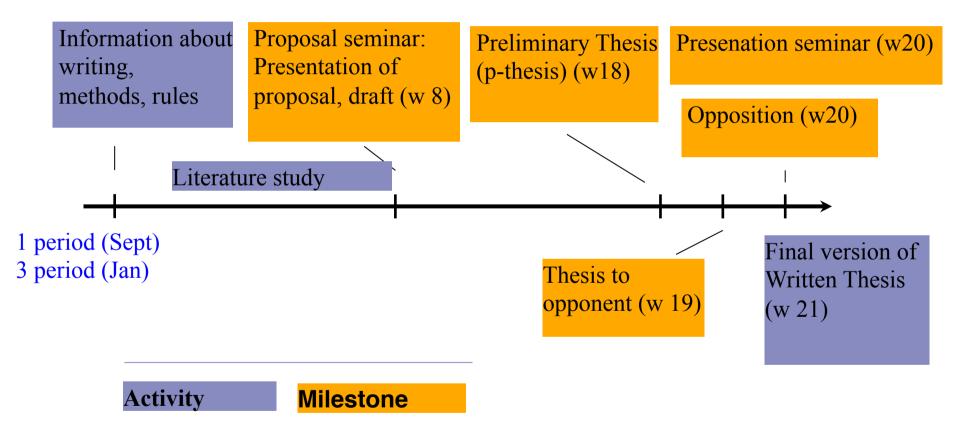


Figure. Activities and milestones of degree project (*Ends in Jan or June*)



## **About the course - Work Phase, full-time**

11 weeks of work (number of weeks, not calendar weeks)

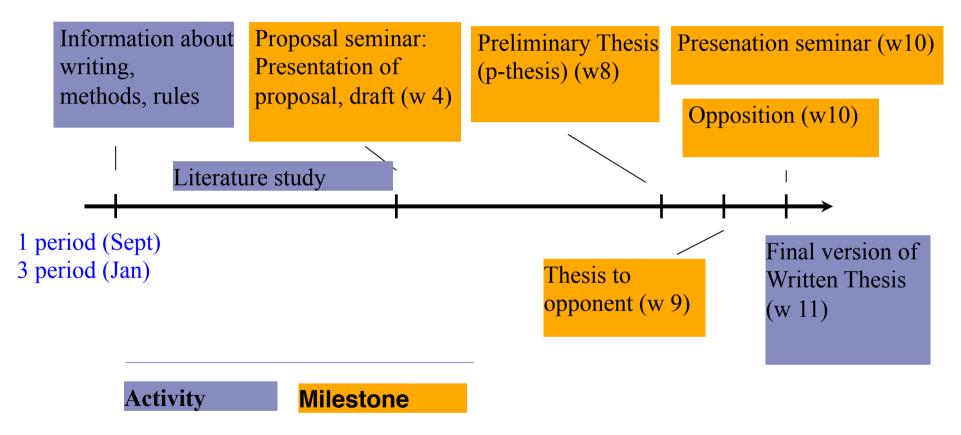


Figure. Activities and milestones of degree project (*Ends in June*)



## **Activities**

Information: writing, method, rules. How to write a master thesis, how to choose methods for conducting the degree project, and the rules that govern the conduct of a degree project. (Lectures, books, Web)

Literature study. The literature study is <u>essential</u> for all degree projects and will identify required background and related work. Typically, the literature study takes around four weeks (but may in some cases be continued throughout the course).

Written thesis. The written thesis is the degree project most important part. It is a third of the grade of the degree projects and is a tool for judging the process.



#### Proposal seminar and draft of the thesis.

A first draft of the thesis is to be delivered to the examiner. The draft *should* include the result of the literature study and an outline of the entire thesis.

#### **Preliminary thesis.**

The preliminary thesis is meant to be the complete thesis *before* getting comments from the examiner, and the opponent is involved.



Thesis to Opponent. When no major revisions of the written thesis are required, the preliminary thesis is given to the opponent.

If possible, the comments from the examiner are already addressed in the thesis that is given to the opponent.

**Final Thesis.** The final thesis, <u>at the very latest</u>, 1 week <u>after</u> the degree project has been presented (that is, 11 weeks or 21 weeks).

Must address the revisions required by the examiner and the opponent.

A short summary of how the comments from examiner and opponent have been addressed in the thesis should be given.

© 2017 ANNE HÅKANSSON ALL RIGHTS RESERVED



**Opposition.** Must be opponent of another master thesis. The critical comments from the opponent *should improve* the written thesis;

the opponent must demonstrate that he/she is able to *reflect* on, evaluate, and critically review the work of another student.

An opposition report that evaluates and critically reviews the preliminary thesis and suggests improvements (language, structure, content, and so on) *must be submitted* to the examiner and examiner of the opposed degree project, <u>at least</u>, <u>one day before the seminar</u>, as well as, to the examiner of the opponent's degree project (for grading).



**Oral presentation.** The student contacts the examiner sufficiently early so that the time for the presentation can be agreed between student, examiner, and opponent and the opponent's examiner.

The student, or student's examiner, announces the date, and place together with a short abstract well in advance of the seminar.

If confidential material - it is possible to produce two documents: one for the company including confidential material; the other for KTH excluding the confidential material. KTH grade and archive and so on only the document without the confidential information.



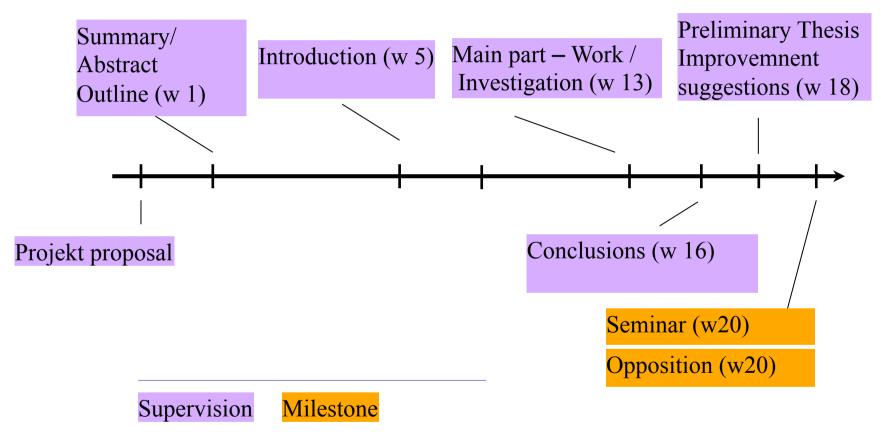
# **Checkpoints / Seminars with supervisors - examiners**

Several checkpoints and compulsory seminars:

- Summary, Abstract, and Outline
- Introduction
- Research Methodology
- Main thesis
- Conclusions
- Presentation seminar
- Opposition seminar



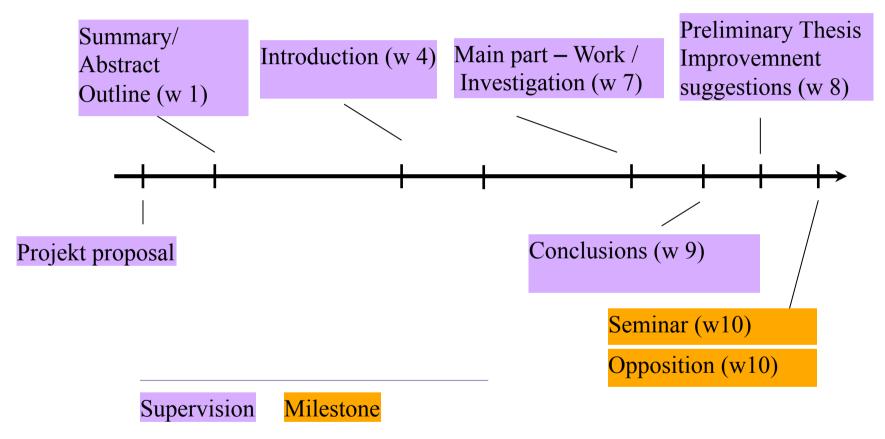
## Supervision matches the working phases, Half-time



Figur. Supervision /Seminars with supervisor and students.



# Supervision matches the working phases, Full-time



Figur. Supervision /Seminars with supervisor and students.



# Student activities /seminars, Half-time

- w 0 Registration form (fill-in, signatures, hand in)
- w 1 Summary, Abstract, Outline / Table of Contents
- w 5 Introduction
- w 8 Research Methodology
- w 8 Proposal seminar
- w 13 Main thesis
- w 16 Conclusions
- w 18 Preliminary thesis
- w 19 Thesis to opponent
- w 20 Presentation seminar/ Opposition seminar
- w 21 Final version of the thesis + evaluation template



## **Supervisor** - **Examinator**

v 2 – Summary, Abstract, Outline, Table of contents

v 8 – Introduction

v 8 – Proposal seminar

v 14 – Thesis main part

v 16 – Conclusions, Discussions and Future work

v 20 – Presentation seminar/ Opposition seminar v 18 – Preliminary thesis

v 20 – Presentation seminar/

Opposition seminar



#### Supervision:

Abstract / Summary and Disposition/table of contents. An abstract (eng and swe) and a summary of the whole thesis and a outline/table of contents of the thesis.

Introduction. Introduction includes introduction to the thesis, background to problem area, problem statement, purpose with thesis purpose with the project work, method for degree project and delimitation of degree project and outline.



#### Supervision:

Main part – project work. Main part with several chapters that describes the main project work including result. The project work is commonly a technical work but can also be an investigation/ comparison of the problem area.

**Conclusions.** A concluding part that describes conclusions, discussions and future work for the thesis.

**Preliminary Thesis.** The thesis that has been handed to the opponent and the examiner for presentation and that can be improved before handing in the last version of the thesis.