COURSE SYLLABUS

Research Methods in Computer Science and Informatics

, 7.5 credits

Forskningsmetoder i datateknik och informatik, 7,5 högskolepoäng

Course Code:	TFIN18	**Education Cycle:**	First-cycle level
Confirmed by:	Dean Feb 1, 2017	**Disciplinary domain:**	Technology (95%) and social sciences (5%)
Revised by:	Director of Education Nov 26, 2019	**Subject group:**	DT1
Valid From:	Jan 1, 2020	**Specialised in:**	G2F
Version:	2	**Main field of study:**	Computer Engineering

Intended Learning Outcomes (ILO)

On completion of the course, the student shall:
Knowledge and understanding
- display knowledge of basic research paradigm within research areas relating to Computer science and Informatics
- display knowledge of information retrieval and analysis using inductive, deductive, quantitative, and qualitative methods
- show familiarity for designing research studies regarding research questions, methodology, information retrieval, analysis, and conclusion
Skills and abilities
- demonstrate the ability to search, collect and evaluate literature sources in databases established in computer science and informatics
- demonstrate the ability to plan and conduct a scientific study including processing of quantitative and qualitative data as inductive and / or deductive research methods
- demonstrate the ability to write a scientific report with the requirement of formalities, content, structure, and language and also to present and critically examine scientific works
Judgement and Approach
- demonstrate the ability to conduct critical review of a scientific work regarding the problem definition, methodology, use of existing literature, data collection, analysis and conclusions

Contents

The course contains a fundamental introduction to modern views on Science aiming at Engineering Science, Computer Science, and Informatics. Focus is on giving the student an insight in the history and philosophy of science and how to apply scientific methods within Engineering Science, Computer Science, and Informatics. The student shall, after completion of the course, have the necessary knowledge about how to conduct research projects and how to write scientific reports.

The course contains the following elements:
- Various research paradigm: Positivism, Hermeneutics, Interpretation, Critical Research, Design Science, Action research
- Computer Science and Informatics as research area
- Inductive and deductive research
- Qualitative and quantitative studies
- Systematic information retrieval
- Experiment and proof of concept as research method
- State of the art
- To write and review scientific reports

Type of instruction
The teaching is conducted in English.

Prerequisites
General entry requirements and completed courses 60 credits in first cycle (or the equivalent).

Examination and grades
The course is graded 5,4,3 or Fail.

Registration of examination:

Name of the Test	Value	Grading
Written Examination[I]	3 credits	5/4/3/U
Laboratory work, exercises and seminars	4.5 credits	U/G

[I] Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature
The literature list for the course will be provided one month before the course starts.

Zobel, J. (2014). Writing for Computer Science. Third edition. Springer. [tillgänglig som fysisk kopia samt nedladdningsbar via högskolebiblioteket]

Elektroniska resurser via biblioteket och Internet enligt litteraturlista på lärplattformen.