

### **COURSE SYLLABUS**

## Forskningsmetodik i datavetenskaper

## Research Methodology in Computing

7,5 ECTS credit points (7,5 högskolepoäng)

Course code: PA1433 Educational level: First cycle Course level: G2F Field of education: Technology Subject group: Computer Technology **Subject area:** Computer Science, Software Engineering **Version:** 8

**Applies from:** 2014-06-17 **Approved:** 2014-06-17 **Disused:** 2023-12-18

#### 1 Course title and credit points

The course is titled Research Methodology in Computing/Forskningsmetodik i datavetenskaper and awards 7,5 ECTS credits. One credit point (högskolepoäng) corresponds to one credit point in the European Credit Transfer System (ECTS).

#### 2 Decision and approval

This course is established by Head of Department of Software Engineering 2014-06-11. The course syllabus was revised by Head of Department of Software Engineering and applies from 2014-06-17.

#### 3 Objectives

The objectives of the course are to introduce, discuss and practice a scientific approach, to get acquainted with current research in a specific area and to practice scientific writing. A key issue in software engineering and computer science research is the development, evaluation and comparison of methods, tools, languages, design and algorithms and how these affect different systems, organizations and humans. This course introduces research methodologies that make such an evaluation and comparison possible. The student is also introduced to societal and ethical aspects of such research and evaluations and gets initial experiences in planning, conducting and reporting a research project.

#### 4 Content

The course introduces scientific research methods, scientific writing and how to build and strengthen a well-founded argumentation.

The course includes the following elements:

- Searching for and evaluating literature
- Formulation of scientific questions
- Introduction to methods for research, data collection and analysis
- Planning, implementation and evaluation of research

- Research Ethics
- Scientific writing

#### 5 Aims and learning outcomes

Knowledge and understanding

On completion of the course the student will be able to:

- Describe how to conduct a research project from beginning to end,
- Account for different methods of research, data collection and analysis.
  Skills and abilities

On completion of the course the student will be able to:

- use scientific databases and search engines to identify research articles that are relevant to a specific question
- be able to summarize results presented in research articles in his or her own words
- be able to formulate research objectives and issues in a specific area
- be able to design a basic research study
- perform data collection and analysis of a basic research study and compare the result with existing literature
- write a report according to established academic practice
- reference other people's work according to established academic practice
  Valuation capability and approach
  On completion of the course the student will be able
- demonstrate an ability to relate to the concepts of science and relate to them in their own work
- show insight into the role of knowledge in society, people's responsibility for how the knowledge is used and the ethical and societal implications a research project can lead to
- discuss and relate to the concepts of plagiarism and copyright

#### 6 Learning and teaching

The course is organized around lectures and assignments. Students are expected to take an active part and contribute in the lectures. The assignments are written to train the students in designing and implementing specific parts of research studies, as well as in academic writing.

research studies, as well as in academic writing. The languages of instruction is Swedish and English.

Swedish but teaching in English may occur.

# 7 Assessment and grading Examination of the course

Code Module	Credit	Grade
	2.5 ECTS 2.5 ECTS sis 2.5 ECT	A-F A-F S A-F

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Fail, supplementation required, F Fail.

#### 8 Course evaluation

The course coordinator is responsible for systematically gathering feedback from the students in course evaluations and making sure that the results of these feed back into the development of the course.

#### 9 Prerequisites

Completed courses of at least 45 ECTS credits in the study subject Software Engineering or Computer Science.

#### 10 Field of education and subject area

The course is part of the field of education and is included in the subject area Computer Science and the subject area Software Engineering.

#### 11 Restrictions regarding degree

The course cannot form part of a degree with another course, the content of which completely or partly corresponds with the contents of this course.

#### 12 Additional information

Assignments will only be corrected and graded when the student has signed the Rules of Conduct.

#### 13 Course literature and other teaching material

Main literatur

1. Projects in Computing and Information Systems – A Student's Guide, 2nd Edition

Author: Christian Dawson Publisher: Addison-Welsey

Edited: 2009, number of pages: 304

ISBN-13: 978-0273721314

Reference

2. Real World Research, 3rd Edition

Author: C. Robson Publisher: Wiley

Edited: 2011, number of pages: 608

ISBN: 978-1405182409

3. The Research Methods Knowledge Base, 3rd

Edition

Author: W.M.K. Trochim, J. P. Donnelly

Publisher: Atomic Dog Pub

Edited: 2006, number of pages: 361

ISBN: 978-1592602919

4. Experimentation in Software Engineering - An

Introduction; 2nd Edition

Author: C. Wohlin, P. Runeson, M. Höst, M.C.

Ohlsson, B. Regnell, A. Wesslén Publisher: Springer Verlag

Edited: 2012, number of pages: 250

ISBN-13: 978-3642290435