Blekinge Institute of Technology
Department of Software Engineering

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 to:
• 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. The languages of instruction is Swedish and English.
Swedish but teaching in English may occur.

7 Assessment and grading

Examination of the course

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Code Module              Credit        Grade
------------------------------------------------
1410 Literature study    2.5 ECTS      A-F
1420 Research design      2.5 ECTS      A-F
1430 Data collection/-analysis 2.5 ECTS   A-F
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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
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