Blekinge Institute of Technology
Department of Software Engineering

COURSE SYLLABUS

Forskningsmetodik i Programvaruteknik och Datavetenskap
Research Methodologies in Software Engineering and Computer Science

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

Course code: PA2554
Educational level: Second cycle
Course level: A1N
Field of education: Technology
Subject group: Computer Technology

Subject area: Computer Science, Software Engineering
Version: 6
Applies from: 2016-09-01
Approved: 2016-10-01

1 Course title and credit points
The course is titled Research Methodologies in Software Engineering and Computer Science/Forskningsmetodik i Programvaruteknik och Datavetenskap 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 Dean 2016-09-01. The course syllabus was revised by Head of Department of Software Engineering and applies from 2016-09-01.

3 Objectives
The aim of the course is to enable students to discuss and practise a scholarly approach, to gain knowledge of current research in a chosen field and to practice academic writing. A key issue in software enginnering and computer science research is developing, evaluating and comparing methods, tools, languages, models/designs and algorithms and their impact on different systems, organisations and people.
The course provides students with an understanding of the research methodology that enables such evaluations and comparisons. Furthermore, the students will be introduced to the societal and ethical aspects of the research and evaluation in question and gain experience of planning, executing and reporting a research project.

4 Content
The course introduces scientific research methods, academic writing and how to build and support a well-founded argument.
The course includes the following components:
• Retrieval and evaluation of literature
• Formulating research questions
• The use of methods for research, data collection and analysis
• Planning, execution and evaluation of a minor research project
• Research ethics
• Academic writing

5 Aims and learning outcomes
Knowledge an understanding
On completion of the course the student should be able to:
• describe how to conduct a research project from beginning to end
• be able to account for different methods of research, data collection and analysis
Skills and abilities
On completion of the course the student should be able to:
• use scientific databases and search engines to identify relevant research articles to a specific question
• be able to formulate a research problem in your own words
• be able to summarize, relate and consider the results presented in research articles
• be able to formulate research objectives and issues to solve a research problem
• be able to design a comprehensive research study that is appropriate to answer the given research questions
• To perform data analysis and compare the results with the literature and discuss the implications for research and practice
• be able to discuss the threat to the validity of their own research
• be able to write a research article adapted to recognized academic practice
• be able to reference other people's work according to recognized academic practice
• present research designs and research
Values and attitudes

On completion of the course the student should be able to:
• discuss and relate to the concept of scientific and relate to it in their own work
• be able to discuss the possibilities of science, the role of knowledge in society, people's responsibility for
how the knowledge is used and the ethical and societal implications of a research project can bring
• discuss and relate to the concepts of plagiarism and copyright
• be able to critically assess and their own research

6 Learning and teaching
The course is organized around lectures, assignments (assignments 1-3 and a
report). Students are expected to take an active part and contribute in the lectures.
Instruction is given in English.
English

7 Assessment and grading
Examination of the course

Code	Module	Credit	Grade
1705	Assignment 1	1.5 ECTS	G-U
1715	Assignment 2	0.5 ECTS	G-U
1725	Assignment 3	1.5 ECTS	G-U
1735	Research proposal[1]	4 ECTS	A-F

[1] Determines the final grade for the course, which will only be issued when all components have been approved.
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 120 ECTS credits of which 90 credits must be in the following areas: Software Engineering, Computer Science. At least 30 credits must be in one or more of the following areas: Programming, Object-oriented Systems, Software Design, Data Structures and Algorithms, Database Technology, Data Communications, Real Time Systems, Operating Systems. In addition, completed courses in Mathematics of at least 15 credits is required.

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 Course literature and other teaching material
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