UNIVERSITY OF SKÖVDE

COURSE SYLLABUS

Experiment inom programvaruutveckling, Forskarnivå
Software Engineering Experimentation, Post-graduate level
7.5 credits

Course Code: IT0912F
The Course Syllabus applies from: Jan 1, 2019
Date of Approval: Dec 10, 2018
Version Number: 1

Third-cycle Subject Area: Informatics

Academic Level: Post-graduate level

1 Name, Scope and Level of the Course

The course is given by the University of Skövde and is named Software Engineering Experimentation, Post-graduate level. It comprises 7.5 credits and is on Post-graduate level.

2 Objectives

After completed course the PhD student should be able to:

- determine when to apply the scientific process in computing and software engineering;
- design and carry out experiments in ways appropriate for a scientific process and a given problem; and
- analyze empirical data and evaluate and present results from experiments.

3 Course Content

This course provides a detailed study of the scientific process; particularly using the experimental method. Examination of how empirical studies are carried out in computing in general and software engineering in particular. Review of the distinction between analytical techniques and empirical techniques. When is experimentation required in software engineering, and what kinds of problems can be solved using experimentation? How control variables and eliminate bias in experimentation? How analyze and present empirical data for decision making?

The course will examine and critique experimental techniques to evaluate software engineering techniques and processes. Our method will be to read and discuss papers in the current literature, specifically focusing on the methods of the experiments as opposed to the background or the implications of the results. We combine this with a number of small experiments. Specific topics to be explored include (but are not limited to) software quality and testing, human computer interaction, software design, maintenance, and software development techniques.

4 Forms of Teaching

The teaching comprises lectures, project work and seminars/group discussions.

The teaching is conducted in English.

5 Examination

The course is graded Fail (U) or Pass (G).

Registration of examination results:

Name of examination	Credits	Grading
Project presentation	4 hp/credits	U/G
Written assignment	2.5 hp/credits	U/G
Seminar assignment	1 hp/credits	U/G

To obtain a final passing grade of the course, each part of the examination must have been approved.

6 Admission Requirements

The admission requirements of the course are general entry requirements for third-cycle courses and study programmes, i.e. a second-cycle qualification or satisfied requirements for courses comprising at least 240

credits of which at least 60 credits were awarded in the second cycle, or the equivalent.

Specific entry requirements are completed courses of at least 120 credits in informatics, computer science or some other relevant subject area, where at least 15 credits must be a second-cycle independent project.

In addition upper secondary course English B, or the equivalent, is required.

7 Third-cycle Subject Area

The course forms a part of the third-cycle subject area of Informatics at the University of Skövde.

8 Approval of Course and Course Syllabus

This course was approved by the Committee for the Doctoral Programme in Informatics Dec 10, 2018. This course syllabus was ratified by the Committee for the Doctoral Programme in Informatics Dec 10, 2018. It is valid from Jan 1, 2019.

9 Overlapping with Another Course

This course cannot constitute a part of a degree also containing a course, the content of which is totally or partly equivalent to the content of this course.

10 Additional Information

Further information will be available on the university's website before the course is provided.

National and local regulations for higher education are available on the university's website.

During and after the course there will be a follow-up evaluation concerning the learning outcomes. The main objective of the follow-up is to contribute to improving the course. The research students' experience and points of view constitute one part of the scrutiny and are obtained through written group course evaluation/discussions. The research students are to be informed about the outcome of these as well as possible decisions concerning steps to be taken.

11 Course Literature and Other Educational Materials

A selection of research articles, which are announced in a PM at the course start.