



UNIVERSITY OF GOTHENBURG

THE IT FACULTY BOARD

DIT590, Research Methods and Technical Writing, 7,5 higher education credits

Research Methods and Technical Writing, 7.5 högskolepoäng

First Cycle

1. Confirmation

The course syllabus was confirmed by The IT Faculty Board on 2010-09-15 to be valid from 2011-01-17.

Field of education: Science 100 %

Department: Computer Science and Engineering

2. Position in the educational system

The course is given as a compulsory course within the Software Engineering and Management Bachelor programme.

Main field of studies

Applied IT, Software Engineering and Management

Specialization

G2F, First Cycle, has at least 60 credits in first-cycle course/s as entry requirements

3. Entry requirements

To take this course, 120 higher education credits within software engineering and software management (or other fields giving these skills) are required. In particular, students must be capable of reading research publications in the fields of software engineering and software management with ease. This includes publications that use basic software-engineering related mathematical concepts (such as functions, relations, sums, series, and graphs). Students must also be capable of quickly becoming effective with new computer tools, such as statistical packages.

4. Course content

The course prepares students for the course DIT565 Software Engineering and Management Bachelor project and for professions in the fields of software engineering and software management.

It balance both theoretical and practical considerations of research. The course has two general themes and twelve sub themes :

(1) strategies and methods for software engineering studies with action research, case study research,

grounded theory, interviews, surveys, experiments, and literature studies as sub-themes; (2) technical & scientific writing with organization, style, grammar, punctuation, and reference handling as sub themes. Each of these sub-themes is associated with a study item based on three elements: read, apply, report. These items together constitute the course. Students will present both their own research plans as well as relevant topics for the course to gain practical experience both conducting research as well as defending their research.

5. Learning outcomes

The purpose of the course is to equip the student with strategies and methods for execution and communication of studies and investigations in software engineering research and practice.

After completion of the course the student is expected to be able to:

Knowledge and understanding

- Organize scientific publications and professional investigations, following the IMRAD structure. The knowledge goals are delimited to the context of software engineering and software management. However, the knowledge obtained is generally useful, and applicable in most professions that require an academic degree.

Skills and abilities

- formulate purpose statements and research- or investigation questions;
- choose strategies and methods in concordance with research- or investigation questions, and motivate and explain these choices;
- conduct literature studies;
- plan surveys, collect survey data, and analyze survey data using statistical data analysis techniques;
- plan interviews, execute interviews, and interpret interview data using qualitative techniques;
- write arguing prose that is coherent, clear, and concise with appropriate use of citations, and review such prose for the same qualities;

Judgement and approach

- model phenomena and their relationships as dependent and independent variables,
- formulate hypotheses using variables,
- develop instrumentation for measurement of either technical qualities or social phenomena,
- conduct experiments to collect data,
- verify or refute hypothesis using statistical data analysis techniques

6. Literature

See separate literature list.

7. Assessment

The course is examined by a compulsory written report based upon the topics covered in the course.

Depending on their nature, reports are either individual, or carried out in groups of two. Hand-ins are graded, during the course, using student peer assessment, following criteria set by the examiner. Item grades are combined into a preliminary grade using weighted criteria. The examiner validates and adjusts this grade by inspection of the complete set of hand-ins produced by the student.

A student who has failed a test twice has the right to change examiners, if it is possible. A written application should be sent to the Department.

8. Grading scale

The grading scale comprises Fail (U), Pass (G), Pass with Distinction (VG).

Regarding the application of ECTS scales, please see Vice-Chancellors decision 2007-05-28, dnr G 8 1976/07.

9. Course evaluation

Students are to be given the possibility of participating in course evaluations anonymously. The processed results of the course evaluations are to be made accessible to students and also made available to new students at the beginning of the next course. Possible changes brought about as a result of course evaluations are to be described.

10. Additional information

Language of instruction: English.

The overall pedagogical strategy of the course is problem based learning, which means that hand-ins will consist of open problems within the subtopic in question. However, the course deviates from standard PBL by restricting group sizes to at most two. This is to support the students development of self-dependence (which is a knowledge goal of thesis project) and to allow alignment with the students thesis project.