Linnæus University

Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

4DV105 Tillämpad programanalys, 7,5 högskolepoäng
Applied Program Analysis, 7.5 credits

Main field of study
Computer Science

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved by the Board of the School of Computer Science, Physics and Mathematics 2009-12-01

Revised 2010-11-26. Revision made for prerequisites and course evaluation.

The course syllabus is valid from autumn semester 2011

Prerequisites
90 credits in Computer Science or equivalent.

Expected learning outcomes
Upon completion of the course, the student should be able to:

- describe advanced state-of-the-art program analysis techniques
- give an account of state-of-the-art Compiling program analysis techniques to problems in Software Engineering
- apply novel approaches to program analysis

Content
The course gives an introduction to general program analysis techniques. It introduces standard and advanced analysis techniques of programs.

The first part introduces intermediate representations of pro-gram: Attributed Abstract Syntax Trees, Containment Tree, Class Hierarchy, Call Graphs.

The second part increases the level of abstraction. Software metrics as a general technique and its application in the development and re-engineering processes, is presented. The second part also includes design patterns/anti-pattern and their use in detecting connectors and design flaws in systems. Different techniques of grouping

classes into components, is presented.

Dominance analysis, concept lattice based approaches and metrics based groupings, is presented.

In the third part, we sketch techniques of software visualization required to understand the results of the aforementioned techniques.

Type of Instruction
Lectures, seminars and self studies.

Examination
The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Assessments of student performance consist of written and/or oral examinations and/or presentation of mandatory assignments. The assessment method will be decided at the start of the course.
Students who do not pass the regular examination are given the opportunity to do a re-examination shortly after the regular examination.

Course Evaluation
A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Other
Upon request, a Swedish University degree will be issued upon successful completion of the full demands for that degree.

Students who receive a passing grade in the course may download a course certificate through the Student Portal. Otherwise they may request a course certificate from the school secretary.

Required Reading and Additional Study Material
Required reading
Relevant literature / papers will be selected and provided at the start of the course.