Linnæus University

Course syllabus

Faculty of Technology
Department of Computer Science and Media Technology

2DV604 Programvaruarkitekturer, 7,5 högskolepoäng
Software Architectures, 7.5 credits

Main field of study
Computer Science

Subject
Informatics/Computer and Systems Sciences

Level
First cycle

Progression
G2F

Date of Ratification
Approved 2015-05-22.
Revised 2024-04-23. Literature list is revised.

The course syllabus is valid from spring semester 2025.

Prerequisites
Object Oriented Analysis and Design using UML (1DV607), 7.5 credits and Software
Design (2DV608), 7.5 credits or equivalent.

Objectives

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

Knowledge and understanding

- A.1 explain and apply software architecture concepts,

- A.2 describe software architecture design and evaluation methods

- A.3 explain advanced software architecture design principles

Competence and skills

- B.1 perform basic software architecture design and evaluation

- B.2 apply advanced software architecture design principles

- B.3 describe and apply software architectures documentation concepts and strategies

Judgement and approch

- C.1 explain the connection between software architecture and software quality

- C.2 describe how software architectures may assist in software reuse

Content

The course comprises:

- introduction to software design and software architectures

- introduction to software architecture concepts

- overview of architecture description techniques and architectural views

- architectural styles and patterns

- software product-line concepts and its architectures

- software architecture design and evaluation.

Type of Instruction

Teaching consists of lectures, seminars and practical work. Practical work is carried out in groups or individual. Attendance at some activities is mandatory.

Examination

The course is assessed with the grades A, B, C, D, E or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The examination is based on an individual exam (3 credits) and a number of assignments (4.5 credits). The first two assignments are individual, the 3rd is a group assignment. The final grade is determined by: Assignment 40% and exam 60%.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the

student conduct the exam in an alternative way.

Objectives achievement

The examination of the course is divided as follows:
Module 2401 Exam 3.0 credits with the grading system AF
Module 2402 Assignment 1 1.0 credits with the grading system AF
Module 2403 Assignment 2 1.5 credits with the grading system AF
Module 2404 Assignment 3 2.0 credits with the grading system AF

The examination elements are linked to the course objectives in the following ways:
Module 2401 links to the course objectives: A.1, A.2, A.3, B.1, C.1, C.2
Module 2402 links to the course objectives: A.2, B.1
Module 2403 links to the course objectives: A.2, B.1, C.1
Module 2404 links to the course objectives: B.1, B.2, B.3, C.1

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course:
2DV104 Software Architectures, 7.5 credits

Other Information

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Required reading

- Humberto Cervantes och Rick Kazman, Designing Software Architectures: A Practical Approach latest edition. Addison-Wesley Professional. Pagesr 300 of 350