Linnæus University

Dnr: 2022/497-3.1.2.2

Course syllabus

Faculty of Technology

Department of Informatics

1IK162 Objektorienterad programmering och datastrukturer, 7,5 högskolepoäng

1IK162 Object oriented programming and data structures, 7.5 credits

Main field of study
Informatics

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Faculty of Technology 2022-02-07
The course syllabus is valid from autumn semester 2022

Prerequisites
1IK161 Fundamentals of programming 7.5 credits or equivalent.

Objectives

After completing the course, students are expected to be able to:

- A.1 understand the basic object-oriented concepts concepts such as classes, objects, method overloading
- A.2 explain and use object oriented concepts such as modularisation, abstraction, encapsulation, inheritance and polymorphism
- A.3 create simple graphical user interfaces with the help of an object oriented programming language
- A.4 explain and use foundational linear and nonlinear data structures, and simple tree structures
- A.5 understand and apply different searching and sorting algorithms on different data structures.

Content

The course focuses on the understanding of object-oriented programming and data structure concepts. The first part covers topics, such as classes, objects, data abstraction,

methods overloading, inheritance, and polymorphism. Moreover, in the second part abstract data structures such as linked lists, queues, and stacks are to be used, but also the binary tree structures. The course will also introduce creation of a graphical user interface using an object-oriented programming language.

Type of Instruction

Teaching takes place in the form of lectures, assignments and laboratory work. The laboratory assignments and their presentations are individual.

Examination

The examination of the course is divided as follows:

Code	Designation	Grade	Credits
2201	Practical work	U/G	3,50
2202	Written exam	U/G/VG	4,00

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

The laboratory work is assessed with U or G. The course ends with a written examination. After passing the labs, the final grade is decided by the written exam.

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 elements are linked to the course objectives in the following ways:

Goal	2201	2202
A.1		☑
A.2	☑	☑
A.3	☑	
A.4	☑	☑
A.5	☑	☑

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.

Required Reading and Additional Study Material

Liang, Daniel. Introduction to Java Programming and Data Structures, latest edition. Pearson Education Limited. Approximately 800 pages.