Object-oriented Programming and Design 7.5 credits D0010E

Objektorienterad programmering och design

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2021-02-17

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TEKNISKA
UNIVERSITET

Object-oriented Programming and Design 7.5 credits D0010E

Objektorienterad programmering och design

First cycle, D0010E

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Datalogi	Computer Technology

Main field of study

Computer Science and Engineering

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and knowledge about and ability to program in an imperative programming language (for instance D0009E Introduction to Programming).

Selection

The selection is based on 1-165 credits.

Course Aim

After the course, the student

1. has knowledge about a) the scientific foundation of   Object-oriented Programming and Design and b) the proven experience programmers in   this field of Computer Science;
2. has the capacity for carrying out teamwork and collaboration with various constellations, both in groups where the students choose whom to work with and in groups put together by others;
3. can create, analyze and critically evaluate various technical solutions in terms of the design and implementation of large computer programs by using a modern object-oriented programming language;
4. can plan and use appropriate methods to undertake advanced programming tasks within predetermined parameters.

Contents

Classes and objects. Encapsulation of methods and data structures. Inheritance as a mechanism for the reuse of code. Shadowing. Inheritance hierarchies, types, static and dynamic types, sub types, polymorphism. Abstract data types. Program design with UML. Design and computation patterns. Simple graphical user interfaces. Containers. Documentation. Integrated development environments.

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Instruction consists of lectures and laboratory work. A large part of the course is carried out using the technique called "flipped classroom" where course material is studied on-line, and out of class (not at lectures), and then followed-up at scheduled training sessions together with the professor. Laboratory work is carried out in a computer lab both individually and in groups. Homework assignments that render credit marks on the subsequent written exam may also occur during the course. In the practical lab work, the development environment Eclipse and the programming language Java are used.

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Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Examination consists of a final written exam and mandatory programming assignments during the course. Passing the lab assignment part of the course requires a passed grade on all individual assignments.

The course goals are examined as follows:

1. Final written exam. Individual lab assignments;
2. Lab assignments (carried out in groups);
3. Final written exam. Individual lab assignments;
4. Lab assignments.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Overlap

The course D0010E is equal to D0011D, D0037D, D0035E, ISI733, SMD181

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Laboratory work	U G#	4.5	Mandatory	A07	
0003	Written exam	G U 3 4 5	3	Mandatory	S22	

Study guidance

http://www.sm.luth.se/csee/courses/d0010e/

Last revised

by Jonny Johansson, HUL SRT 2021-02-17

Syllabus established

by the Department of Computer Science and Electrical Engineering 2007-02-28

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