

COURSE SYLLABUS

Object-oriented Program Development, 7.5 credits

Objektorienterad programutveckling, 7.5 högskolepoäng

Course Code: TOCK13	Education Cycle: First-cycle level
Confirmed: Jun 01, 2023	Disciplinary domain: Technology
Valid From: Aug 31, 2026	Subject group: Computer Technology
	Specialised in: G1F First cycle, has less than 60 credits in first-cycle course/s as entry requirements
	Main field of study: Computer Science

Intended Learning Outcomes (ILO)

On completion of the course the student shall:

Knowledge and Understanding

- display knowledge of fundamental techniques and terminology used in object-oriented programming,
- display knowledge of design principles in SOLID,
- display knowledge of design patterns in GoF and how SOLID relate to them,
- show familiarity with fundamental modelling techniques in UML

Skills and Abilities

- demonstrate the ability to apply SOLID design principles, and GoF design patterns, when developing an object-oriented application,
- demonstrate the ability to create object-oriented applications according to good object-oriented principles,
- demonstrate the ability to communicate a program design in a modelling language

Judgement and Approach

- demonstrate the ability to assess the suitability of object-oriented program constructions with respect to a given problem.

Content

This is an introductory course in object-oriented programming, and builds upon the students' previous knowledge in imperative programming languages.

The course includes the following elements:

- Basic object-oriented concepts, such as objects, classes, inheritance and encapsulation
- Object-oriented modelling with UML (Unified Modeling Language)
- Object-oriented programming
- Design principles included in SOLID (Single Responsibility, Open-Closed, Liskov Substitution, Interface Segregation, Dependency Inversion)
- Design patterns included in GoF (Gang of Four)

Type of Instruction

Lectures, laboratory work in the form of assignments, workshops and tutoring.

Language of instruction is Swedish but English may occur.

Entry Requirements

General entry requirements and taken course in Algorithms, 7.5 credits (or equivalent knowledge).

Examination and Grades

The course is graded 5, 4, 3 or U.

Registration of examination:

Name of the Test	Value	Grading
Examination ¹	4.5 credits	5/4/3/U
Laboratory	3 credits	G/U

¹Determines the final grade of the course, which is issued only when all course units have been passed.

Course Literature

Please note that the course literature may be revised up to eight weeks before the start of the course.

Title: Pro C# 10 with .NET 6: Foundational Principles and Practices in Programming

Author(s): Andrew Troelsen, Phil Japikse

Publisher: Apress, 2022

ISBN: 9781484278680

Title: UML @ Classroom: An Introduction to Object-Oriented Modeling

Author(s): Martina Seidl, Marion Scholz, Christian Huemer, Gerti Kappel

Publisher: Springer, 2015

ISBN: 9783319127415

URL: <https://link.springer.com/book/10.1007/978-3-319-12742-2>