LT1066 Programming in Python for teachers 4.0 credits

Pythonprogrammering för lärare

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

The official course syllabus is valid from the spring semester 2025 in accordance with the decision from the Faculty board of the ITM school: V-2024-0391. Date of decision: 2024-06-13.

Grading scale

VG, G, U

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

General entry requirements

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student shall be able to:

1. give an account of basic concepts and building blocks of programming, for example sequence, alternative, condition, repetition, algorithm and function

2. create, modify, troubleshoot and test programs in a visual programming language and have basic knowledge of at least one other language

3. use text-based programming to control physical and virtual objects

4. write simple programs in a text-based programming language, and discuss differences and similarities between visual and text-based programming

5. analyse relevant course and subject syllabuses to identify components and contents where programming in visual environments can be used

6. orientate themselves in current practices and didactic research within teaching of basic programming

7. Plan and evaluate the teaching of basic text-based programming to pupils, especially in Python

Course contents

The course contributes to providing teachers in the upper secondary school and the upper compulsory school with the knowledge needed to teach programming, especially in mathematics and technology, but also in other subjects. The course aims to provide basic knowledge of text-based programming, especially in Python . The course contains the following parts:

- Basic computational concepts
- Introduction to text-based programming languages and development environments that are common in school
- Simple programming in text-based environments and basic programming in Python
- Comparisons between visual and text-based programming from technical and mathematical perspectives
- Common command line interfaces
- Python syntax: variables, data types, functions, modules
- Object-orientation and classes
- Programme testing
- Common Python libraries
- Common applications in schools
- Introductory didactics of programming and didactic aspects related to information and communication technology

Examination

- TEN1 - Oral exam, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory assignments, 2.0 credits, grading scale: P, F
- SEM1 - Seminar, 1.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Compulsory attendance in seminars

Other requirements for final grade

Compulsory attendance in seminars

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.

Additional regulations

Students are advised to use their own computer (laptop) on the course.