BB1000 Programming in Python 7.5 credits

Programmering i Python

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

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

Establishment

Course syllabus for BB1000 valid from Autumn 2023

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Additional regulations

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

Specific prerequisites

Swedish secondary school Physics 2, Chemistry1 and Mathematics 4

Language of instruction

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

Intended learning outcomes

After completion of the course the student shall have

Knowledge and understanding to:

- use web-based as well as command-line user interfaces on a computer to execute and create scripts in Python
- describe basic syntax, data types and data structures in Python, using logical control flows (repetition and branching), separate program code into units (functions/classes) for the purpose of applying this in problem solving
- use program libraries to develop algorithms in code, for the purpose of calculating and presenting results graphically
- to use version control for backup on their own computer as well as group collaboration with web-based resources
- apply test-driven development in their programming

Course contents

The course aims to give basic knowledge on how to write programs in Python. The course consists of the following parts:

- Common command-line interfaces
- Jupyter notebooks and code editors
- Python-syntax: variables, data types, function, moduler
- File management, reading, converting and writing of data
- Version control with git
- Objekt-orientation and classes
- Program testing
- Common Python libraries (e.g. numpy, pandas, matplotlib)
- Scientific applications

Examination

- TEN2 - Computer-based examination, 7.5 credits, grading scale: A, B, C, D, E, FX, 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.

Spring version:
The learning objectives are examined with E-level assignments during the computer lab. In addition, a voluntary examination with computer will be offered with problems at A-D level. For grades A-D, an approved grade on TEN2 and a voluntary examination with a computer are required.

Fall version:
The learning objectives are examined based on individual computer-based project assignments.

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.