



COURSE SYLLABUS

Tillämpad programmering i Python Applied programming in Python 7.5 credits (7,5 högskolepoäng)

Course code: DVI614

Main field of study: Computer Science

Disciplinary domain: Technology

Education level: First cycle

Specialization: GIF - First cycle, has less than 60 credits
in first cycle course/s as entry requirements

Subject area: Computer Technology

Language of instruction: English

Applies from: 2019-10-16

Approved: 2019-10-16

1. Decision

This course is established by Dean 2019-04-25. The course syllabus is approved by Head of Department of Computer Science 2019-10-16 and applies from 2019-10-16.

2. Entry requirements

Admission to the course requires completed courses or completed parts of courses in Programming equivalent to 7.5 credits.

3. Objective and content

3.1 Objective

The aim of the course is to provide students with knowledge of object-oriented programming in Python, partly to be able to pursue continued studies in computer science and partly to be able to execute general programming assignments in working life.

3.2 Content

- Syntax and semantics for the Python programming language
- Management of embedded data structures, such as strings, lists, tuples, dictionaries and sets
- List comprehension
- Coding guidelines, style, common practice, typing and documentation of code
- Program structuring using classes and construction of new classes
- Constructors/destructors, methods, instance variables, class variables, overloading, generators, decorators, class relations and inheritance, abstract base classes
- Error management and exceptions
- In- and output from/to streams and files, synchronous as well as asynchronous
- Automated testing, including assert
- Use of external libraries, such as pandas, numpy, plotly, matplotlib

4. Learning outcomes

The following learning outcomes are examined in the course:

4.1 Knowledge and understanding

On completion of the course, the student will be able to:

- understand and explain in detail different Python programs
- explain in detail basic concepts and techniques within object-oriented programming, such as classes, class relations, overloading etc
- account in detail for an object-oriented manner of solving problems in the Python language
- explain and demonstrate the differences between synchronous and asynchronous behaviour in conjunction with in- and output of data to streams and files

4.2 Competence and skills

On completion of the course, the student will be able to:

- independently implement a well-structured object-oriented solution in Python, based on a problem description
- implement fundamental abstract data types in Python,

- use the standard library of Python and the most suitable external libraries for a set assignment
- implement well-documented self-testing Python programs

4.3 Judgement and approach

On completion of the course, the student will be able to:

- independently and critically evaluate and analyse their own solutions

5. Learning activities

The course is taught on campus and includes lectures and laboratory sessions. The lectures present theories and contribute to the theoretical understanding required to complete the course. The laboratory sessions apply the theories on practical components conducted individually and/or in groups.

Students are expected to possess, or acquire, the ability to independently seek information to solve problems and difficulties that arise.

6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
I910	Laboratory session 1	1 credits	GU
I920	Laboratory session 2	1.5 credits	GU
I930	Laboratory session 3	3 credits	GU
I940	Written examination	2 credits	GU

The course will be graded G Pass, UX Fail, supplementation required, U Fail.

The course-PM for each course revision should include the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

An examiner can, after consulting the Disability Advisor at BTH, decide on a customized examination form for a student with a long-term disability to be provided with an examination equivalent to one given to a student who is not disabled.

7. Course evaluation

The course evaluation should be carried out in line with BTH:s course evaluation template and process.

8. Restrictions regarding degree

The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

9. Course literature and other materials of instruction

A Beginners Guide to Python 3 Programming

John Hunt

Publisher: Springer Nature Switzerland AG

Release Date: August 2019

ISBN: 9783030202897

The book is available in digital form in the BTH library.

Learning Python, 5th Edition

Mark Lutz

Publisher: O'Reilly Media, Inc.

Release Date: June 2013

ISBN: 9781449355739

Material from the department.

Reference:

Learning Python, 5th Edition

Mark Lutz

Publisher: O'Reilly Media, Inc.

Release Date: June 2013

ISBN: 9781449355739

Fluent Python

Luciano Ramalho

Publisher: O'Reilly Media, Inc.

Release Date: August 2015

ISBN: 9781491946008

Programming Python, 4th Edition

Mark Lutz

Publisher: O'Reilly Media, Inc.
Release Date: December 2010
ISBN: 9780596158101

Översättning/Translation