

Course size (nominal values; actual values may depend on programme)

Credits	3.0	Study time	90 h	Contact hrs	44.0 h
---------	-----	------------	------	-------------	--------

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch	practicum	18.0 h
		lecture	12.0 h

Lecturers in academic year 2018-2019

Naessens, Helga	TW05	lecturer-in-charge
Ongenaë, Veerle	TW05	co-lecturer

Offered in the following programmes in 2018-2019

Switching Track to Engineering Technology	crdts	offering
	3	A

Teaching languages

Dutch

Keywords

Programming, Python, computer science (P170), informatics (P175), computer technology (T120)

Position of the course

Dit opleidingsonderdeel kan enkel gevolgd worden door studenten die het ritsprogramma volgen.

The purpose of this course is to learn to program, learn to think logically, learn splitting tasks into subtasks.

On the one hand, this course has a practical purpose: it teaches the students to make their own programs for instance for calculations, processing data or simulations.

On the other hand, this course has a broad educational value: it gives insight into abstract structures and processes, it develops analytical skills, the students learn to think modularly, they learn to solve problems themselves and to formulate appropriate solutions.

The acquired theoretical knowledge and skills are used in many other areas (design, planning, optimization, ...).

Contents

This course focusses on the first steps to building algorithms: it teaches the students to program in Python.

The following topics are covered: basics of structured programming (variables, operations, operator, sequence, selection, repetition) and data structures and algorithms (functions, arrays, lists, tuples, dictionaries, iteration, search, working with files).

Initial competences

Scientific basic competences acquired in secondary education.

Final competences

- 1 Knowing and being able to apply the basic concepts of programming in Python.
- 2 Being able to analyze and to structure a problem and to translate it into a computer program.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, practicum

Extra information on the teaching methods

Theory (12hrs): lectures and demonstrations.

Labs (18hrs): individual work on PC; presence required.

Learning materials and price

English textbook (one of the books on the reference list, estimated cost: max. 80 Euro).

Examples and books are available at the library.

Slides, program examples and exercises are provided.

References

- Think Python, Allen B. Downey, O'Reilly
- Practice of Computing Using Python, William F. Punch and Richard Enbody, Pearson
- Learning Python, Mark Lutz, O'Reilly
- An introduction to Computation and Programming using Python, John V. Guttag, MIT Press

Course content-related study coaching

The student can always make an appointment with the teacher.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation

Skills test

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Lectures: written examination (60%)

Labs: permanent evaluation and tests (40%)

Calculation of the examination mark

In the first examination period:

Theory: 60%

Lab: 40%

In the second examination period:

score = maximum(E; 40% L + 60% E), with L the score of the lab and E the new score of the examination in the second examination period.