

Computer Science (E701044)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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 2020-2021

A (semester 2)	Dutch	Gent	seminar: practical PC room classes	21.0 h
			lecture	18.0 h

Lecturers in academic year 2020-2021

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

Offered in the following programmes in 2020-2021

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, strings, 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, seminar: practical PC room classes

Extra information on the teaching methods

Theory (12hrs): lectures and demonstrations. During the lectures the theory is explained step by step, partly based on examples.

Labs (18hrs): individual work on PC.

Learning materials and price

- Book "Practice of Computing Using Python, William F. Punch and Richard Enbody, Pearson." Purchase without obligation (estimated cost: 70 euro)
- Books are available at the library.
- Slides, program examples and exercises are provided.

References

- Practice of Computing Using Python, William F. Punch and Richard Enbody, Pearson
- Think Python, Allen B. Downey, O'Reilly
- 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

Participation, 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

Labs: participation and/or quotation of submitted exercises in Dodona, optional test(s) Python

Calculation of the examination mark

Written examination lectures: 85%

Participation and/or quotation of submitted exercises in Dodona for the labs: 15%

If the student participated to a/the (optional) Python test, he can decide for himself whether or not to use the obtained points for a particular question of the examination. If the student does not solve the exam question, the score obtained for the test will be transferred for this question.

If the question is solved, the score of the test is not used (the points for that test are therefore not taken into account).