

## Computer Architecture (E034110)

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 6.0 Study time 180 h Contact hrs 60.0 h

### Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	seminar: coached	5.0 h
			exercises	
			practicum	25.0 h
			lecture	30.0 h

### Lecturers in academic year 2020-2021

De Bosschere, Koen TW06 lecturer-in-charge

### Offered in the following programmes in 2020-2021

	crdts	offering
<a href="#">Bachelor of Science in Engineering (main subject Computer Science Engineering)</a>	6	A
<a href="#">Bachelor of Science in Engineering (main subject Electrical Engineering)</a>	6	A
<a href="#">Bachelor of Science in Computer Science</a>	6	A
<a href="#">Bachelor of Science in Computer Science Engineering</a>	6	A
<a href="#">Bachelor of Science in Electrical Engineering</a>	6	A
<a href="#">Preparatory Course Master of Science in Bioinformatics (main subject Engineering)</a>	6	A

### Teaching languages

Dutch

### Keywords

assembly, micro-architecture, computer configurations

### Position of the course

This course studies the structure and the operation of contemporary computer systems. It is the introduction to the hardware/software interface.

### Contents

- Architecture and programming model: data representations, machine models, instruction sets, input/output
- Organisation and micro architecture: the data path, the control unit, the memory hierarchy, peripheral equipment, performance evaluation
- Code generation: code properties, optimisation
- The HiPEAC vision

### Initial competences

Programming in C

### Final competences

- 1 To understand machine language programs
- 2 To have knowledge about the elementary building blocks of computers
- 3 To understand the operation of a pipelined architecture
- 4 To understand the operation of the memory hierarchy
- 5 To know the contemporary challenges in computer architecture

### Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

#### Conditions for exam contract

This course unit cannot be taken via an exam contract

#### Teaching methods

Lecture, practicum, seminar: coached exercises

#### Learning materials and price

Annotated slides and lab assignments freely available in the electronic learning environment.

#### References

- D. Patterson en J. Hennessy, "Computer Organization & Design: the hardware/software Interface", Morgan Kaufman.

#### Course content-related study coaching

Teaching staff.

#### Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions, open book examination

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

Oral examination

#### Examination methods in case of permanent evaluation

Assignment, report

#### Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

#### Extra information on the examination methods

Second chance: oral closed-book exam, written preparation

During semester: graded lab sessions.

The lab sessions are spread throughout the semester

#### Calculation of the examination mark

The lab sessions count for 20% of the total score in the first examination period and no participation results in a zero for that part. The student must pass for the exam in order to pass for the course. If the student does not pass for the exam, the exam score becomes the end score.

In the second examination period: same rule (the scores for the lab sessions are kept).