

Course Specifications

From the academic year 2018-2019 up to and including the

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 2018-2019

Offering	Language	Teaching Method	Hours
A (semester 2)	Dutch	lecture	24.0 h
		seminar: practical PC room classes	36.0 h
B (semester 2)		seminar: practical PC room classes	36.0 h

Lecturers in academic year 2018-2019

Van Den Breen, Wim TW05 lecturer-in-charge

Offered in the following programmes in 2018-2019

Programme	crdts	offering
Bachelor of Science in Engineering Technology (main subject Information Engineering Technology)	6	A
Bachelor of Science in Information Engineering Technology	6	A
Linking Course Master of Science in Information Engineering Technology	3	B

Teaching languages

Dutch

Keywords

Digital electronics, microprocessors, microcontrollers, computer, assembly language, computer technology

Position of the course

This course studies the architecture of microprocessors and their I/O capabilities.

Contents

Course Offering A: lecture

- Architecture of a microprocessor: data path, registers, ALU, timing, pipelining, stack machines, cache memories.
- Instruction set architecture (opcodes, addressing modes, RISC vs. CISC).
- Overview of the various memory types.
- Operation of various computer peripherals (hard disks, graphical adapters).
- computer interfacing.

Course Offering A and B: seminar: practical PC room classes

- Study of the c8051f120 microcontroller: Architecture, addressing modes, instruction set, I/O-ports, interrupts, timers/counters, serial communication (UART).

Initial competences

Basic knowledge of digital electronics, programming in C

Final competences

- 1 Be able to understand the operation of a microprocessor.
- 2 Having gained insight in the operation of some I/O devices such as hard disks and graphical adapters.
- 3 Be able to interpret assembly written programs and be able to figure out their functions.
- 4 Understand the memory architecture of the 8051 microcontroller.
- 5 To be able to program small/medium assembly programs for the c8051f120 microcontroller.

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, seminar: practical PC room classes

Extra information on the teaching methods

Course Offering A and B:

lab: attendance required

Learning materials and price

English syllabus Structured computer organisation(Andrew S. Tanenbaum +/- 60 euro) with additional notes

References

A.S. Tanenbaum, "structured computer organization", Prentice Hall (Pearson)

Course content-related study coaching

The student can always make an appointment with the teacher.

Evaluation methods

end-of-term evaluation

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

Oral examination, skills test

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

Oral examination, skills test

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Course offering A:

- Lecture: Oral examination with open questions.
- Seminar: examination with exercises on computer.

Course offering B:

- examination with exercises on computer.

Calculation of the examination mark

Course Offering A and B:

Periodic evaluation (50% oral exam, 50% exercises)

Course Offering B:

Permanent evaluation (100%)