

Engineering Project II (E099110)

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

Credits	3.0	Study time	90 h	Contact hrs	30.0 h
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Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	group work	30.0 h
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Lecturers in academic year 2020-2021

wyffels, Francis	TW06	lecturer-in-charge
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Offered in the following programmes in 2020-2021

	crdts	offering
Bachelor of Science in Engineering (main subject Computer Science Engineering)	3	A
Bachelor of Science in Computer Science Engineering	3	A

Teaching languages

Dutch

Keywords

Project, microcontroller, emulator

Position of the course

This computer science project is situated in the stage where the transition is made from the basic science courses to the courses that deal with domain specific knowledge. Hence, at this stage, the student cannot be expected to possess a great deal of knowledge in the field of computer science. This project course is therefore aimed at contributing to the acquisition of part of this knowledge as well as the creative deployment of the knowledge the student might dispose of at this stage.

Contents

- The project requires the students, organised in small groups, to actually develop and implement a simple application on a simple, microcontroller based application platform.
- This application could pose some specific requirements, such as real-time behavior, or specific user interface requirements.
- The goals invariably imply pursuing quality, efficiency, and optimality.
- The project could contain a competitive component.
- Such a project brings the student in close contact with a simple processor architecture and learns how to observe such a system (using equipment such as in-circuit emulators etc).
- He/she experiences how high-level programs are implemented on simple architectures and how such architectures interact.
- In this way, besides contributing to autonomous activity and creativity, the project contributes to the mastering of much more complex concepts that are addressed later in the programme.

Initial competences

Basic computer science, Electrical networks and Circuits

Final competences

- 1 Be acquainted with the architecture of a simple processor
- 2 Be acquainted with the way in which programs are represented and executed on simple computer systems
- 3 Have some feeling for the real-time behavior of a simple architecture and its interactions with other system components such as memory and I/O
- 4 Be able to analyse simple problems and implement their solution on a microcontroller based platform

- 5 Be able to handle simple simulation software or measurement equipment such as emulators
- 6 Be able to use software development aids such as compilers, debuggers and software versioning control systems

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

Group work

Learning materials and price

All equipment for simple microprocessor experiments: prototyping boards, compilers, emulators. Software tools for developing applications on this platform. Supplied by Ghent University.

References

Course content-related study coaching

Direct supervision in project room during 1 hour per week. Support through personal contact with assistants. Support through the electronic learning platform

Evaluation methods

continuous assessment

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

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

Examination methods in case of permanent evaluation

Oral examination, participation, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

During semester: graded project reports; graded oral presentation.

Calculation of the examination mark

1 mark out of 20 of the exam grades is attributed to participation in the excursions.