Course Specifications
Valid as from the academic year 2018-2019

Mechatronic Design (E640107)

Course offerings and teaching methods in academic year 2019-2020
A (semester 1) Dutch lecture 10.0 h
group work 25.0 h
integration seminar 25.0 h

Lecturers in academic year 2019-2020
wyffels, Francis TW06 lecturer-in-charge
Verstockt, Steven TW06 co-lecturer

Offered in the following programmes in 2019-2020 crdts offering
Master of Science in Electronics and ICT Engineering Technology 6 A
(main subject Embedded Systems)

Teaching languages
Dutch

Keywords
Embedded prototyping, sensor, actuator, prototype, embedded electronics

Position of the course
This course is a cooperation with the industrial design education. The student works in a team on the design of a prototype and realizes the intelligence of the product. This can be a hardware and/or software design. Within the course, students learn how they can make creative use of sensors, actuators and microprocessors to design interactive products.

Contents
This course is a cooperation with the division "Industrial science" with the course "Mechatronic Design". Implementing electronics in new products, designed by the students of industrial science, is the main focus for this course. Electronics for embedded systems is the integration of both software and hardware with the purpose to improve the intelligence of the product/application. Depending on the experience of the students they can choose to work on a software or hardware part or both of the design.

Initial competences
Competences described in the courses:
• Embedded Systems
• Computer architecture

Final competences
1 Can think conceptual, analytical and problem solving targeted at different levels of abstraction.
2 Can solve complex problems in an effective way.
3 Can work together in a multidisciplinary team.
4 Can use the competences from digital electronics and informatics to create a realistic design.
5 To learn, assimilate, implement and use new technologies and / or theories that are relevant to the research and this in a creative and original way.
6 Being able to compare and select different computational units.

Conditions for credit contract

(Approved)
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, lecture, integration seminar

Extra information on the teaching methods
• Theory: lectures
• Project: group work

Learning materials and price
• powerpoint
• extra documentation on the electronic learning platform

References

Course content-related study coaching
Students can get extra explanation:
• during the lab sessions
• individual, after appointment
• during the organized explanation sessions

Evaluation methods
end-of-term evaluation

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

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

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Extra information on the examination methods
• First examination period:
  • PE1 - Report + presentation with oral discussion
• Second examination period
  • PE2 - Rework of a part of the design: Report + presentation with oral discussion

Calculation of the examination mark
100% : report + presentation with oral discussion
If exam in the second examination period, then 80% of the result is transfered.