

Electrical and Electronics Engineering (F000605)

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

Credits 4.0 Study time 120 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2019-2020

Offering	Language	Teaching Method	Hours
A (semester 2)	Dutch	seminar: coached	15.0 h
		exercises	
E (semester 2)	English	lecture	30.0 h
		seminar: coached	5.0 h
		exercises	
		guided self-study	10.0 h
		lecture: response	5.0 h
		lecture	

Lecturers in academic year 2019-2020

Doutreloigne, Jan TW06 lecturer-in-charge

Offered in the following programmes in 2019-2020

Programme	crdts	offering
Bachelor of Science in Economics	4	A
Bachelor of Science in Business Engineering	4	A
Master of Science in Economics	4	A
Preparatory Course Master of Science in Business Engineering	4	A, E

Teaching languages

Dutch, English

Keywords

Electrical engineering, electronics, analog circuits, digital circuits

Position of the course

To make the students familiar with the basic principles of electrical engineering (e.g. electrical networks and electrical energy conversion in motors and generators) and electronics (e.g. active semiconductor components, analog circuits and digital circuits).

Contents

- Electrical networks: direct current
- Electrical networks: alternating current
- Distribution of electrical energy
- Electrical energy conversion in motors and generators
- Signals and communication channels
- Electronic semiconductor components
- Analog electronic circuits
- Digital electronic circuits
- Electronic instrumentation

Initial competences

Mathematics:

- Linear differential equations
- Complex numbers

Physics: Electromagnetism

Final competences

- 1 Solve simple electrical circuits in direct current, alternating current, and transient
- 2 Understand the operation of the basic electronic components (e.g. diodes, MOSFETs and bipolar transistors)

3 Analyse simple analog and digital electronic circuits

Conditions for credit contract

Access to this course unit via a credit contract is unrestricted: the student takes into consideration the conditions mentioned in 'Starting Competences'

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Guided self-study, lecture, seminar: coached exercises, lecture: response lecture

Extra information on the teaching methods

Session A: Lectures (30 contact hours) + guided exercises (15 contact hours). During the lectures the theory is taught to the students. During the guided exercises students will first solve the exercises themselves and the lecturer will show the correct solution on the blackboard afterwards.

Session E: Combination of guided self-study, response college (5 contact hours) and guided exercises (5 contact hours). For the guided self-study students can get feedback on theory or exercises from the lecturer by appointment. During the response colleges theory and exercises will be analyzed and discussed in an interactive way and upon request from the students. During the guided exercises students will first solve the exercises themselves and the lecturer will show the correct solution on the blackboard afterwards. The exact data for response colleges and guided exercises will be communicated through the Ufora platform.

Every meeting will exist out of an hour response college and an hour guided exercises. The meetings will be spread out evenly during the 12 weeks of the semester. Startup session in the first week: look on Ufora or contact the lecturer.

Learning materials and price

Session A: An extensive set of Dutch PowerPoint slides is available.

Session E: An extensive set of English PowerPoint slides is available.

References

Course content-related study coaching

Session A: Ufora - F000605 (A)+ on appointment.

Session E: Ufora - F000605 (E) + on appointment.

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

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Session A: End-of-term evaluation: written closed-book exam in Dutch + Permanent evaluation: participation during exercise sessions

Session E: only end-of-term evaluation: written closed book exam in English.

Calculation of the examination mark

Session A: End-of-term (90%) and permanent (10%) evaluation.

Session E: End-of-term (100%)