

Electrical and Electronics Engineering (F000917)

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

Credits 3.0 **Study time 90 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)	Dutch	Gent	lecture
E (semester 2)	English	Gent	independent work lecture

Lecturers in academic year 2025-2026

Doutreloigne, Jan	TW06	lecturer-in-charge
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Offered in the following programmes in 2025-2026

	crdts	offering
Bachelor of Science in Business Engineering	3	A
Preparatory Course Master of Science in Business Engineering	3	A, E

Teaching languages

English, Dutch

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

Lecture, Independent work

Extra information on the teaching methods

Session A: Lectures. During these lectures the theory is taught to the students.
Session E: Combination of guided self-study and response college. For the guided self-study students can get feedback on the theory from the lecturer by appointment. During the response colleges theory will be analyzed and discussed in an interactive way and upon request from the students.

Study material

Type: Slides

Name: Extensive set of detailed PowerPoint slides about 10 chapters that can be downloaded for free from the Ufora website

Indicative price: Free or paid by faculty

Optional: no

Language : Dutch

Number of Slides : 430

Available on Ufora : Yes

Online Available : No

Available in the Library : No

Available through Student Association : No

References**Course content-related study coaching**

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

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

Assessment moments

end-of-term assessment

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

Written assessment

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

Written assessment

Examination methods in case of permanent assessment**Possibilities of retake in case of permanent assessment**

not applicable

Extra information on the examination methods

Session A: End-of-term evaluation: written closed-book exam in Dutch.

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

Calculation of the examination mark

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

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