GHENT UNIVERSITY

# Course Specifications

Valid as from the academic year 2024-2025

## 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 2026-2027**

| | | | |
|---|---|---|---|
| A (semester 2) | Dutch | Gent | lecture |
| E (semester 2) | English | Gent | lecture<br>independent work |

**Lecturers in academic year 2026-2027**

| | | |
|---|---|---|
| Doutreloigne, Jan | TW06 | lecturer-in-charge |

| **Offered in the following programmes in 2026-2027** | **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%)