

## Electrical and Electronics Engineering (F000917)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)  
 Credits 3.0 Study time 90 h Contact hrs 45.0 h

### Course offerings and teaching methods in academic year 2020-2021

Offering	Language	Location	Teaching Method	Hours
A (semester 2)	Dutch	Gent	online lecture	0.0 h
			online seminar:	0.0 h
			coached exercises	
			seminar: coached exercises	15.0 h
E (semester 2)	English		lecture	30.0 h
			guided self-study	10.0 h
			lecture: response	5.0 h
			lecture seminar: coached exercises	5.0 h

### Lecturers in academic year 2020-2021

Doutreloigne, Jan

TW06 lecturer-in-charge

### Offered in the following programmes in 2020-2021

Programme	crdts	offering
<a href="#">Bachelor of Science in Economics</a>	3	A
<a href="#">Bachelor of Science in Business Engineering</a>	3	A
<a href="#">Preparatory Course Master of Science in Business Engineering</a>	3	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, online lecture, online lecture: response lecture, online seminar: coached exercises

#### 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%)