

## Electronic Measurements and EMC (E735033)

**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 2023-2024**

A (semester 2)	Dutch	Gent	lecture
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**Lecturers in academic year 2023-2024**

Torfs, Guy	TW05	lecturer-in-charge
Bauwelinck, Johan	TW05	co-lecturer

**Offered in the following programmes in 2023-2024**

	<b>crdts</b>	<b>offering</b>
<a href="#">Master of Science in Electronics and ICT Engineering Technology(main subject Electronics Engineering)</a>	3	A
<a href="#">Master of Science in Electronics and ICT Engineering Technology(main subject Embedded Systems)</a>	3	A
<a href="#">Master of Science in Electronics and ICT Engineering Technology(main subject ICT)</a>	3	A
<a href="#">Exchange Programme Electronics and ICT Engineering Technology</a>	3	A

**Teaching languages**

Dutch

**Keywords**

Measuring electronically

**Position of the course**

This course will focus on different measurement methods to determine the performance of electronic circuits and systems. The strengths and weaknesses of frequency and time domain measurements will be discussed. Performance measures for analog and RF circuits will be defined and studied with respect to overall system specifications. Last, the importance and implications of EMC aware design of circuits and printed circuit boards will be elucidated.

**Contents**

- Analog to digital converters.
- Measurement of voltages and currents with analog and digital multimeter.
- Measurement of impedances. Equivalent circuits of passive components.
- Measurement of systems and networks: Network analyzer, time-domain reflectometer, oscilloscope, eye diagrams.
- Measurement of the spectrum, distortion, noise. Cascade analysis of complex circuits.
- Typical errors in electronic measurements.
- EMC aspects.

**Initial competences**

Analoge Elektronica II

**Final competences**

- 1 Understand the operation and limitations of electronic measurement equipment.
- 2 Perform measurements on complex circuits and systems and interpret the results.
- 3 Comprehend and apply models for high frequency components and systems.
- 4 Analyze noise and distortion in electronic subsystems.
- 5 Design PCBs aware of EMC implications.

**Conditions for credit contract**

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**

Lecture, Practical

**Learning materials and price**

Course text

**Course content-related study coaching**

After agreement

**Assessment moments**

end-of-term and continuous assessment

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

Oral assessment open-book

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

Oral assessment open-book

**Examination methods in case of permanent assessment**

Assignment

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

examination during the second examination period is not possible

**Extra information on the examination methods**

Oral examination with written preparation, closed books, exercises with open book, evaluation of the project.

**Calculation of the examination mark**

Continuous assessment 40%, end-of-term assessment 60%.

If the score of the end-of-term assessment turns out to be a mark of less than 8/20, the weighted average is reduced to 7/20 (if it happens to be higher than this).