

## Display Technology (E032411)

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

**Credits** 6.0                      **Study time** 180 h

**Course offerings and teaching methods in academic year 2023-2024**

A (semester 1)	English	Gent	lecture seminar
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B (semester 1)	English	Gent	
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C (semester 1)	Dutch	Gent	
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O (semester 1)	English	Gent	
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Distance teaching for all teaching activities: yes  
Distance assessment for all end-of-term assessments: no  
Distance assessment for all continuous assessments: no

**Lecturers in academic year 2023-2024**

Strubbe, Filip	TW06	lecturer-in-charge
De Smet, Herbert	TW06	co-lecturer

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

	<b>crdts</b>	<b>offering</b>
<a href="#">Bridging Programme Master of Science in Photonics Engineering</a>	4	B
<a href="#">Master of Science in Electrical Engineering (main subject Electronic Circuits and Systems)</a>	6	A
<a href="#">Master of Science in Photonics Engineering</a>	4	C
<a href="#">Master of Science in Photonics Engineering</a>	4	B, O

**Teaching languages**

Dutch, English

**Keywords**

human vision, liquid crystal displays, OLED displays, projection displays, 3D-displays, e-ink displays

**Position of the course**

Explaining the principles of the most important technologies for the visualisation of information, the principles of visual perception and the characterisation of visualisation devices.  
The course includes writing a paper on a particular display topic (only for the course of 6 credits, not for the partim of 4 credits).

**Contents**

- Introduction

- Visual perception: physics and physiology of the eye, colorimetry, contrast
- Liquid crystal displays: liquid crystals, modes, addressing, display system
- OLED displays
- Projection displays: fundamentals, components, projector lay-outs, diffractive modulators
- electronic paper displays
- 3D-displays
- Written and oral report on a particular display technology (only for the course of 6 credits, not for the partim of 4 credits).

### Initial competences

Knowledge of the basic principles of the calculus (differential equations), of physics (electromagnetic waves, polarization).

### Final competences

- 1 INSIGHTS: basic principles and limitations of emissive and modulating display technologies
- 2 INSIGHTS: basic understanding of projection systems
- 3 INSIGHTS: basic principles and limitations of the human visual system
- 4 PROFICIENCIES: basic calculations in colorimetry
- 5 PROFICIENCIES: calculation of transmission of liquid crystal structures

### 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, seminar, independent work

### Extra information on the teaching methods

individual tasks:

- solving exercises
- Written and oral report on a literature study (only for the course of 6 credits, not for the partim of 4 credits).

### Learning materials and price

Syllabus (cost in the order of 10 euro)

### References

### Course content-related study coaching

The teachers are available before and after lectures or after making an appointment.

### Evaluation methods

end-of-term and continuous assessment

### Examination methods in case of periodic evaluation during the first examination period

Oral assessment, written assessment open-book

### Examination methods in case of periodic evaluation during the second examination period

Oral assessment, written assessment open-book

### Examination methods in case of permanent evaluation

Assignment

### Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

### Extra information on the examination methods

- During examination period:
  - theory: oral examination with written preparation;
  - problem-solving: written open-book exam.
- During semester: evaluation of homework assignments;
- reporting on a literature study (only for the course of 6 credits, not for the partim of 4 credits).

### Calculation of the examination mark

The score is determined as the average of two (4 credit course) or three (6 credit course) scores with equal weight:

- Theory-exam

- Average of the homework assignments and the problem solving exam
- Oral and written report on a literature study (only for the course of 6 credits, not for the partim of 4 credits).