Course Specifications

Valid as from the academic year 2024-2025

Display Technology (E032411)

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

   Credits 6.0   **Study time 180 h**

Course offerings in academic year 2024-2025

Lecturers in academic year 2024-2025

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

Offered in the following programmes in 2024-2025	crdts	offering

Teaching languages

   English, Dutch

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

Seminar, Lecture, Independent work

Extra information on the teaching methods

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

Study material

Type: Syllabus

Name: Display Technology
Indicative price: Free or paid by faculty
Optional: no
Number of Pages : 182
Oldest Usable Edition : 2023
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No

References

Course content-related study coaching

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

Assessment moments

end-of-term and continuous assessment

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

Oral assessment, Written assessment open-book

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

Oral assessment, Written 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

- 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).