

PHYS-611

**Optics and technology of liquid crystal displays**

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<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Photonics		Obl.

Language of teaching	English
Credits	3
Session	
Exam	Oral
Workload	90h
<b>Hours</b>	<b>42</b>
Courses	24
Exercises	12
TP	6
<b>Number of positions</b>	

**Frequency**

Every 2 years

**Remark**

Next time: February 12-16, 2018 - Block course

**Summary**

Lab course - LCD assembly in laboratory

**Content**

- 1) Introduction into displays
- 2) Vision of the human eye
- 3) Description of polarized light and components
- 4) Polarization optics in examples
- 5) Liquid crystal materials
- 6) Textures of liquid crystals
- 7) Liquid crystal electro-mechanics
- 8) Liquid crystal optics
- 9) Selected LCD operation principles
- 10) Technology of LCD fabrication
- 11) Optical system components of a display
- 12) Illumination design

**Keywords**

Displays, polarization optics, liquid crystals, LCD technology

**Learning Prerequisites****Important concepts to start the course**

Fundamentals of optics

**Learning Outcomes**

By the end of the course, the student must be able to:

- Define basic properties of a visual interface
- Analyze key parameters of displays

- Specify display technologies
- Choose operational principles for displays
- Judge performance of visual interfaces

### **Transversal skills**

- Assess one's own level of skill acquisition, and plan their on-going learning goals.
- Use a work methodology appropriate to the task.
- Access and evaluate appropriate sources of information.

### **Teaching methods**

Ex-cathedra

Labcourse (6h) to build your own liquid crystal module

### **Assessment methods**

Oral exam

### **Resources**

#### **Notes/Handbook**

Provided on Moodle and during the lecture.