# Module: Specialization I

**Module No.:** physics610

# Course: Applied Photonics

**Course No.:** physics619

| Category | Type | Language | Teaching hours | CP | Semester |
|---|---|---|---|---|---|
| Elective | Lecture with exercises | English | 3+1 | 6 | WT |

**Requirements:**

**Preparation:**

**Form of Testing and Examination:**
Requirements for the examination (written or oral): successful work with the exercises

**Length of Course:**
1 semester

**Aims of the Course:**
To make the students understand physical and technological foundations of photonics and enable them to practically apply their knowledge in research and development.

**Contents of the Course:**
Optics: Rays, Beams, Waves;
Waveguides, Fibers
Light sources; Detectors; Imaging devices
Optical amplification; Acoustooptics, electrooptics
Photonic circuits, optical communication
Optical Metrology (angle, distance, velocity, density...);
Material Processing (cutting, welding, lithography, lasers in medicine)

**Recommended Literature:**
D. Meschede; Optik, Licht und Laser (Teubner, Wiesbaden 2. überarb. Aufl. 2005)
A. Yariv; Photonics: Optical Electronics in Modern Communications (Oxford Univ. Press 6th edition 2006)
B. Saleh, M. Teich; Fundamentals of Photonics (John Wiley & Sons, New York, 1991)
C. Yeh; Applied Photonics (Academic Press, 1994)
R. Menzel; Photonics (Springer, Berlin 2001)