

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)