Course Unit Descriptor

Study Programme: Physics

Course Unit Title: Optics

Course Unit Code: F18OPT

Name of Lecturer(s): Full Professor Srđan Rakić

Type and Level of Studies: Bachelor of Science in Physics / Master of Science in Teaching Physics

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Sumer

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 7

Prerequisites: None

Course Aims:

Goal of the course is to gain understanding of fundamentals of ray- and physical optics, radiometry and photometry, their some application and measurement method techniques.

Learning Outcomes:

On completion of this module, student should be able to understand basic ideas and reasoning behind the development of basics of optics and photometry and its application. Student should also be able to independently solving the theoretical problems.

Syllabus:

Theory

Electromagnetic waves. Light and light sources. Radiometry and photometry. Basic laws of geometrical optics. Dispersion. Applied geometrical optics. Geometrical optics of optical instruments. Wave optics. Interference, diffraction and polarization of light. Light in anisotropic media, optical activity, light scattering. Solving selected numerical problems.

Practice

Selected experimental exercises: Lenses and mirrors, Microscope, Measurement of index of refraction using optical goniometer and Abbe refractometer, Diffraction grating, Photometry, Polarisation of lights.

Required Reading:

1. Eugene Hecht, Optics (4th edition), Addison-Wesley; 4 edition (August 12, 2001).
2. A. N. Matveev, Optics, Mir publishers Moscow (1988).
3. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison–Wesley (1964-2005).

Weekly Contact Hours:	**Lectures:** 3+1	**Practical work:** 2

Teaching Methods:

Lectures, solution of numerical problems and experimental exercises.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	written exam	25
Practical work	10	oral exam	45

Preliminary exam(s)	10	…….	
Seminar(s)	-		