Program	Level of studies		Second cycle	
	Program name		Physics	
Course name	PHOTONICS			
Course ID	Semester	Course status	ECTS credits	L+E
PTH0611	I	ELECTIVE	6	3+3
Lecturer	Prof. dr. Senad Odžak			
Aims and intended learning outcomes	The aim of the course is to introduce students through lectures and auditorials on a more advanced level with phenomena in the field of Photonics. It is expected that students successfully adopt the content of the course and that the acquired knowledge is successfully applied in their further academic education and/or scientific work.			

Course content

Ray optics. Wave optics. Beam optics. Fourier optics. Electromagnetic optics. Polarization optics. Photonic-crystal optics. Guided-wave optics. Fiber optics. Resonator optics. Statistical optics. Photon optics. Photons and atoms. Laser amplifiers. Lasers. Photons in semiconductors. Semiconductor photon sources. Semiconductor photon detectors. Acousto-optics. Electro-optics. Nonlinear optics. Ultra-fast optics. Optical interconnects and switches. Optical fiber communications.

Student workload (hours)		Grading	
Lectures and Exercises	75	Assessment method	Points
Exam preparation	50	Course Test	40
Assignments	20	Assignment	20
Other	5	Final Exam	40
Total	150		
		Total	100

Literature

1. Lecture Notes
2. B. E. A. Saleh, M. C. Teich, Fundamentals of photonics, John Wiley & Sons, New York, 1991.
3. F. Graham, T. A. King, Optics and photonics, John Wiley & Sons, Chichester, 2000.
4. R. Menzel, Photonics, Springer, Berlin, 2001.

Remarks

The partial and final exam consists of a theoretical part and multiple assignments. The successful completion of the course implies achieving at least 55% of the total numer of points in course test, assignment and final exam. All examination is done by using the written method.