

Program	Level of studies		First cycle	
	Program name		Physics	
Course name	PHYSICS OF SEMICONDUCTORS II			
Course ID	Semester	Course status	ECTS	L+E
PCM8621	VIII	ELECTIVE	6	2+2
Lecturer	Doc. dr. Maja Đekić			
Aims and intended learning outcomes	<p>Course objective is to familiarize students with basic properties and processes in semiconductors.</p> <p>Learning outcomes:</p> <ol style="list-style-type: none"> 1. Understands phenomena and laws in semiconductors 2. Independently solves problems from this field 3. Understands semiconductor applications 			
Course content				
<p>INTRODUCTION. Content of the course, significance of semiconductors. Diffusion and drift of carriers. Continuity equation: Diffusion equation. Einstein's relation. Diffusion and conductivity in extrinsic semiconductors. Nearly intrinsic semiconductors. Scattering of electrons and holes. Scattering processes. Scattering on lattice vibrations. Phonons. Relaxation time. Scattering on neutral and ionized impurities. Scattering on defects. Generation and recombination. Radiative recombination. Auger recombination. Recombination due to traps and localized centres. Surface recombination. Optical phenomena in semiconductors, optical constants. Absorption by free carriers, lattice, impurities, defects, exciton. Photo conductivity. Contact phenomena in semiconductors. Debye length. Work function. Contact voltage. Amorphous semiconductors and liquid crystals.</p>				
Student workload (hours)		Grading		
Lectures and Exercises	60	Assessment method	Points	
Exam preparation	50	Test	40	
Assignments	40	Paper	40	
Other		Final exam	20	
Total	150			
		Total	100	
Literature				
1.	R. A. Smith, Semiconductors, Cambridge University Press, 1978.			
2.	S. M. Sze, Physics of Semiconductor Devices, 3rd ed., John Wiley & Sons, 2002.			
Remarks				