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	Course objective is to familiarize students with basic properties and processes in semiconductors. Learning outcomes: 1. Understands phenomena and laws in semiconductors 2. Independently solves problems from this field 3. Understands semiconductor applications			

Course content

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.

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