

Program	Level of studies		First cycle	
	Program name		Physics	
Course name	PHYSICS OF SEMICONDUCTORS I			
Course ID	Semester	Course status	ECTS	L+E
PCM7521	VII	ELECTIVE	5	2+1
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				
INTRODUCTION. Significance of semiconductors. Structure of semiconducting crystals. Bravais lattice . Miller indices. Energy zones in semiconductors. Electrons and holes. Effective mass. Ideal and real semiconductors. Energy spectrum of carriers in real semiconductors. Doping. Elementary theory of doping states. Defects in semiconductors. Intrinsic semiconductors. Extrinsic semiconductors. Statistics of electrons and holes in semiconductors. Density of states. Fermi level. Transport properties. Boltzmann kinetic equation. Relaxation time. Electric conductivity. Hall effect. Thermal conductivity. Thermoelectric effects. Thermomagnetic effects. Magnetoresistance.				
Student workload (hours)		Grading		
Lectures and Exercises	50	Assessment method	Points	
Exam preparation	50	Laboratory exercises	45	
Assignments	30	Paper	15	
Other		Test	20	
Total	125	Final exam	20	
		Total	100	
Literature				
<ol style="list-style-type: none"> 1. R. A. Smith, Semiconductors, Cambridge University Press, 1978. 2. S. M. Sze, Physics of Semiconductor Devices, 3rd ed., John Wiley & Sons, 2002. 				
Remarks				