

Program	Level of studies		Second cycle	
	Program name		Physics	
Course name	SOLID STATE PHYSICS III			
Course ID	Semester	Course status	ECTS	L+E
PCM9611	I	ELECTIVE	6	2+1
Lecturer	Prof. dr. Suada Sulejmanović			
Aims and intended learning outcomes	<p>Aim of the course is to deepen the students' knowledge in solid state physics to achieve an understanding of specific topics in microelectronics and nanotechnology.</p> <p>After the completion of the course students will be expected to have mastered the conceptual and mathematical tools necessary for the understanding and analysis of recent researches in solid state physics.</p>			
Course content				
<p>Fermi surface. Experimental determination of Fermi surfaces: anomalous skin effect, cyclotron resonance, de Haas-van Alphen effect. Semiconducting devices. Diffusion current. Direct and indirect excitation. Dielectric properties. Clausius-Mossotti relation. Electron and ionic polarizability. Optical properties. Refraction, absorption, reflection. Kramers-Kronig relations. Intrazonal transitions. Magnetic properties. Adiabatic demagnetization. Electron paramagnetic resonance. Heisenberg's theory of ferromagnetism. Superconducting properties. London equations. Pippard's theory. Microscopic theory of superconductivity. Superconducting tunnelling.</p>				
Student workload (hours)		Grading		
Lectures and Exercises	45	Assessment method	Points	
Exam preparation	40	Homework	10	
Assignments	25	Midterm exam	50	
Consultation	40	Final exam	40	
Total	150	Total	100	
Literature				
<ol style="list-style-type: none"> <li>Ch. Kittel: Uvod u fiziku čvrstog stanja, Savremena administracija, Beograd, 1970.</li> <li>H.M.Rosenberg: The Solid State, , Oxford Sci. Publ. 1988</li> <li>H.C.Gupta: Solid State Physics, Vikas Publ, 1996.</li> </ol>				
Remarks				
Midterm exam – 9th week of lectures				