

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Common		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Electronic Devices		
Lecturer (for lectures)		Pantić S. Dragan, Prijic D. Zoran, Danković M. Danijel		
Lecturer/associate (for exercises)		Aleksić M. Sanja, Marjanović B. Miloš, Davidović S. Vojkan, Đorđević D. Miloš, Pejović M. Milić, Vračar M. Ljubomir, Živanović N. Emilija		
Lecturer/associate (for OFE)		Đorđević D. Miloš, Marjanović B. Miloš, Stojković S. Aleksandra		
Number of ECTS	6	Course status (obligatory/elective)	Obligatory	
Prerequisites				
Introduction to the principles of work, basic properties, construction, and parameters of passive (resistors, capacitors, inductors, transformers), semiconductor (diode, bipolar and MOS transistors) and optoelectronic (LED, solar cells, photodetectors) components.				
Course objectives				
The student acquires the necessary knowledge about the types, basic characteristics, the principle of operation and characteristic parameters of passive, semiconductor and optoelectronic components.				
Course outcomes				
The student acquires the necessary knowledge about the types, basic characteristics, the principle of operation and characteristic parameters of passive, semiconductor and optoelectronic components.				
Course outline				
Introduction. Passive components. Through-hole and Surface Mount Components and Devices (SMD). Enclosures. Soldering components. One-layer printed circuit boards. Types and characteristics of resistors, capacitors and coils. Transformers and chokes. Electromechanical components. Switches, buttons, fuses, relays. Basic properties of a semiconductor and PN junction. Current-voltage characteristics of a diode. Diode types. Bipolar transistor. Structure, principle of operation, current-voltage characteristics and amplification. Operating modes and basic electrical model. Bipolar transistor as a switch and amplifier. MOS transistor. Structure and work principle. Current-voltage characteristics, operating modes and electrical model. MOS transistor as a switch and amplifier. CMOS inverter. Optoelectronic components. Photodetectors, LEDs, laser diodes, solar cells. Structures and electrical characteristics. Basic electrical models. Simple application examples. Fundamentals of integrated circuits (ICs). Principles of integration. Types of integrated circuits.				
Theoretical teaching				
Using computational exercises, the student acquires the necessary theoretical and practical knowledge and is more closely acquainted with basic characteristics and characteristic parameters of passive, semiconductor and optoelectronic components.				
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
1	T. Floyd "Principles of Electric Circuits", 10th ed., Pearson, 2019.			
2	T. Floyd "Electronic Devices", 10th Ed., Pearson, 2018.			
3				
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	1	0	0
Teaching methods				
Lectures; Classroom exercises; Laboratory exercises; Consultations.				
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	5	Written exam	25	
Exercises	15	Oral exam	25	
Colloquia	30			
Projects				