



Subject card

Subject name and code	Electronic Circuit Design, PG_00038321						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2026/2027	
Education level	second-cycle studies	Subject group				Specialty subject group Subject group related to scientific research in the field of study	
Mode of study	Part-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	2	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Biomechanics -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Grzegorz Redlarski					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	10.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		7.0		63.0	100
Subject objectives	The main objective of the course is to provide knowledge and skills that will allow independent design of professional electronic circuits and PCBs. Specific objectives concern the methodology of creating a schematic diagram, a component database and the methodology of creating a multilayer PCB. They also concern the ability to generate the necessary technical documentation.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K7_U11] is able to design and realise simple electrical circuits and control systems for a facility or industrial process using computer systems		applies methods and tools and designs basic electronic circuits and PCBs.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment	
	[K7_W03] has knowledge of digital signal processing algorithms, knows methods of designing digital circuits with given parameters		uses methods and procedures to develop a schematic diagram of an electronic circuit and then design the appropriate PCB.			[SW1] Assessment of factual knowledge	
	[K7_K02] can interact and work in a group assuming various roles and identify priorities for the achievement of a specific task		solves basic problems in the design of electronic circuits and PCBs in a group. Distributes tasks within the team and combines the results of team work into a coherent whole.			[SK1] Assessment of group work skills	

Subject contents	Course content – lecture Lectures: The aim of the lectures is to present the methodology of designing electrical circuits and PCBs, starting from the principles of creating conceptual diagrams, through the stages of preparing the electronic component database and the phase of creating multilayer PCBs, and ending with adequate technical documentation.		
	Course content – laboratory Laboratories: The essence of the laboratories is to use dedicated tools that allow for the development and execution of a strictly defined technical project, based on available software.		
Prerequisites and co-requisites	Basic knowledge of robotics and mechatronics.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		70.0%	70.0%
		100.0%	30.0%
Recommended reading	Basic literature	1. Ed. Blackwell, G.R.: "The Electronic Packaging Handbook", Boca Raton, CRC Press LLC, 2000. 2. Horowitz P. Hill W.: "The Art of Electronics" Third Edition. Cambridge University Press.	
	Supplementary literature	1. Altium Designer Guide.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. The rules connected with creation of PCB for analog circuits 2. The rules connected with creation of PCB for digital circuits 3. The rules connected with creation of PCB form microprocessor circuits 4. The rules connected with testing process during PCB's computer design		
Practical activites within the subject	Not applicable		

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