GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing of Printed Electronic Circuits, PG_00053421		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Controlled Electric Drives -> Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Blecharz	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	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	5.0	40.0	75

Subject objectives

The aim of the course is to provide students with knowledge of the design and construction of the Printed Circiut Board (PCB) and to acquire skills for students to independently design and make simple electronic circuits and printed circuit boards.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W10] has basic knowledge related to mechatronics and robotics systems	The student can explain selected issues regarding electric drives used in robotics.	[SW3] Assessment of knowledge contained in written work and projects
[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks	The student can write a functional control program for a specific microcontroller model.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U01] can obtain information from literature, databases and other sources; integrate the information obtained, interpret it and draw conclusions, formulate and justify opinions	The student can find and correctly interpret information provided by manufacturers of electronic components to prepare an electronic circuit design.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
[K6_U03] can prepare and present a presentation on the problems and results of an engineering task	The student can prepare complete documentation of the design of an electronic circuit board (PCB).	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information

Subject contents

Independent design of the electronic system with complete technical documentation of printed circuit board.

Design, manufacture, and commission an electronic device.

Prerequisites and co-requisites

Basic knowledge of electronics and power electronics is required.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory	50.0%	80.0%
Lecture	50.0%	20.0%

Recommended reading	Basic literature	Clyde F. Coombs; Happy Holden:Printed Circuits Handbook, Seventh Edition, 2016, McGraw-Hill Education
	Supplementary literature	1. Felba J: Montaż w elektronice, Oficyna Wydawnicza Politechniki Wrocławskiej, 2010 2. D. Brooks:Signal Integrity Issues and Printed Circuit Board Design, Prentice Hall, 2003. 3. *The hitchhiker's guide to PCB design : things you wish you knew yesterday and will need to know tomorrow*. Rochester, NY: EMA Design Automation, Inc.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Development of a project, execution, and commissioning of an electronic device. Students can choose from a list of proposals for electronic circuits. It is possible to implement individual designs of electronic systems solutions in consultation with the teacher. Stages of creating printed circuit designs. The most common design mistakes.	
Work placement	Not applicable	