GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing of Printed Electronic Circuits, PG_00053438		
Field of study	Electrical Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2025/2026
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	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Electric Drives And Energy Conversion -> Faculty Of Electrical And Control Engineering -> Wydziały Politechniki Gdańskiej		
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	65.0	100

Subject objectives

The course aims to provide students with knowledge in the design and construction of printed circuit boards (PCBs) and skills that will enable them to independently design and manufacture prototype electronic circuits and PCBs.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W10	Develops basic executive systems for use in complex electrical energy conversion systems.	[SW3] Assessment of knowledge contained in written work and projects
K6_U09	Selects electronic components based on analysis of catalogue cards of electronic component manufacturers and engineering information provided by electronics corporations' R&D departments.	[SU2] Assessment of ability to analyse information
K6_K01	Analyzes technical documentation available on the websites of electronic component manufacturers to prepare an electronic circuit design.	[SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills
K6_U10	Designs a prototype printed circuit board according to the adopted design assumptions.	[SU1] Assessment of task fulfilment

Subject contents

LECTURE:
Materials used in the construction of prototype electronic circuits. Overview of PCB design tools. Basic methods and principles of designing prototype boards. Materials and tools for PCB assembly. Rules for using technical documentation and engineering tips from the websites of electronic component manufacturers. Preparation of practical and functional design documentation.
LAB:
Independent development of an electronic system prototype design and complete technical documentation of a printed circuit board. Design, manufacture and commissioning of a prototype 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
Lecture	50.0%	20.0%
Laboratory	50.0%	80.0%

Recommended reading	Basic literature	Clyde F. Coombs; Happy Holden:Printed Circuits Handbook, Seventh Edition, 2016, McGraw-Hill Education Hamilton, Charles. A guide to printed circuit board design. London Boston: Butterworths, 1984. Print.
	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	Uzupełniające 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	

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