GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	CAD Tools in Electronic Device Prototyping, PG_00067028		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Katedra Optoelektroniki -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mateusz Ficek	
	Teachers	Iwona Kaczmarzyk- Knitter mgr inż. Patryk Sokołowski dr inż. Mateusz Ficek	

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

eNauczanie source addresses:

Moodle ID: 969 Narzędzia CAD w prototypowaniu urządzeń elektronicznych
https://enauczanie.pg.edu.pl/2025/course/view.php?id=969

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	4.0	16.0	50

Subject objectives

The aim of the course is to master CAD tools for designing electronic devices, including creating 3D models of enclosures, integrating designs with rapid prototyping (3D printing, CNC, laser engraving), performing simulations and design verifications, and preparing full technical documentation for production.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Upon completion of the course, the ability is demonstrated to design and construct a simple electronic device in accordance with the given specification, using appropriately selected CAD tools for schematics, PCB, and 3D models, to perform the necessary simulations and verification, to prepare complete technological documentation for prototyping, and to apply relevant engineering norms and standards, taking into account good practices of the engineering environment.	[SU4] Assessment of ability to use methods and tools
[K6_W03] knows and understands, to an advanced extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	After completing the course, the principles of operation and interdependencies of components and systems used in prototyping electronic devices are known and understood at an advanced level, including theories and methods of PCB design and 3D modeling, which can be related to the requirements of engineering norms and standards relevant to the design and production of prototypes.	[SW2] Assessment of knowledge contained in presentation

Subject contents

The content includes an overview of CAD tools for electronics design (schematics, PCBs, 3D enclosure models) and their integration into the electronic device prototyping process, from concept to prototype production. The program also covers rapid prototyping techniques, such as 3D printing and laser engraving, for the preparation of enclosures and mechanical components. The knowledge gained allows for the entire process from concept to finished prototype.
Laboratory sessions focus on practical work in selected CAD environments, creating a complete device mini-project (schematic, PCB, enclosure model, documentation), and best practices in teamwork, versioning, and design data management.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	50.0%	50.0%
	50.0%	50.0%

Recommended reading

Basic literature	[1] Maciej Sydor, Wprowadzenie do CAD, Wydawnictwo naukowe PWN, 2019 r. [2] Tadeusz Lewandowski, Rysunek techniczny dla mechaników. Wydawnictwo WSiP, 2018 r. [3] Marian Doległo, Podstawy elektrotechniki i elektroniki, Wydawnictwo WKŁ, 2016 r.
Supplementary literature	nie jest wymagana
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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