GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Materials Science and Equipment Design - project, PG_00048806		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Metrology And Optoelectronics -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Barbara Stawarz-Graczyk	
	Teachers	dr inż. Barbara Stawarz-Graczyk	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	15.0	0.0	15

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	15	1.0	9.0	25

Subject objectives

Acquaint students with software for computer-aided design of Printed Circuit Boards (PCB) and with compiling of schematic drawing. Preparation by students (individually) a technical documentation of a selected, simple electronic instrument (schematic drawing, netlist, bill of materials, user library, PCB design with through hole or SMD mounting).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	knows macroscopic properties of electronic and optoelectronic materials, their parameters, selection criteria for a given application, electronic and optoelectronic elements, their characteristics and basic phenomena related to them	[SW2] Assessment of knowledge contained in presentation

Subject contents

Elements of the process of constructing devices. Basic assembly technologies (through-hole assembly, surface assembly). Getting to know computer programs supporting PCB design. Individual preparation by the student of the project of electrical connections and the design of the printed circuit of a simple electronic circuit, e.g. generator, amplifier, filter, comparator, power supply, etc. The student performs:

1. introductory exercise,

2. record of the assumptions of the assumptions for the project,

3. schematic diagram, network of connections (netlist), list of elements (bill of materials), user's library

4. PCB design in the through-hole version (assembly diagram).

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="2"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>evaluation of design's components</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Burcan J.: Bases of technical drawings. WN-T, Warszawa 2006. (in Polish).
2. Oleksiuk W., Paprocki K.: Construction of mechanical subassemblies of electronic equioment. WKiŁ, Warszawa 1997. (in Polish).
3. Laboratory documentation of the software, complementary *.pdf files -User Manuals, Tutorials, data sheets.
4. Cataloques of ELFA , TME, FARNELL</td></tr>
<tr><td>Supplementary literature</td><td>1. Michel K., Sapiński T.: Technical drawings for electrical engineers. WN-T, Warszawa 1987. (In Polish).
2. Spiralski L., Konczakowska A.: Technological and construction bases for electronic instrumentation and systems. WSM students book, Gdynia 1997. (in Polish).</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">preliminary project

documentation sheet

PCB design</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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