GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00065826		
Field of study	Materials Engineering, Materials Engineering		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
Mode of study	Full-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 Polymer Technology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Michał Strankowski	
	Teachers	dr hab. inż. Michał Strankowski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	0.0	0.0	45

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	45	5.0	50.0	100

Subject objectives

Understanding the method of processing and testing of polymeric materials.Analysis of problems with plastic processing.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U04] Can undertake a detailed analysis of the obtained results and develop a technical report or presentation, also in English.	The student uses basic data analysis techniques. The student selects appropriate polymer processing and manufacturing techniques to prepare a report on the work conducted.	[SU2] Assessment of ability to analyse information
[K7_W01] Has extended knowledge of the fields of science and scientific disciplines relevant to materials engineering, and their historical development and importance for the progress of exact and natural sciences, knowledge of the world and evolution of humanity.	The student interprets phenomena related to processing operations. The student identifies fundamental problems associated with plastics processing.	[SW1] Assessment of factual knowledge
[K7_W06] Knows the theoretical basics the functioning of scientific equipment in the fields of science and scientific disciplines relevant to materials engineering.	The student determines the optimal polymer processing conditions.	[SW1] Assessment of factual knowledge

Subject contents

Course content – lecture

- Physical basics of polymer processing.

- Rules for selecting the type of processing according to the characteristics of the product and the type of material.

- Special methods of plastic injection molding.

- Influence of the injection molding technique on the properties of these materials.

- Plastic additives.

Course content – laboratory

1. Introductory classes, Health and Safety (H&S) training, equipment presentation
2. Injection molding technology analysis using MoldFlow software (I) Part Adviser
3. Injection molding technology analysis using MoldFlow software (II) Part Adviser
4. Injection molding technology simulations using MoldFlow software (III) Part Adviser + Mold Adviser
5. Injection molding technology simulations using MoldFlow software (IV) Part Adviser + Mold Adviser
6. Calculations in plastics processing (I)
7. Calculations in plastics processing (II)
8. Injection molding of polymer materials (I)
9. Injection molding of polymer materials (II) (poprawiono powtórzenie numeracji na II)
10. Polyurethane processing Baule system (I)
11. Polyurethane processing Baule system (II)
12. Thermal properties testing (TGA, DSC) quality analysis of injection-molded products (I)
13. Thermal properties testing (DMA) quality analysis of injection-molded products (II)
14. Characterization and evaluation of molding defects
15. Final laboratory assessment

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	50.0%	50.0%
Laboratory	100.0%	50.0%

Recommended reading

Basic literature	-
Supplementary literature	-
eResources addresses	

Example issues/ example questions/ tasks being completed

Characterize advanced techniques of plastics processing.

Describe the RHCM (Rapid Heat Cycle Molding)method.

The most important types of plastic additives.

Practical activites within the subject

Not applicable

Document generated electronically. Does not require a seal or signature.