GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer modeling of injection molding processing, PG_00068143		
Field of study			
Date of commencement of studies	February 2027	Academic year of realisation of subject	2027/2028
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Part-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 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		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	9.0	0.0	0.0	9

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	9	3.0	13.0	25

Subject objectives

The primary objective of the laboratory module is for students to acquire practical skills in the digital prototyping of the thermoplastic injection molding process. The course focuses on utilizing computer simulation as a tool for validating part design, designing feed systems, and optimizing processing parameters to prevent manufacturing defects.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U05] is able to notice non-technical aspects, including environmental, economic and legal aspects, when formulating and solving design tasks. Applies occupational health and safety principles	The student is able to optimize the injection molding process to minimize energy and material consumption (e.g., through runner weight reduction), taking into account economic calculations and the impact of processing parameters on the production carbon footprint.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information
[K7_U02] is able to determine directions for further development and implement a self-education process in order to improve professional competences	The student is able to independently search for and analyze technical updates in Autodesk Moldflow documentation and material databases (e.g., Moldflow Plastics Labs), defining their own development path in the field of Computer-Aided Engineering (CAE).	[SU3] Assessment of ability to use knowledge gained from the subject
[K7_W01] has extensive knowledge of technologies related to the production and management of waste from various material groups	The student possesses knowledge regarding the impact of rheology and thermal degradation of polymers on the recycling process and can model the injection molding process using regrinds or blends with varying melt flow indices.	[SW1] Assessment of factual knowledge

Subject contents

Course content – laboratory

1. CAD Geometry & DFM (Design for Manufacturing) - Inventor
2. Meshing & Material selection - Moldflow
3. Feed & Cooling system design - Inventor/Moldflow
4. Flow, Pack & Warp Analysis - Moldflow
5. Process Optimization & Reporting- Moldflow

<table>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Pass</td><td>50.0%</td><td>100.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>-</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">-</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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