GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Innovations in industry, PG_00069062		
Field of study	Materials Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	Specialty subject group 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	Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Chmielewski	
	Teachers	dr inż. Marek Chmielewski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	0.0	15.0	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	2.0	8.0	25

Subject objectives

The aim of the course is to present the possibilities of practical application of technical solutions developed in research laboratories in real industrial conditions. The presentation will be based on the analysis of actual implementations. Case study.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U02] Can independently determine the directions of self-development and implement the self-education process it in order to raise professional competences.	Students will analyse the impact of technological development and new scientific content on the environment, and will be able to determine the extent to which advanced technical solutions can be applied safely. He/she is able to assess the importance of maintaining the balance of technological progress. He/she is able to acquire knowledge on his/her own to the extent necessary to expand his/her competence.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
[K7_K02] Is aware of the importance of non-technical aspects and effects of engineering, including the influence on the environment and resulting responsibility for the decisions.	Students will analyze the impact of the development of technology and new scientific content on the environment, they will be able to determine the scope of safe use of advanced technical solutions. He or she can assess the importance of maintaining balance in the field of technological progress.	[SK2] Assessment of progress of work
[K7_W07] Has knowledge of the development trends and most important new achievements of the fields of science and scientific disciplines relevant to materials engineering and related disciplines.	The student will learn various research techniques used in the field of structure research, chemical composition, atomic structure, The student will learn and classify physical phenomena used in the field of materials research.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td colspan="3">Course content – seminar
The content of the course is to provide information on the importance of introducing innovations into technological processes in the wider industry. The subject will be presented on the basis of exemplary applications of new technologies applied in existing technological processes, including an analysis of the social and economic effects of such solutions.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Not required</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Settlement on the basis of a prepared report</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Innovations in Industry 4.0 conditions. Radosław WOLNIAK January 2023, Scientific Papers of Silesian University of Technology Organization and Management Series2023(169):725-741

The role of innovation in industrial dynamics and productivity growth: a survey of the literature, Ugur, Mehment; Vivarelli, Marco, GLO Discussion Paper, No. 648, https://www.econstor.eu/bitstream/10419/223311/1/GLO-DP-0648.pdf</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Not required</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Economics in industry.

Research directions versus industrial development.

Who cares about process innovation</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
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