GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00069829		
Field of study	Mechanical Engineering		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Dominika Zakrzewska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	27.0	0.0	0.0	0.0	0.0	27

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	27	0.0	0.0	27

Subject objectives

The aim of the course is to prepare students to effectively manage projects in a dynamic digital environment by learning about modern management methodologies and standards, using tools based on new technologies (including artificial intelligence), and developing the psychological and social skills necessary for a leader, such as motivating a team, coping with stress, resolving conflicts, and developing emotional intelligence.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U01] utilizes information obtained from the literature and other sources in the field of Mechanics and Mechanical Engineering and presents and analyses the results of solutions to technical problems in this field	Student is able to use information obtained from professional literature and other sources in the field of project management, new technologies and psychology in teamwork, as well as present and analyse the results of solutions to problems related to management practice and select appropriate methods for their verification.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K7_W04] demonstrates knowledge covering selected topics of advanced specific knowledge, in particular methods, techniques, tools specific to Mechanics and Mechanical Engineering processes, systems and equipment	Student demonstrates knowledge covering selected issues in the field of advanced methods, techniques and tools used in project management in the digital age, including project methodologies, quality standards (ISO), quality control and assessment tools, as well as the use of artificial intelligence in data analysis and risk management.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K7_W11] interprets social, economic, legal (including industrial and intellectual property laws), and other non-technical aspects of engineering activities, and includes them into engineering practice	Student interprets the social, economic and legal conditions of project management in the digital age, including issues related to intellectual property protection, copyright, leadership responsibility and the impact of new technologies on team organisation, and is able to take them into account in management practice.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td colspan="3">Course content – lecture

1. Project management in the digital age.
2. Project methodologies comparison.
3. ISO and quality standards as the foundation of management.
4. Quality control in projects audits, documentation, quality metrics.
5. AI as support for leaders from data analysis to risk management.
6. Psychology of the leader and team motivation, conflict resolution, stress management.
7. Emotional intelligence in the work of a leader.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Not applicable</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>Passing the test</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">Kerzner, H. (2017). Projektmanagement: Ein systemischer Ansatz für Planung, Terminierung und Kontrolle. Wiley.
PMI (2021). Ein Leitfaden zum Projektmanagement-Wissensbestand (PMBOK® Guide), 7. Auflage. Project Management Institute.
Highsmith, J. (2013). Agiles Projektmanagement: Innovative Produkte schaffen. Addison-Wesley.
Marr, B. (2021). Künstliche Intelligenz in der Praxis: Wie 50 Unternehmen KI und maschinelles Lernen zur Problemlösung einsetzten. Wiley.
Goleman, D., Boyatzis, R. & McKee, A. (2013). Primal Leadership: Die Kraft der emotionalen Intelligenz entfesseln. Harvard Business Review Press.
Northouse, P. G. (2021). Führung: Theorie und Praxis. Sage Publications.
Robbins, S. P. und Judge, T. A. (2019). Organisationsverhalten. Pearson.
ISO 9001:2015 Qualitätsmanagementsysteme Anforderungen. Internationale Organisation für Normung.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Schwaber, K., & Sutherland, J. (2020). The Scrum Guide: The Definitive Guide to Scrum. Scrum.org.
Turner, R. (2016). Gower Handbook of Project Management. Routledge.
Calvo-Mora, A., Navío-Marco, J., & Periañez-Cañadillas, I. (2018). Quality Management and Business Excellence. Routledge.
Davenport, T. H., & Miller, S. (2022). Working with AI: Real Stories of Human-Machine Collaboration. MIT Press.
Collins, C. (2021). The Psychology of Teams at Work. Routledge.</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">Digitisation and its impact on design processes.
Comparison of methodologies: traditional (PMBOK, PRINCE2) and agile (Agile, Scrum).
ISO 9001 and other quality standards in project management.
Quality control methods and tools audit, report, metrics.
The role of artificial intelligence in risk analysis and decision making.
Leadership psychology team management styles.
Emotional intelligence and leadership effectiveness.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
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