GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00073762						
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	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	assessment			
Conducting unit	Division of Structural Materials Technology and Welding -> 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 hab. inż. Jacek Tomków				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	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	60		9.0	31.0	100	
Subject objectives	The objective of this course is to familiarize students with the types of testing, quality assessment, and standards related to welded joints.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U14] integrates information obtained from literature and other properly selected sources, including those in a foreign language, creatively interpreting and critically evaluating them, and drawing conclusions	The student is able to select parameters for non-destructive and destructive testing. They are also able to prepare samples for testing.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K7_K11] is aware of importance of professional acting, the need for critical verification of acquired knowledge and consulting experts opinion in case of facing difficulties with individual problem solving	The student is able to identify existing non-conformities. They can propose methods for avoiding such issues within processes, as well as ways of joint repairs.	[SK5] Assessment of ability to solve problems that arise in practice
[K7_W03] demonstrates a well-structured and theoretically grounded knowledge of the key issues in Mechanical Engineering to enable the design and diagnosis of mechanical systems, processes and devices	The student is able to develop procedures and solutions related to the creation and improvement of a quality management system—including an integrated system—by utilizing available analytical and IT tools.	[SW2] Assessment of knowledge contained in presentation
[K7_U03] plans and carries out experimental investigations to determine the parameters of devices, processes or systems in the field of Mechanical Engineering and Mechanical Engineering, appropriately selects methods, techniques and tools, interprets results and estimates measurement errors	The student is able to perform testing on welded joints and evaluate their quality.	[SU4] Assessment of ability to use methods and tools
[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member	The student is able to select and plan the procedure for testing welded joints.	[SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

Course content – lecture

Destructive and non-destructive testing methods. Preparation of a non-destructive testing plan for a welded structure. Preparation of joints for testing. Methods for rectifying non-conformities. Procedures for repairing welded joints.

Course content – laboratory

NDT and DT testing methods, welding discontinuities, and repair methods for welded structures.

Course content – project

Quality analysis of a selected structure.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Labortories	51.0%	25.0%
Project	51.0%	25.0%
Exam/test	51.0%	50.0%

Recommended reading

Basic literature	Klimpel A.: Kontrola i zapewnienie jakości w spawalnictwie. Tom 1, Wydawnictwo Politechniki Śląskiej Szymański A. Kontrola i zapewnienie jakości w spawalnictwie. Tom 2, Wydawnictwo Politechniki Śląskiej Czuchryj J., Świergoł S.: Podstawy organizacji kontroli jakości w spawalnictwie, Instytut Spawalnictwa Gliwice, 2003 Pilarczyk J.: Poradnik inżyniera Spawalnictwo Tom 1, Tom 2 Wydanie II, Wydawnictwo: Naukowe PWN, 2017 Tomasz Chmielewski: Projektowanie procesów technologicznych spawalnictwo, Oficyna Wydawnicza Politechniki Warszawskiej, 2013 Edward Dobaj: Maszyny i urządzenia spawalnicze, WNT Wydawnictwa Naukowo-Techniczne, 2014
Supplementary literature	Matczak W., Gromiec J.: Zasady oceny narażenia spawaczy na dymy i gazy. Instytut Medycyny Pracy w Łodzi 2003
eResources addresses	

Example issues/ example questions/ tasks being completed	1. List selected types of non-destructive testing (NDT) for the evaluation of welded joints. 2. Destructive testing: types and acceptance criteria for welded joints. 3. Discuss selected standards concerning requirements for welding processes for metallic materials.
Practical activites within the subject	Not applicable

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