



## Subject card

Subject name and code	Advanced welding processes, PG_00057388						
Field of study	Mechanical Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Optional 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Dariusz Fydrych					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	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		6.0		24.0	75
Subject objectives	The aim of the course is to familiarize students with the advanced process of welding and processes related to welding						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U06] when solving engineering problems on design, technology and operation of machines is able to assess and classify typical methods and tools, define systemic and ex-technical aspects using modern calculating methods and design tools or modifying the current ones		The student is able to classify and use methods and tools.		[SU1] Assessment of task fulfilment		
	[K7_W04] possesses specialized knowledge on design, construction, properties and testing methods of construction materials		The student can plan testing the properties of materials construction		[SW1] Assessment of factual knowledge		
	[K7_W06] possesses organized, profound knowledge necessary for designing and optimization of complex technological processes, modelling and calculations using numerical methods, knows modern manufacturing methods and tools for designing manufacturing processes of machines, devices, their elements and components		The student can design process elements technological.		[SW1] Assessment of factual knowledge		
Subject contents	Basic concepts and definitions. Classification of welding processes. Laser welding. Plasma welding. Electron beam welding. Hybrid welding. Solid state welding. Special welding processes.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project	60.0%	20.0%
	laboratory	60.0%	20.0%
	exam	60.0%	60.0%
Recommended reading	Basic literature	Pilarczyk J. (red.): Poradnik inżyniera. Spawalnictwo. tom I. Wydawnictwo Naukowe PWN, Warszawa.  Pilarczyk J. (red.): Poradnik inżyniera. Spawalnictwo. tom II. Wydawnictwo Naukowe PWN, Warszawa.	
	Supplementary literature	Klimpel A.: Technologie laserowe. Spawanie, napawanie, stopowanie, obróbka cieplna i cięcie. Wydawnictwo Politechniki Śląskiej, Gliwice	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Describe the welding process. State the advantages of the process. Draw a diagram of the process implementation.		
Work placement	Not applicable		