



Subject card

Subject name and code	Lean Manufacturing, PG_00062997						
Field of study	Mechatronics						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			e-learning		
Year of study	2	Language of instruction			English		
Semester of study	3	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jacek Kropiwnicki					
	Teachers	Farian Krohne dr hab. inż. Jacek Kropiwnicki					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 30.0						
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	30		0.0		0.0	30
Subject objectives	Learning the methods of development of production systems, process optimization strategies and change management.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W10] knows development trends and most important new achievements in technical sciences and science disciplines: Mechanical Engineering, Automation, Electronics and Electrical Engineering and related: Informatics and Materials Engineering	The student knows process optimization strategies, analytical methods, Lean principles and methods, change management, and Lean Manufacturing implementation strategies.			[SW1] Assessment of factual knowledge		
	[K7_W02] has organised, general, supported by the theory knowledge in terms of systems theory and techniques, mechatronic design, mechatronic systems and exploitation of mechatronic devices	The student is prepared to actively participate in lectures in a foreign language in the field of Lean Manufacturing			[SW1] Assessment of factual knowledge		
	[K7_W06] has detailed, supported by the theory knowledge in terms of mechatronic design, mechatronic systems and machines, devices and process where they are used	The student is able to communicate in English while discussing process optimization strategies, analytical methods, Lean principles and methods, change management, and Lean Manufacturing implementation strategies.			[SW1] Assessment of factual knowledge		
Subject contents	Development of Production Systems and Lean Management. Strategies in Process Optimisation. Analytical Methods. Lean Principles and Lean Methods. Change Management. Roll-out Strategies for Lean Manufacturing. Total productive Management.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Test	60.0%			100.0%		

Recommended reading	Basic literature	<p>Liker, Jeffrey K.: The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer, 2nd Edition, McGraw-Hill Education Ltd, 2020.</p> <p>Womack, James P.; Jones, Daniel T.; Roos, Daniel: The Machine That Changed the World, Free Press, 2007.</p> <p>Womack, James P.; Jones, Daniel T.: Lean Thinking: Banish Waste and Create Wealth In Your Corporation, Simon & Schuster, 2003.</p>
	Supplementary literature	<p>Monden, Yasuhiro: Toyota Production System: An Integrated Approach to Just-in-Time. Productivity Press; 4th Edition, 2011.</p> <p>Ohno, Taiichi: Toyota Production System: Beyond Large-Scale Production. Productivity Press; Repr. Edition, 1988.</p>
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Lean Manufacturing; group 2; 11.00; Mechatronics; Naval Architecture and Offshore Structures, W, sem. 03, letni 24/25 (PG_00062997) - Moodle ID: 43886 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=43886</p>
Example issues/ example questions/ tasks being completed	Development of Production Systems and Lean Management. Strategies in Process Optimisation. Analytical Methods. Lean Principles and Lean Methods. Change Management. Roll-out Strategies for Lean Manufacturing. Total productive Management.	
Work placement	Not applicable	

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