



## Subject card

Subject name and code	Lean Manufacturing, PG_00062998						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	February 2023		Academic year of realisation of subject		2023/2024		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
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	Zakład Ekoinżynierii i Silników Spalinowych -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Jacek Kropiwnicki				
	Teachers		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: 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	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_W07] knows the environmental effects of energy technologies used; is familiar with the issues of effective energy management and use of renewable energy sources, has a broad and well-established knowledge of the processes of energy production and use		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_U05] is able to integrate technical and economic analysis of the use of various energy technologies, including technologies using renewable energy sources and conventional and nuclear energy		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.		[SU3] Assessment of ability to use knowledge gained from the subject		
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 &amp; 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, W, Energetyka, sem. 03, letni 23/24 (PG_00062998) - Moodle ID: 37996  <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37996">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37996</a></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	