



## Subject card

Subject name and code	Designing devices for food industry and protection of environment, PG_00040107						
Field of study	Mechanical Engineering, Mechanical Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2022/2023		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	22.0	0.0	15.0	0.0	0.0	37
	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	37		10.0		78.0	125
Subject objectives	Presentation of general issues of designing machines in the food industry and environmental protection.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle		The student is able to design the device and propose a number of solutions to increase the efficiency and effectiveness of the device.		[SW1] Assessment of factual knowledge		
	[K6_U11] is able to analyse the operation of devices and compare the construction solutions applying usage, safety, environmental, economic and legal criteria		Based on the technical data of devices, processes and technologies, the student selects the appropriate solution to the given problem, meeting the safety, environmental, economic and legal criteria		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W06] possesses elementary knowledge on automatics and robotics of mechanical systems		The student is able to select / apply the appropriate control and process control system.		[SW1] Assessment of factual knowledge		
Subject contents	Presentation of basic processes and unit operations and calculations, eg grinding, sedimentation, filtration, separation of suspensions in the field of centrifugal forces, etc. Presentation of machines and devices used in the food industry and environmental protection. Presentation of sample production lines.						
Prerequisites and co-requisites	Knowledge of mechanics, material strength, machine technology, thermal-flow processes, technical drawing.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Test		56.0%		100.0%		
Recommended reading	Basic literature		1. Fellows P.J., Food Processing Technology. Principles and Practice, Woodhead Publishing Ltd., Cambridge 1996.2. Grandison A.S., Lewis M.J., Separation process in the food and biotechnology industries. Principles and applications, Woodhead Publishing Ltd., Cambridge 1996.3. Lewicki P., Inżynieria procesowa i aparatura przemysłu spożywczego, WNT, Warszawa 1999.				

	Supplementary literature	1. Lewis M.J., Physical properties of foods and food processing systems, Woodhead Publishing Ltd., Cambridge 1996.2. Ling-Min Cheng, Food Machinery for the production of coreal foods..., Ellis Horwood Ltd., Chichester 1992.
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	1. Methods of increasing the efficiency of the sedimentation process.2. What is it and how is dedusting efficiency defined.3. Principles of designing and selecting filters.	
Work placement	Not applicable	