



Subject card

Subject name and code		Heat Exchangers, PG_00055494						
Field of study		Mechanical Engineering						
Date of commencement of studies		October 2024	Academic year of realisation of subject			2026/2027		
Education level		first-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		3	Language of instruction			Polish		
Semester of study		5	ECTS credits			3.0		
Learning profile		general academic profile	Assessment form			assessment		
Conducting unit		Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)		Subject supervisor		prof. dr hab. inż. Dariusz Mikielewicz				
		Teachers						
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	15.0	0.0	0.0	15.0	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	8.0		37.0	75	
Subject objectives		To acquaint the student with the methods of determining the required heat transfer surface in exchangers and their different types						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		[K6_U03] is able to identify, formulate and develop the documentation of a simple design or technological task, including the description of the results of this task in Polish or in a foreign language and to present the results using computer software or other aiding tools		Performed the heat exchanger design with required calculations and drawings		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
		[K6_W09] possesses knowledge within the range of thermodynamics and fluid mechanics, construction and operation of heat generating devices, process equipment, including renewable energy sources, cooling and air conditioning		knows the application of different types of heat exchangers for various applications		[SW1] Assessment of factual knowledge		
		[K6_W11] possesses knowledge on design, technology and manufacturing of machine parts, metrology, and quality control; knows and understands methods of measuring and calculating values describing the operation of mechanical systems, knows calculating methods applied to analyse the results of experiments		Student is able to construct exchanger performance characteristics and evaluate it in terms of different aspects		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	1. Classification of heat exchangers 2. Applications of heat exchangers in engineering practice 3. Procedures for determining the heat transfer area using the mean logarithmic temperature difference and epsilon-NTU method 4. Mini-channel heat exchangers 5. development of performance characteristics of exchangers		
Prerequisites and co-requisites	Thermodynamics, fluid mechanics, engineering graphics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lecture - test	60.0%	50.0%
	projekt	60.0%	50.0%
Recommended reading	Basic literature	1. Lecture notes	
	Supplementary literature	Every book from the area of heat exchangers.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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