GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Measurements Techniques in Power Engineering, PG_00042140		
Field of study	Power Engineering, Power Engineering, Power Engineering, Power Engineering, Power 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	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
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	dr inż. Marzena Banaszek	
	Teachers	dr inż. Marzena Banaszek dr inż. Wojciech Włodarski dr hab. inż. Michał Klugmann dr hab. inż. Jacek Barański	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	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	3.0	17.0	50

Subject objectives

Understanding the principles of measuring characteristic quantities in the processes of using heat for performing mechanical work, generating electricity, maintaining thermal comfort

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U03	The student takes measurements characteristic values in heat transfer processes and mass, flow, production electricity, maintenance thermal comfort	
K6_W06	Student describes the principles of measurements characteristic values in heat utilization processes to do the job mechanical, manufacturing electricity, maintenance thermal comfort	

Subject contents

Basics of the theory of errors including the concept of uncertainty, contemporary patterns and etalons electric, classic measuring instruments and systems. Measurement methods and interpretation of measurement results physico-chemical in power plants and heating plants, measurements of air emissions, control of water intake and sewage discharge, metering for system balancing. Analysis of water-steam cycles in power plants and combined heat and power plants. Heating circuits. Types of analyzes in the water-steam cycle. Laboratory classes: Analysis of water-steam cycles in power plants and combined heat and power plants. Circuits heating. Types of analyzes in the water-steam cycle. Departure laboratory:

Prerequisites and co-requisites

Physics, Thermodynamics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written test	56.0%	75.0%
Laboratory test	56.0%	25.0%

Recommended reading	Basic literature	1. J. Szargut, A. Ziębik: Podstawy energetyki cieplnej. PWN, W-wa 1998 2. Wyd. zbiorowe: Pomiary cieplne cz.I i II. WNT, 1995 3. T.H. Fransson: Measuring techniques in thermal engineering. RIT, Sztokholm 2002 4. Wyd. zbiorowe: Optical methods for data processing in heat and fluid flow. PEP, Londyn 2002
	Supplementary literature	T.H. Fransson: Measuring techniques in thermal engineering. RIT, Sztokholm 2002
	eResources addresses	Adresy na platformie eNauczanie: Techniki pomiarowe w energetyce, W/L, E, sem.6, letni 22/23 (PG_00042140) - Moodle ID: 29457 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29457
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	