GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing of energetical installations, PG_00057251		
Field of study	Power Engineering, Power Engineering, Power Engineering		
Date of commencement of studies	February 2022	Academic year of realisation of subject	2021/2022
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study 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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Ocean Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marian Piwowarski	
	Teachers	dr hab. inż. Marian Piwowarski	

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

Projektowanie instalacji energetycznych, (PG_00057251) - Moodle ID: 22560
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22560

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	10.0	35.0	75

Subject objectives

Gaining knowledge on industrial installations and possibilities of applying them in energetics

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W04] has advanced, ordered and theoretically grounded knowledge in the field of operation and selection of electrical machines, power transmission systems and power electronic devices, classical and forward-looking power technologies and their receivers, knows the principles of selection of power equipment and installations and their receivers and their operation	The student is able to use the theoretical knowledge of energy installations to design its elements	[SW2] Assessment of knowledge contained in presentation
[K7_W03] knows advanced aspects of automation and automatic control of power systems or transmission networks and internal installations	The student is able to characterize the methods of automatic regulation of energy systems	[SW1] Assessment of factual knowledge
[K7_K05] is aware of the impact of engineering activities on the environment	The student is able to assess the impact of the operation of specific energy installations on the environment	[SK1] Assessment of group work skills
[K7_U02] is able to use known mathematical and numerical methods to analyze and design elements, systems and power transmission networks and internal installations	The student is able to apply the learned mathematical relationships to the analysis and design of energy installations	[SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

Review of the most important Industrial energetic installations. Including of the auxiliary equipment to the energetic installations. Steam-water installations. Oil and fuel installations. Construction of the energetic pipelines. Pumping installations. Pneumatic and ventilation installations. Application of the pumps and compressors to the energetic installations.

Prerequisites and co-requisites

Knowledge on thermal turbines and their thermal cycles.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lecture test	60.0%	50.0%
	project	100.0%	50.0%
Recommended reading	Basic literature	Głuch J. (red), *Cieplno-przepływowe relacje diagnostyczne w ruchowych warunkach przemysłowych,* Politechnika Gdańska WOiO, Monografia, Gdańsk 2007 Szuman R., *Urządzenia elektrowni cieplnych,* WNT Warszawa 1974 Zembaty W., *Systemy i urządzenia chłodzące elektrowni cieplnych,* WNT, Warszawa 1993. Kosowski K, *Ship Turbine Power Plans*, Wyd. PG Delft University, Gdańsk 2004 Kosowski K, *Introduction to the theory of marine turbines*, Wyd. PG Delft University, Gdańsk 2004 Andrzejewski M., *Projektowanie elektrowni parowych*, WNT, Warszawa 1994	
	Supplementary literature	Worlds Technical Press	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Why condenser cooling water pumps of closed coolig systems has larger power need for pumping compared with such pumps in open cooling systems?		
Work placement	Not applicable		