GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056321		
Field of study	Ocean Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
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	4.0
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. Jerzy Głuch	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	0.0	0.0	15.0	60

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	60	10.0	30.0	100

Subject objectives

Getting acquainted students with energetical evaluation of engines and power plants feeded with different primary energy form to transfer it to drive energy as well for transortation as for electricity generation plants. Attention is focused also on energetical effectiveness of renevable energey sources application.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	can evaluate power system as en component of ocean economy	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	He can solve the problem of power systems efficiency	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	Can formulate assumtion for energy project	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

Energy drive systems for power plants. Energy drive systems for marine power . Energy drive systems for power aviation. Hybrid drive systems. Introduction to power plant design methods. Introduction to graph therory. Application of fluid dynamics to design power systems. Design od efficient marine power plants. Applicatiion of artifficial intelligence systems in power plant design.

Prerequisites and co-requisites

Basic knowledge in mechanics, thermodynamics and fluid dynamics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Seminary test	80.0%	50.0%
test from lectures	60.0%	50.0%

Recommended reading	Basic literature	1. Perycz S., ***Turbiny parowe i gazowe***, Skrypt PG, Gdańsk 1988. 2. Perycz S, ***Turbiny parowe i gazowe***, Ossolineum, Gdańsk 1989. 3. Traupel W., ***Thermische Turbomaschinen***, Spriger-Verlag 4. Szczeglaev A. W., ***Parovye turbiny***, 5. Urbański P., ***Gospodarka energetyczna na statkach***, Wyd. Morskie 1978 6. Kosowski K., ***Marine turbines***, Wyd. PG Two volumens 7. Cichy M.: ***Modelowanie systemów energetycznych,*** Gdańsk: Wyd. Politechniki Gdańskiej 2001. 8. Artemow G. A., Bojkow W. P., Gilmutdinow A. G., ***Sudowyje gazoturbinnyje ustanowki***, Sudostrojenie, Leningrad 1978. 9. Andrzejewski S., *Podstawy projektowania siłowni cieplnych*, WNT Warszawa 1975. 10. Ziembik A., *Gospodarka energetyczna*, Skrypt Politechniki Śląskiej, Gliwice 1992. 11. Dikij N. A., ***Sudowyje gazoparoturbinnyje ustanowki***, Sudostrojenie, Leningrad 1978. 12. **Technical literature esp. Transactions of ASME**.
	Supplementary literature	1. Janiczek R. S., ***Eksploatacja elektrowni parowych***, WNT, Warszawa 1992. 2. Orłowski Z., ***Diagnostyka w życiu turbin parowych***, WNT, Warszawa 2001. 3. Szuman W., ***Urządzenia pomocnicze elektrowni parowych***, WNT, Warszawa 1962. 4. Bunin W. I., ***Eksploatacja turbin parowych***, WNT, Warszawa 1956. 5. Gundlach W. R., ***Maszyny przepływowe***, T.1-3, PWN, Warszawa 1971. 6. Łączkowski R., ***Drgania elementów turbin cieplnych***, WNT, Warszawa 1974. 7. Jakubik A., ***Uszkodzenia niemechaniczne urządzeń cieplnych elektrowni***, WNT, Warszawa 1974. 8. Gajewski T., Lesikiewicz A., Szymanik R., ***Przepływowe silniki odrzutowe***, WNT, Warszawa 1975. 9. Gajewski K., ***Turbinowe napędy samochodów***, WNT, Warszawa 1978.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Name criteria of energetical effectiveness of ship power plant presented to you	
Work placement	Not applicable	