

SDAŃSK UNIVERSITY 的 OF TECHNOLOGY

Subject card

Quiltie at many a surely a sele	Modern Sources of Electric Energy, PG, 00038484								
Subject name and code	Electrical Engineering								
Date of commencement of studies	February 2024		Academic year of realisation of subject			2024/2025			
Education level	second-cycle studies		Subject group						
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	1		Language of instruction			Polish			
Semester of study	2		ECTS credits			1.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Electrical Power Engi		neering -> Faculty of Electrical and Control Engineering						
Name and surname	Subject supervisor dr inż. Marcin Jaskólski								
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	15.0	0.0	0.0	0.0		0.0	15	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study 15 hours			2.0		8.0		25	
Subject objectives	The purpose of the course is to provide general information about modern energy sources.								
Learning outcomes	Course out	Subject outcome			Method of verification				
	K7_K02		Students know the impact on the natural environment of electricity generation systems based on fossil fuels, nuclear fuels and renewable energy resources.			[SK5] Assessment of ability to solve problems that arise in practice			
	K7_K03		Students are able to determine the quantities characterizing electricity generation systems based on fossil fuels, nuclear fuels and renewable energy resources.			[SK5] Assessment of ability to solve problems that arise in practice			
Subject contents	General data concerning the large part and importance of new energy sources for national power system. Different kinds of the sources especially the planed energy sources in Poland. Balancing principles of energy objects on the examples of: conventional steam power plants, especially the ultra supercritical plants and also these which are equiped with the hybrid systems with coal gasification and the boilers with fluidised bed combustion chamber and also with combined gas and steam blocks. Nuclear power stations with reactors of the latest generation. Small hybrid systems with biomass-fired plants, wind plants, solar stations and installations equiped with fuel cells. Small combined heat and power systems based on Dieselengine-sets plants or gas turbine plants. Solutions of plants based on different kinds of nonconventional energy sources (geothermal, sea and ocean water energy, stations with MHD-generators). Calculations of technical and operating coefficients of above-mentioned sources. Importance of environmental protection problems.								
Prerequisites and co-requisites									
Assessment methods	Subject passing criteria		Passing threshold			Percentage of the final grade			
and criteria	Knowledge test		60.0%			100.0%			
Recommended reading	Basic literature		 Kubowski J.: Nowoczesne elektrownie jądrowe. WNT, Warszawa 2010 Pawlik M., Strzelczyk F.: <i>Elektrownie</i>. WNT, Warszawa 2009 Chmielniak T.: <i>Technologie energetyczne</i>. WNT, Warszawa 2008 						
	Supplementary literat	 Praca zbiorowa: <i>Poradnik inżyniera elektryka. Tom III.</i> WNT, Warszawa 2007 Cieśliński J., Mikielewicz J.: <i>Niekonwencjonalne źródła energii.</i> Wydawnictwo Politechniki Gdańskiej, Gdańsk 1996 Szargut J., Ziębik A.: <i>Podstawy energetyki cieplnej.</i> WNP, Warszawa 2000 Lewandowski W.: <i>Proekologiczne odnawialne źródła energii.</i> WNT, Warszawa 2007. 							

	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	 What moisture content is accepted in steam turbine? What might be the effect of too low steam quality. Show feedwater heating on an h-s graph and a schematic diagram of turbine system. What is the role of mixing system in a biogas plant? What are the advantages and disadvantages of fuel cells? 		
Work placement	Not applicable		