



## Subject card

Subject name and code	Nuclear Power, PG_00037319						
Field of study	Technical Physics						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2024/2025		
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	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Minkiewicz					
	Teachers	dr inż. Tomasz Minkiewicz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	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 didactic classes included in study plan	Participation in consultation hours		Self-study	SUM	
	Number of study hours	15	2.0		8.0	25	
Subject objectives	Deepening knowledge on selected issues in nuclear energy.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W02	Possesses ordered knowledge of basic, physical and operational problems related to the functioning of nuclear power plants.			[SW1] Assessment of factual knowledge		
	K6_W01	Understands the civilization importance of nuclear energy.			[SW1] Assessment of factual knowledge		
	K6_U01	Can independently acquire knowledge from various sources and effectively as well as independently acquire the knowledge in the field of nuclear energy.			[SU3] Assessment of ability to use knowledge gained from the subject		
Subject contents	1. History of Nuclear Energy. 2. Generations of Nuclear Power Reactors. 3. Current Data on Nuclear Energy Worldwide. 4. Selected Topics in Nuclear Physics. 5. Classification of Nuclear Reactors. 6. Design and Construction of Nuclear Power Plants. 7. Nuclear Power Plant Safety.						
Prerequisites and co-requisites	1. Basic knowledge of quantum mechanics. 2. Basic knowledge of chemistry. 3. Knowledge of a university course in physics.						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Colloquium	60.0%			100.0%		

Recommended reading	Basic literature	<p>1. J. Massalski „Fizyka dla inżynierów cz. 2 fizyka współczesna", Wydawnictwa Naukowo -Techniczne, Warszawa 2005.</p> <p>2. V. Acosta, C.L. Cowan, B.J. Graham „Podstawy fizyki współczesnej", PWN Warszawa 1987.</p> <p>3. H.A. Enge, M.R. Wehr, J.A. Richards „Wstęp do fizyki atomowej", PWN, Warszawa 1983.</p> <p>4. G. Jeziński, „Energia jądrowa wczoraj i dziś", Wydawnictwa Naukowo - Techniczne, Warszawa 2005.</p> <p>5. E. Boeker, R. van Grondelle, „Fizyka środowiska", Wydawnictwo Naukowe PWN, Warszawa 2002.</p> <p>6. Z. Celiński, A. Strupczewski, „Podstawy energetyki jądrowej", Wydawnictwa Naukowo - Techniczne, Warszawa 1984.</p> <p>7. J. Kubowski, „Elektrownie jądrowe", Wydawnictwo WNT Warszawa 2013</p> <p>8. A. Zieliński (red.), „Elektrownie jądrowe w nowoczesnej gospodarce", Wydawnictwo Naukowe PWN, Warszawa 2024.</p>
	Supplementary literature	1.Publications of the International Atomic Energy Agency
	eResources addresses	Adresy na platformie eNauczanie: Energetyka jądrowa [2024/25] - Moodle ID: 36914 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36914">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36914</a>
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Describe the uranium-235 nuclear fission reaction.</li> <li>2. Characteristics of Generation III/III+ reactors.</li> <li>3. List the fissile isotopes used in nuclear energy.</li> <li>4. Characteristics of the operational parameters of a nuclear power plant.</li> <li>5. List the possible applications of nuclear reactors.</li> <li>6. Draw and describe the schematic diagram of a nuclear power plant with a Pressurized Water Reactor (PWR).</li> </ol>	
Work placement	Not applicable	

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