


**KAPITAŁ LUDZKI**  
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez  
 Unię Europejską w ramach  
 Europejskiego Funduszu  
 Społecznego

**UNIA EUROPEJSKA**  
 EUROPEJSKI  
 FUNDUSZ SPOŁECZNY


<b>Course title</b>		<b>ECTS code</b>	
Nuclear industry		13.3.0716	
<b>Name of unit administrating study</b>			
null			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	all
Faculty of Chemistry	Chemical Business	<b>form</b>	all
		<b>specjalty</b>	all
		<b>specialization</b>	all
<b>Teaching staff</b>			
prof. dr hab. Bogdan Skwarzec; dr Grzegorz Olszewski; dr hab. Dagmara Strumińska-Parulska, profesor uczelni; dr hab. Alicja Boryło, profesor uczelni			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		2	
Lecture		classes - 30 h	
<b>The realization of activities</b>		tutorial classes – 5 h	
classroom instruction		student's own work – 15 h	
<b>Number of hours</b>		Total: 50 h - 2 ECTS	
Lecture: 30 hours			
<b>The academic cycle</b>			
2024/2025 summer semester			
<b>Type of course</b>		<b>Language of instruction</b>	
obligatory		polish	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
Lecture and multimedia presentation		<b>Final evaluation</b>	
		Graded credit	
		<b>Assessment methods</b>	
		Written exam	
		<b>The basic criteria for evaluation</b>	
		The basic criteria for evaluation or exam requirements	
		The scale of grades is consistent with the UG Studies Regulation	
		A positive mark from a written exam (30-40 open and close questions on lecture content)	
<b>Method of verifying required learning outcomes</b>			
<b>Required courses and introductory requirements</b>			
<b>A. Formal requirements</b>			
General chemistry and physics lecture			
<b>B. Prerequisites</b>			
none			
<b>Aims of education</b>			
Aims of education			
Acquaint students with all issues mentioned in the lecturres program content			
<b>Course contents</b>			
Course contents			

The subject of the lecture concerns the basics of the subject

Issues of the lecture: Natural and artificial radioactivity. Radioactive decays and nuclear reactions.

Interaction of ionizing radiation with matter. Dosimetry and radiological protection. Construction and types of nuclear reactors. Nuclear Energy and other energy technologies. Radioactive waste, their transport, processing and storage. Radioactive contamination of the environment and nuclear weapons. Application of radioactive nuclides in science, technology and the army. Legal aspects in the nuclear industry.

### Bibliography of literature

Bibliography of literature

Literature required to pass the course

Skwarzec B., Radiochemia środowiska i ochrona radiochemiczna, W-wo DJ s.c., Gdańsk 2002, ISBN: 83-914707-5-X

Sobkowski J. Jelińska-Kaźmierczuk M., Chemia jądrowa, W-wo Adamantan, Warszawa 2006, ISBN: 83-7350-080-4

A.2. studiowana samodzielnie przez studenta

Szymański W., Chemia jądrowa, Wydawnictwo Naukowe PWN, Warszawa 1996, ISBN: 83-01-12053-3

Extracurricular readings

### The learning outcomes (for the field of study and specialization)

#### Knowledge

Knowledge

The student has knowledge about radioactivity, natural and artificial radioactive elements and their occurrence in environment.

Knows the basic rules of radiological protection.

Has knowledge about the nuclear reactor construction and knows the advantages and disadvantages associated with the nuclear energy development.

Has knowledge about the importance of nuclear energy in the development of the energy industry.

Knows the ways of radioactive waste processing and storage.

Knows the source of radioactive environmental contamination.

Has knowledge about the use of radionuclides in science, technology and military.

Has knowledge about the cost of nuclear power plant building.

Knows the legal aspects of the nuclear industry.

#### Skills

Skills

Recognizes the most important natural and artificial radionuclides contained in environment.

Understands the basic concepts of dosimetry and radiological protection.

Understands the principle of atomic reactor operation.

Knows how to comment on nuclear energy and its significance compared to other energy technologies.

Distinguishes between peaceful and military applications of radioactivity.

Is aware of the importance and applications of radioactive substances in science, technology and the military.

Understands the economic and legal aspects of nuclear industry.

#### Social competence

### Contact

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