UNIWERSYTET GDAŃSKI

Course title Przemysł jądrowy / Nuclear industry	**ECTS code** 13.3.0716

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemical Business	Bachelor / Engineer	Full-time studies	

Teaching staff
dr hab. Alicja Boryło, prof. UG,

Forms of classes, the realization and number of hours

A. Forms of classes, in accordance with the UG Rector's regulations
lecture

B. The realization of activities
in-class learning

C. Number of hours
30 h lecture

ECTS credits 2

classes - 30 h
tutorial classes – 5 h
student's own work – 15 h

Total: 50 h - 2 ECTS

The academic cycle
Third year, summer semester

Type of course
obligatory

Language of instruction
Polish

Teaching methods

Lecture and multimedia presentation

Form and method of assessment and basic criteria for evaluation or examination requirements

A. Final evaluation, in accordance with the UG study regulations
course completion (with a grade)

B. Assessment methods
Written exam

C. 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

Required courses and introductory requirements

General chemistry and physics lecture

Aims of education

Acquaint students with all issues mentioned in the lecturres program content

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

A. 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

B. Extracurricular readings

Knowledge

1. The student has knowledge about radioactivity, natural and artificial radioactive elements and their occurrence in environment.
2. Knows the basic rules of radiological protection.
3. Has knowledge about the nuclear reactor construction and knows the advantages and disadvantages associated with the nuclear energy development.
4. Has knowledge about the importance of nuclear energy in the development of the energy industry.
5. Knows the ways of radioactive waste processing and storage.
6. Knows the source of radioactive environmental contamination.
7. Has knowledge about the use of radionuclides in science, technology and military.
8. Has knowledge about the cost of nuclear power plant building.
9. Knows the legal aspects of the nuclear industry.

Skills

1. Recognizes the most important natural and artificial radionuclides contained in environment.
2. Understands the basic concepts of dosimetry and radiological protection.
3. Understands the principle of atomic reactor operation.
4. Knows how to comment on nuclear energy and its significance compared to other energy technologies.
5. Distinguishes between peaceful and military applications of radioactivity.
6. Is aware of the importance and applications of radioactive substances in science, technology and the military.
7. Understands the economic and legal aspects of nuclear industry.

Social competence

1. Understands the need for futher education about nuclear chemistry and nuclear energy.
2. Dispels social concerns about the use of radioactive substances in science, industry and the military.
3. Makes the socjety aware of the impact of radioactivity on human life.
4. Presents ways of using of radioactive substances in peaceful and military human activity.
5. Actively participates in raising public awareness of nuclear energy.