Course title
Wykład monograficzny - Nowoczesne technologie w przemyśle / Monographic lecture - Modern technologies in industry

ECTS code

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemistry	Masters	Full-time studies	

Teaching staff
Prof. dr hab. inż. Adriana Zaleska-Medynska, dr inż. Anna Malankowska, dr inż. Anna Gołąbiewska, dr inż. Joanna Nadolna, dr inż. Ewelina Grabowska, dr inż. Aleksandra Pieczyńska, dr inż. Paweł Mazierski

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 3

classes - 30 h
tutorial classes – 10 h
student's own work – 35 h

Total: 75 h - 3 ECTS

The academic cycle
Second year, winter semester

Type of course
elective

Language of instruction
Polish

Teaching methods

Lecture with 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: open questions (short written answer)

C. The basic criteria for evaluation or exam requirements
• positive mark from the written exam covering the issues listed in the program content of the lecture, the scale according to the UG Study Regulations
• oral exam - supplement of the written exam, but only for those students who obtained from the written test > 40% of the points possible to receive

Required courses and introductory requirements
basics of general chemistry

Aims of education
Familiarize students with the issues listed in the program content of the lecture

Course contents
Subjects of the lecture:
1. Catalysts production technology.
2. Radioactive isotopes production technology.
3. Rare earth metals recovery.
4. Biohydrogen production.
5. Hydrogen storage technologies.
6. 3rd and 4th generation biofuels.
7. Photovoltaic cells production
8. API production technology.
9. Production and recycling of lithium-ion batteries used in electric cars.

Bibliography of literature

A. Literature required to pass the course

Scientific publications / books on the discussed issues - a list updated and given during lectures

B. Extracurricular readings

Selected individually by the student depending on the selected issues

Knowledge

1. defines and presents modern technologies.
2. describes, illustrates and explains functioning of modern technologies.
3. characterizes the basic parameters of modern technologies work.
4. uses the basic technological and chemical concepts describing the process of obtaining catalysts, radioactive isotopes, biohydrogen, photovoltaic cells, API and lithium-ion batteries.
5. discusses the advantages and disadvantages of the production and use of energy from renewable sources.

Skills

In a clear way, both in speech and in writing, present correct technological reasoning

Social competence

1. understands the functioning of modern technologies
2. understands the importance of further education
3. is aware of the dangerous caused by degradation of the natural environment and understand the importance of the improving technology.
4. Student demonstrates creativity in individual and teamwork and keeps open to the suggestions of the teacher and other team members.