



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Chemistry [N1Energ2>Chem]

Course

Field of study

Power Engineering

Year/Semester

1/1

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

Number of hours

Lecture

20

Laboratory classes

10

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

3,00

Coordinators

dr inż. Beata Kurc

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Lecturers

Prerequisites

Basic knowledge of chemistry and mathematics (core curriculum for secondary schools, basic level). Ability to solve elementary problems in chemistry based on your knowledge (eg: preparation of solutions at given concentrations, handling of weights, application of a known mathematical apparatus and chemistry problems for physicochemical calculations), ability to obtain information from indicated sources. Understanding the need for further education; readiness to cooperate within the team.

Course objective

1. Passing knowledge of chemistry to students, to the extent specified by the curriculum relevant to the field of study. 2. Developing students' ability to solve simple problems and perform simple experiments and analysis of results based on the acquired knowledge. 3. Shaping teamwork skills in students

Course-related learning outcomes

Knowledge:

- 1.The student can formulate and explain basic chemical laws in the area covered by the curriculum relevant to the field of study.
2. Student can determine the basic limitations and scope of applicability of laws of chemistry and

electrochemistry and give examples of their application to the description of phenomena in the surrounding world

Skills:

1. The student can perform standard measurements of basic physicochemical quantities, estimate the time needed for their implementation and follow the schedule.
2. The student can make a qualitative and quantitative analysis of the results of simple chemical experiments.
3. The student can formulate conclusions based on the obtained results of calculations and measurements made.
4. The student can use the understanding from the indicated sources of knowledge (list of basic literature) and gain knowledge from other sources.

Social competences:

1. The student can cooperate within the team, fulfill the responsibilities entrusted within the division of work in a team.
2. The student can actively engage in solving set tasks, set priorities for the implementation of a specific task.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: on the basis of passing the laboratory exercises.

Laboratory exercises: final assessment based on points obtained for: response, planning and conducting subsequent experiments and preparation of the report. Passing exercises from: 52% of points.

Programme content

The course covers a wide range of chemical and technological topics, such as the thermodynamics of chemical reactions, the characteristics of fossil and synthetic fuels, as well as the properties of colloids, emulsions, and detergents. Participants will also learn about the kinetics of chemical reactions, the principles of catalyst operation, the mechanisms of explosive reactions, metal corrosion processes, and water treatment methods, including softening and water parameter control.

Course topics

none

Teaching methods

Lecture: multimedia presentation

Laboratory exercises: performing a given experiment as part of a laboratory exercise and preparation of the report.

Bibliography

Basic:

1. L. Jones, P. Atkins, Chemia ogólna, PWN, W-wa 2006
2. Z. Sarbak, Kataliza w ochronie środowiska, UAM, Poznań 2004
3. A. Lewandowski, St. Magas, Wiadomości do ćwiczeń laboratoryjnych z chemii fizycznej, WPP, Poznań 1994 (skrypt nr 1765).
4. Instrukcje do ćwiczeń laboratoryjnych z chemii.

Additional:

1. P. Atkins, Podstawy Chemii Fizycznej, PWN, Warszawa 1999
2. A.G. Whittaker, A.R. Mount, M.R. Heal, Krótkie wykłady. Chemia fizyczna, PWN, W-wa 2007

Breakdown of average student's workload

	Hours	ECTS
Total workload	80	3,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	50	2,00