



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Industrial Chemistry

Course

Field of study

Mechanical and Automotive Engineering

Area of study (specialization)

–

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

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Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

The student has knowledge related to the basics of chemical and process technology, learns about the issues of raw materials, installations, technological lines in the chemical industry. The student is able to integrate the obtained information, interpret it, draw conclusions, formulate and justify opinions, is able to obtain information from literature and Internet sources. The student is able to formulate judgments on social issues, is aware of the importance of the chemical industry in the modern world, including industries related to transport.

Course objective

General knowledge in the field of chemical and process technology, reminding of issues related to the basics of chemistry. Getting to know the subject of chemistry in industry and transport.



Course-related learning outcomes

Knowledge

1. Has knowledge in the field of mathematics, including algebra, analysis, theory of differential equations, probability, analytical geometry necessary to: describe the operation of discrete mechanical systems, understand computer graphics methods, describe the operation of electrical and mechatronic systems.
2. Has knowledge in the field of physics, including the basics of classical mechanics, optics, electricity and magnetism, solid state physics, quantum and nuclear physics, necessary to understand specialist lectures in the field of the theory of construction materials and materials science, theory of machines and mechanisms, theory of electric drives and mechatronic systems.
3. Has basic knowledge in the field of chemistry, in the construction of the periodic table of elements and their properties, the theory of chemical bonds, organic and inorganic compounds, types of chemical reactions, chemical analysis: in the scope enabling understanding of lectures on metal and non-metal materials, protection sciences environment, fuels and lubricants, building materials and soil, biomechanics and biological materials processed by agricultural and food machinery.

Skills

1. Can obtain information from literature, the Internet, databases and other sources. Can integrate the obtained information, interpret and draw conclusions from it, and create and justify opinions.
2. Can use learned mathematical theories to create and analyze simple mathematical models of machines and their elements, and simple technical systems.
3. Has the ability to self-educate with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books.

Social competences

1. Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on his own.
2. Is willing to think and act in an entrepreneurial manner.
3. Is ready to fulfill professional roles responsibly, including:
 - observing the rules of professional ethics and requiring this from others,
 - caring for the achievements and traditions of the profession.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test at the end of the semester.

Programme content



Basic knowledge of general and inorganic chemistry, incl. solution concentrations, reaction stoichiometry, basic gas laws, thermochemistry. Raw materials, chemical processes, installations, technological lines in the chemical industry. Distillation and rectification processes.

Teaching methods

Lecture with the use of multimedia presentations.

Bibliography

Basic

1. Schmidt-Szałowski K., Sentek J., Podstawy technologii chemicznej. Procesy w przemyśle nieorganicznym". Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2004.
2. Kępiński J, Technologia chemiczna nieorganiczna. PWN, Warszawa 1975.

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	10	0,5

¹ delete or add other activities as appropriate