



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Introduction to chemical technology [S1TCh2>WdTC]

Course

Field of study

Chemical Technology

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

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

At the beginning of classes, the student should have knowledge at the high school level in the following areas: general chemistry, inorganic chemistry, organic chemistry, physics and mathematics. They should have basic, general knowledge of raw materials used for industrial production in Poland and in the world. In addition, the student should be able to obtain information from literature, databases and other properly selected sources. The student should be ready to cooperate within the team. He understands the need for training and the need to expand his competences.

Course objective

Understanding and obtaining basic knowledge related to chemical technology (chemical and technical sciences). Obtaining knowledge about industrial sectors in the field of chemical technology and economic models. Getting to know the interdisciplinary view of industrial processes. Providing students with general knowledge in the field of transforming various raw materials into useful final products. Familiarizing students with the technological process. Presentation of employment prospects after graduation. Increasing the student's awareness of the important role played by a chemical technologist on the labor market.

Course-related learning outcomes

Knowledge:

K_W03 - has the necessary knowledge to understand chemical phenomena and processes.

K_W06 - knows the principles of environmental protection related to chemical production and the management of raw materials, materials and waste.

K_W09 - has basic knowledge about raw materials, final products and processes used in chemical technology, as well as about the directions of development of the chemical industry in the country and in the world.

K_W13 - has the knowledge to describe the basic development trends related to chemical technology.

K_W14 - has a basic knowledge of the life cycle of products.

Skills:

K_U01 - can obtain information from literature, databases and other sources related to chemical technology, also in a foreign language, integrate them, interpret and draw conclusions and formulate opinions.

K_U04 - has the ability to self-educate.

K_U08 - can plan and organize individual and team work.

Social competences:

K_K01 - the student understands the need for training and improving their professional and personal competences.

K_K02 - is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Passing the course - the knowledge acquired during the lecture is verified in the form of a written test after the end of the series of lectures. Written test in the form of open questions on the issues presented in the lecture (the student obtains a credit with at least 51% of points). Issues for the colloquium will be presented to students during the lecture or sent by e-mail using the university's e-mail system. If it is not possible to conduct the credit in the stationary form, the knowledge will be verified in the form of an on-line test (closed and open questions) using the eKursy platform or using the university infrastructure.

Programme content

Discussing issues relating to introduction to the basics of chemical technology, industrial sectors in Poland and in the world, technological process, product life cycle, innovative technological solutions in various industries and the role of a chemical technologist in the industry.

Course topics

The lecture covers the following topics:

Introduction to the basics of chemical technology - the intertwining of chemical and technical sciences.

Industrial sectors in the field of chemical technology in Poland and in the world

Stages of the technological process (purchase / acquisition of raw materials, quality control of raw materials, production / synthesis, final product, quality control of the final product, storage, transport to the recipient).

Product life cycle (chemical sector). Assumptions of the linear economy and circular model.

Examples of innovative technological solutions in various industries.

The role of a chemical technologist in the industry (professional career, employment prospects, discussion of current job offers).

Education program in the field of Chemical Technology

In addition, as part of the lecture, a meeting with a representative of industrial sectors is planned to familiarize students with practical aspects related to chemical technology.

Teaching methods

Lecture: multimedia presentation.

Meeting with representatives of the economic sector in the field of chemical technology.

Bibliography

Basic:

1. K. Schmidt-Szałowski, J. Sentek, J. Raabe, E. Bobryk, Podstawy technologii chemicznej. Procesy w przemyśle nieorganicznym, Oficyna Wydawnicza Politechniki Warszawskiej Warszawa 2004.
2. A. Bielański, Podstawy chemii nieorganicznej, t.1-3, PWN, Warszawa 2012
3. J. Szarawara, J. Piotrowski, Podstawy teoretyczne technologii chemicznej, WNT Warszawa 2010
4. E. Grzywa, J. Molenda, Technologia podstawowych syntez organicznych, T. 1 i 2, WNT, Warszawa 2008.

Additional:

1. B. Burczyk: Biomasa. Surowiec do syntez chemicznych i produkcji paliw, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2011
2. J.A. Moulijn, M. Makkee, A. van Diepen: Chemical Process Technology, Wiley-Blackwell, Chichester 2013.
3. J. Pielichowski, A. Puszyński, Technologia tworzyw sztucznych, WNT, Warszawa 2003

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50