COURSE DESCRIPTION CARD - SYLLABUS

Course name
Organic technology [S1IChiP1>TOob]

Course

Field of study
Chemical and Process Engineering

Year/Semester
4/7

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Student has knowledge of general, organic and inorganic chemistry, knows the basic methods, techniques and tools used in chemical analysis. Student is able to obtain information from literature, databases and other sources, is able to interpret the information obtained, draw conclusions and form opinions. Student is able to apply the acquired knowledge in practice, both during the implementation of professional work and during further education. Student is able to properly set priorities for carrying out a specific task.

Course objective

The aim of the course is to gain knowledge of organic chemical technology.

Course-related learning outcomes

Knowledge:
1. student has the necessary knowledge about both natural and synthetic raw materials, products and processes used in chemical technology. [k_w09]
2. student has knowledge in the field of organic chemical technology and installations of the chemical industry. [k_w13]
3. student knows the basic methods, techniques, tools and materials used to solve simple tasks in the

field of organic chemical technology. [k_w15]

Skills:
1. student has the ability to self-study. [k_u05]
2. student is able to analyze and evaluate the functioning of basic processes and unit operations of chemical technology. [k_u16]

Social competences:
1. student understands the need for further training and raising their professional and personal competences. [k_k03]
2. student is aware of the responsibility for their own work and readiness to submit to work in a team and take responsibility for jointly performed tasks. [k_k04]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Current control during laboratory classes. Reports from laboratory exercises, oral / written answer, assessment of team work.
Assessment criterion: 3 - basic theoretical and practical preparation, ability to prepare reports on laboratory exercises; 4 - practical preparation supported by theoretical knowledge, the ability to formulate appropriate conclusions, active participation in classes supported by the desire to obtain additional knowledge; 5 - complete preparation for didactic classes, the ability to formulate conclusions at an advanced level, precise performance of assigned tasks, independent search for additional theoretical knowledge, coordination of work in a research team, ambitious approach to the subject matter.

Programme content

Biomass as a chemical raw material (fats in the production of biofuels). Ionic liquids (synthesis, properties, application, utilization, green solvents). Catalysis (phase transfer catalysis in the alkylation process). Quaternization of nicotinamide (N-alkylation, periodic heterogeneous reaction). Investigation of thermal stability of quaternary ammonium salts in aqueous solutions (removal of post-consumer products).

Course topics

Issues relating to organic chemical technology.

Teaching methods

Laboratory - educational materials for the laboratory as pdf files, practical exercises.

Bibliography

Basic
1. E. Grzywa, J. Molenda: Technologia podstawowych syntez organicznych, T. 1 i 2, WNT, Warszawa 2008.
2. E. Kociołek-Balawejder (red.): Technologia chemiczna organiczna: wybrane zagadnienia, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2013.
3. M. Taniewski: Technologia chemiczna - surowce, Wydawnictwo Politechniki Śląskiej, Gliwice 1997.
4. M. Stasiewicz (red.): Technologia chemiczna organiczna, ćwiczenia laboratoryjne, Wydawnictwo Politechniki Poznańskiej, Poznań 2013.
5. B. Burczyk: Biomasa. Surowiec do syntez chemicznych i produkcji paliw, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2011.
Additional
1. J.A. Moulijn, M. Makkee, A. van Diepen: Chemical Process Technology, Wiley-Blackwell, Chichester 2013.
2. M. Taniewski: Przemysłowa synteza organiczna.Kierunki rozwoju, Wydawnictwo Politechniki Śląskiej, Gliwice 1991.
3. B. Burczyk: Zielona chemia. Zarys, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2006

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,20
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	0,80