KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY

Course title	ECTS code
Chemical technology	13.3.0733

Name of unit administrating study

null

Studies

faculty	field of study		
Faculty of Chemistry	Chemical Business	type	all
		form	all
		specialty	all
		specialization	all

Teaching staff

prof. dr hab. inż. Adriana Zaleska-Medynska; dr hab. inż. Ewelina Grabowska-Musiał; dr inż. Joanna Nadolna; dr inż. Anna Gołąbiewska

Forms of classes, the realization and number of hours

Forms of classes

Auditorium classes, Laboratory classes, Lecture

The realization of activities

classroom instruction

Number of hours

Auditorium classes: 15 hours, Lecture: 30 hours, Laboratory classes: 30 hours

ECTS credits

5
classes - 75 h
tutorial classes – 10 h
student's own work – 40 h

Total: 125 h - 5 ECTS

The academic cycle

2023/2024 summer semester

Type of course

obligatory

Language of instruction

polish

Teaching methods

- Auditory seminar
- conducting experiments
- designing experiments
- multimedia-based lecture

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

- Graded credit
- Examination

Assessment methods

Lecture: written exam
Auditory seminar: written test (colloquium)
Laboratory exercise: written tests, conducting experiments, report preparation

The basic criteria for evaluation

	The basic criteria for evaluation or exam requirements Lecture: positive grade from the written exam covering the subjects mentioned in the lecture program; the grade scale according to the UG Study Regulatory; Auditory seminar: Presence at seminars positive grade from the written tests covering the subjects mentioned in the seminar program; the grade scale according to the UG Study Regulatory; Laboratory exercises: Presence in the laboratory classes and practical conducting of experiments in accordance with the instructions Positive evaluation of the written test (colloquium) covering the subjects mentioned in the laboratory class program; the grade scale according to the UG Study; Positive evaluation of the report on laboratory experiments

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements

Knowledge of the principles of general chemistry , math.

B. Prerequisites

principles of the inorganic chemistry, organic chemistry and analytical chemistry

Aims of education

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To gain knowledge in the field of unit operations
To gain knowledge in the field of technological principles
To gain knowledge in the field of the criteria of chemical process concept design
To develop ability to prepare a schematic diagram;
To gain the knowledge about selected apparatus and devises used in the chemical and food industry

Course contents

Course contents
A. Lecture program:
Chemical technology as applied science. New technological process – genesis. Chemical and technological concept of the processes. Process design and process scaling up. The principles of technological process. Process flow diagram. Basis unit operations. Crushing and milling. Screening and separation. Forming and extrusion. Distillation and rectification. Liquids homogenization. Mixing and agglomeration. Extraction. Heat exchange. Heating and cooling. Evaporation. Food freezing. Drying. Basic devices and apparatus in chemical and food industry. Examples of selected chemical process (case studies).
B. Seminar program
Examples of selected technological processes (case studies)
C. Laboratory program
Energy balance. Fertilizers manufacturing. Heterogeneous catalysis in chemical industry. Distillation and rectification. Reactors in chemical industry.

Bibliography of literature

Bibliography of literature
Literature required to pass the course
J. Szarawara, J. Piotrowski, Podstawy teoretyczne technologii chemicznej, WNT, Warszawa, 2010
P. Lewicki, Inżynieria procesowa i aparatura przemysłu spożywczego, WNT, 2005
L. Synoradzki, J. Wisialski, red., Projektowanie procesów technologicznych od laboratorium do instalacji przemysłowej, Oficyna Wydawnicza Politechniki Wrocławskiej,

The learning outcomes (for the field of study and specialization)	Knowledge
	Knowledge 1. Explaining the criteria of chemical and technological concept design. Explaining and characterizing basis operation units Classifying operation units Characterizing the most important devices and apparatus used in chemical and food industry

Skills

Skills

Determine the criteria of chemical and technological concept design
Construct of process flow diagram
Classify operation units
Analyze mass and energy balance
Plan the selection of basic devices and apparatus used in chemical processes

Social competence

Social competence
Methods of knowledge verifications:
Student answers for questions related to modern pro-environmental technical solutions, apparatus, technology and chemical engineering.
Methods of skill verifications:
Student solves engineering problems in the field of chemistry, selects apparatus and performs simple chemical
Methods of social competences verifications:
Students observation as when performing experiments cooperates with other members of the group, plans the order of performing particular stages of experiment; obeys the rules in lab and teacher instructions; verifies the obtained results.

Contact

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