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	13.3.0416

Name of unit administrating study

null

Studies

faculty	field of study		
Wydział Chemii	Chemia	type	pierwszego stopnia
		form	stacjonarne
		specialty	chemia biomedyczna, chemia kosmetyków, analityka i diagnostyka chemiczna, chemia żywności
		specialization	wszystkie

Teaching staff

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

Forms of classes, the realization and number of hours

Forms of classes

Laboratory classes, Lecture

The realization of activities

classroom instruction

Number of hours

Lecture: 30 hours, Laboratory classes: 30 hours

ECTS credits

5
classes - 60 h
tutorial classes – 30 h
student's own work – 35 h

Total: 125 h - 5 ECTS

The academic cycle

2024/2025 summer semester

Type of course

obligatory

Language of instruction

polish

Teaching methods

- 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
Laboratory exercise: written tests, conducting experiments, report preparation

The basic criteria for evaluation

Lecture:
• positive grade from the written exam covering the subjects mentioned in the lecture 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

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

A. Lecture

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. Laborotory

Energy balance. Fertilizers manufacturing. Heterogeneous catalysis in chemical industry. Distillation and rectification. Reactors in chemical industry.

Bibliography of literature

Literature required to pass the course
Warych J., Aparatura chemiczna i procesowa, Oficyna wydawnicza Politechniki Warszawskiej, Warszawa 1996
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 technologic
Extracurricular readings
Schmidt-Szałowski K., Sentek J., Podstawy technologii chemicznej. Organizacja procesów produkcyjnych, WPW 2001
S.Kucharski, J.Głowiński, red., Przykłady i zadania do przedmiotu: podstawy technologii chemicznej, Politechnika Wro-cławska, Wrocław, 2005

The learning outcomes (for the field of study and specialization)

Knowledge

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

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

Social competence

Student understands the concept of modern technological process design
Student is aware of the value and responsibility for his/her own work results
Student understand the needs of future education
Student demonstrates creativity in individual and teamwork and keeps open to the suggestions of the teacher and other team members

Contact

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