Cracow University of Technology

Course syllabus

binding for the doctoral students of the CUT Doctoral School commencing their studies in the academic year 2022/2023

Information on the course

Name of the course in Polish	Nowoczesne Materiały Polimerowe
Name of the course in English	Modern Polymer Materials
Number of the ECTS points	1
Language of instruction	Polish
Category of the course	Elective
Field of education	Engineering and Technology
Discipline of education	Chemical Engineering
Person responsible for the course Contact	Prof. Aleksander Prociak, *doctus hab.*, DSc aleksander.prociak@pk.edu.pl

Type of course, number of hours in the study programme curriculum

Semester	Credit type (G / NG)*	Lecture	Practical class	Laboratory	Computer laboratory	Project class	Seminar
4	G	15	0	0	0	0	0

*G – graded credit, NG – non-graded credit

Course objectives

Code	Objective description
Objective 1	To expand knowledge on the technologies of manufacturing polymeric materials, including biomaterials, nanomaterials, porous plastics and polymeric materials with specific properties as well as their characteristics in terms of performance and practical applications.
Objective 2	To acquire the ability to select polymeric materials and a method for their production depending on the requirements for the end product and its intended use.

Learning outcomes

Code	Description of the learning outcome adjusted to the specific characteristics of the discipline	Learning outcome symbol in the CUT SD	Methods of verification
OUTCOMES RELATED TO KNOWLEDGE			
EUW1	The doctoral student knows and understands the technologies of manufacturing selected polymeric materials and the methodology for their characterization.	E_W01 E_W03	A test

EUW2	The doctoral student knows and understands the current trends in the development of polymeric materials.	E_W02	A test
OUTCOMES RELATED TO SKILLS			
EUU1	The doctoral student is able to critically analyse and evaluate the results of scientific research and technical information on the properties of polymeric materials.	E_U02	A test
OUTCOMES RELATED TO SOCIAL COMPETENCES			
EUK1	-	-	-

Course outline

No.	Contents	Learning outcomes for the course	No. of hours
LECTURE			
W1	Basic information on selected polymeric materials – demand, production, technical production methods, raw materials used including renewable feedstocks.	EUW1, EUW2	4
W2	Bioplastics – polymers and polymer composites obtained from renewable raw materials, biodegradable polymers.	EUW1, EUW2, EUU1	4
W3	Polymer nanomaterials – production methods and characteristics.	EUW1, EUW2, EUU1	2
W4	Porous polymer materials.	EUW1, EUW2, EUU1	2
W5	Polymers with specific properties.	EUW1, EUW2, EUU1	3

The ECTS points statement

WORKING HOURS SETTLEMENT	
Type of activity	Average number of hours (45 min.) dedicated to the completion of an activity type
SCHEDULED CONTACT HOURS WITH THE ACADEMIC TEACHER	
Hours allotted in the syllabus	15
Consultations	1
Examination / course credit assignment	1
HOURS WITHOUT THE PARTICIPATION OF THE ACADEMIC TEACHER	
Independent study of the course contents	13
ECTS POINTS STATEMENT	
Total number of hours	30
The ECTS points number	1

Preliminary requirements

No.	Requirements
1	None

Course credit assignment conditions / method of the final grade calculation

No.	Description
COURSE CREDIT ASSIGNMENT CONDITIONS	
1	70% attendance in class.
2	Passing the test (obtaining a minimum of 50% of the points).
METHOD OF THE FINAL GRADE CALCULATION	
The test result.	

Additional information

None

The course reading list

1	Rabek J. F., *Współczesna wiedza o polimerach*, PWN, 2018.
2	Rabek J. F., *Polimery i ich zastosowania interdyscyplinarne*, PWN, 2020.
3	Rabek J. F., *Polimery - Otrzymywanie, metody badawcze i zastosowania*, PWN, 2020.
4	Szlezyngier W., Brzozowski Z.: *Tworzywa sztuczne*, T. I-III, Wydawnictwo Oświatowe FOSZE, 2015.
5	Scientific journals, e.g. *Polimery*.