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	Materiały polimerowe
Name of the course in English	Polymer materials
Number of the ECTS points	1
Language of instruction	Polish
Category of the course	Choosable
Field of education	Engineering and technology
Discipline of education	Materials engineering
Person responsible for the course Contact	Stanisław Kuciel, *doctor habilitatus*, prof. of CUT stanislaw.kuciel@pk.edu.pl

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

Semester	Credit type (G / NG)*	Lecture	Practical classes	Laboratory	Computer Lab	Project Class	Seminar
2, 3, 4, 5	G	15	0	0	0	0	0

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

Course objectives

Code	Objective description
Objective 1	Introduction to the types, properties and methods of identification of polymeric materials
Objective 2	Introduction to the basic methods of processing thermoplastic materials and the influence of parameters on the quality of products.
Objective 3	Acquiring the ability to assess the suitability and application of polymeric materials and their correct recycling.

Learning outcomes

Code	Description of the learning outcome adjusted to the specific characteristics of the discipline	Learning outcome symbol in the CUD DS	Methods of verification
OUTCOMES RELATED TO KNOWLEDGE			
EUW1	The doctoral student knows the basics of the science of polymer materials	E_W01, E_W02	Involvement in class activities, a presentation
EUW2	The doctoral student knows the relationship between the type of polymer and the possibility of its production	E_W01	Involvement in class activities, a presentation
OUTCOMES RELATED TO SKILLS			

EUU1	The doctoral student is able to identify a polymer material, assess its properties and its manufacturing method	E_U01	A presentation, discussion
EUU2	The doctoral student is able to present the advantages and disadvantages of thermoplastic polymers and composites, assessment of suitability for technical elements and the most essential properties subject to engineering assessment, which is related to the implementation of the doctoral dissertation.	E_U01	Discussion
OUTCOMES RELATED TO SOCIAL COMPETENCES			
EUK1	The doctoral student is able to refer to the known concepts of polymers application and recycling, has an opinion and can justify the polymer materials used in a research or the lack of the need to use them.	E_K01, E_K03	Discussion

Course outline

No.	Contents	Learning outcomes for the course	No. of hours
LECTURE			
W1	The origin and types of polymers	EKW1	1
W2	Basic properties and identification of polymers	EKW1	2
W3	The influence of the structural structure on the properties of polymers.	EKW1	2
W4	Thermal properties of polymers	EKW1, EKW2	1
W5	Methods of manufacturing products from thermoplastic polymers.	EKW1, EKW2	3
W6	Curable polymers, their types, properties and method of production.	EKW1, EKW2	2
W7	Rules for the selection of polymeric materials for technical elements	EKW1	2
W8	Recycling and utilization of materials in product design.	EKW2, EKU1, EKU2, EKK1	2

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 AN ACADEMIC TEACHER	
Hours allotted in the syllabus	15
Consultations	1
Examination / course credit assignment	2
HOURS WITHOUT THE PARTICIPATION OF AN ACADEMIC TEACHER	
Independent study of the course contents	8
Preparation of a paper, a report, a project, a presentation, a discussion	4
ECTS POINTS STATEMENT	

Total number of hours	30
The ECTS points number	1

Preliminary requirements

No.	Requirements
1	Knowledge of the basics of materials engineering
2	Knowledge of the English language.

Course credit assignment conditions / method of the final grade calculation

No.	Description
COURSE CREDIT ASSIGNMENT CONDITIONS	
1	75% attendance in class.
2	Presentation of a paper.
METHOD OF THE FINAL GRADE CALCULATION	
Weighted average grade for the presentation.	

Additional information

The thematic scope of the lecture, including the level of advancement in presentation and modelling, takes into account the initial preparation and knowledge of the subject by doctoral students.

The course reading list

1	Kuciel S., Kuźniar P. Materiały polimerowe, Wydawnictwo PK, Kraków 2013
2	Rabek J. F.: Polimery. Otrzymywanie, metody badawcze, zastosowanie, PWN 2016
3	Żuchowska D. Polimery konstrukcyjne, WNT Warszawa 2012