POZNAN UNIVERSITY OF TECHNOLOGY



EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS) pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Technologia materiałów polimerowych (Technology of polymeric materials) Course Field of study Year/Semester Technologia chemiczna (Chemical Technology) III/5 Area of study (specialization) Profile of study general academic Level of study Course offered in First-cycle studies Polish Form of study Requirements full-time elective Number of hours Lecture Laboratory classes Other (e.g. online) Tutorials Projects/seminars 15 Number of credit points 2 Lecturers Responsible for the course/lecturer: dr inż. Piotr Gajewski Wydział Technologii Chemicznej UI. Berdychowo 4, 60-965 Poznań,				Course name				
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Instytut Technologii i Inżynierii Chemicznej				dr Inz. Plotr Gajewski				
				Wydział Technologii Chemicznej				
Ul. Berdychowo 4, 60-965 Poznań,			icznej	Instytut Technologii i Inżynierii Chem				
				Ul. Berdychowo 4, 60-965 Poznań,				
Tel.61 665 3683				Tel.61 665 3683				
email: piotr.gajewski@put.poznan.pl				email: piotr.gajewski@put.poznan.pl				
Prerequisites				Prerequisites				
Knowledge of the basic issues of general chemistry and organic chemistry.		chemistry.	eral chemistry and organic	Knowledge of the basic issues of gen				
Course objective				-				

Obtaining basic knowledge about polymeric materials, their preparation and properties, as well as modern applications.

Course-related learning outcomes

Knowledge

Student has basic knowledge of the chemistry and technology of polymeric materials, as well as their



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properties and applications (K_W03). Has the necessary knowledge of both natural and synthetic raw materials, products and processes used in polymer technology (K_W9)

Skills

Is able to find the necessary information in the literature, databases and other sources concerning chemical sciences, interprets them properly, draws conclusions (K_U1). Can work both individually and in a team in academic environment (K_U2). Can prepare and present in Polish language an oral presentation in the scope of polymer technology (K_U4). Has the ability to self-educate (K_U6).

Social competences

Understands the need for learning and improving their professional, personal and social competences (K_K01). Can interact and work in a group, inspire and integrate engineering environments (K_K03). Can properly define priorities for the implementation of the assigned task (K_K04).

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Presentations on the subject of the project, assessment of preparation, presentation and general knowledge. Written project on the issues presented in the project.

Programme content

Knowledge of the structure of the most popular monomers and their polymers, such as e.g. polyolefins, vinyl polymers, rubbers, polyesters, polyamides, polyurethanes, epoxy and polyester resins, special polymers.

Structure of polymers (linear, branched, crosslinked), thermoplastics and duroplastics and their properties.

Plastic - concept, ingredients; composites. Preparation, properties and modification of polymeric materials in terms of their applications.

Become familiar with modern applications of plastics. Besides to commonly known applications, such as rubber, food, packaging, electrotechnical industries, construction, aviation, automotive, agriculture, the project will also cover plastics in cosmetics, medicine, pharmacy, dentistry, the computer industry, stereolithography (3D printers), microlithography, optoelectronics, microelectronics, etc.

Requirements for polymer materials depending on their target application.

Teaching methods

Project: Carrying out the particular stages of the project, solving problems related to the particular stages of the project, preparing multimedia presentations and the written part of the project, discussion.

Bibliography

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EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS) pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

Basic

- 1. J. Pielichowski, A. Puszyński "Chemia Polimerów" TEZA, Kraków, 2004
- 2. J. Pielichowski, A. Puszyński "Technologia tworzyw sztucznych", WNT, Warszawa, 1994
- 3. W. Szlezyngier "Tworzywa sztuczne" Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 1996.
- 4. Z. Wirpsza "Poliuretany. Chemia, technologia, zastosowanie." WNT Warszawa 1991.

Additional

1. Praca zbiorowa pod red. Z. Floriańczyka i S. Penczka "Chemia polimerów" tom II, III Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 1995 i 1997.

2. Scientific publications related to the subject of the project.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation of presentation,	25	1,0
project preparation) ¹		

¹ delete or add other activities as appropriate