

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Polymers and polimer composites		Code 1010702221010702974
Field of study Chemical Technology	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty Composites and Nanomaterials	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 15 Classes: - Laboratory: 15 Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 3 100%
Responsible for subject / lecturer: prof. dr hab. inż. Ewa Andrzejewska email: ewa.andrzejewska@put.poznan.pl tel. 616653637 Faculty of Chemical Technology ul. Berdychowo 4 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Knowledge of the basic principles of general, organic and physical chemistry. Knowlegr of subjects taught at ?Chemical technology ? polymeric materials? lecture.
2	Skills	Student knows and applies good practices of laboratory work, is able to operate the scientific equipment. He or she is able to search for information in scientific literature, databases and other properly chosen sources.
3	Social competencies	Student is consious of the effects of engineering activity.
Assumptions and objectives of the course: To gain the knowledge about polymeric composites, their properties, materials for production, manufacturing methods and applications.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Student has a well established knowledge of synthesis, properties, aplication of polymeric composites. - [K_W02, K_W11]		
Skills: 1. Student has the ability of analysing and interpreting of the results of experiments from the area of polymer chemistry and technology - [K_U01, K_U10] 2. Student has the ability of presenting the results of laboratory exercises in concise and proper manner - [K_U06]		
Social competencies: 1. Student is conscious of limitations of science and technology in the area of polymer chemistry and technology, including environment protection - [K_K04, K_K02] 2. Student is conscious of limitation of his knowledge and understands the need of further continuous education in area of polymer chemistry and technology - [K_K01] 3. Students can work in a team and are aware of their responsibility for their work and responsibility for the results of the teamwork - [K_K04]		
Assessment methods of study outcomes		
Written exam in the subject from the field of composite materials, evaluation of laboratory exercises and reports.		
Course description		

<p>Definition of composite material. Properties of composites. The ingredients of composites and their role. Types of matrixes and reinforcing materials. Polymeric matrixes of composites. Fibre-reinforced composites. Types of fibres and reinforcing materials. Polymeric and carbon fibres for composites reinforcement. Industrial methods of production of composite materials with polymeric matrix. Applications of polymeric composites.</p>		
<p>Basic bibliography: 1. Comprehensive Composite Materials, Editors: A. Kelly, C. Zweben, Elsevier 2000. 2. Composites Manufacturing, S. K. Mazumdar, CRC Press 2002.</p>		
<p>Additional bibliography: 1. Handbook of Composites, S. T. Peters, Chapman and Hall 1998 2. Fiber Reinforced Composites, P.K.Mallick, CRC Press Taylor Francis Group 2008.</p>		
<p>Result of average student's workload</p>		
<p>Activity</p>	<p>Time (working hours)</p>	
1. Lecture	15	
2. Consultations to lecture	10	
3. Laboratory	15	
4. Consultations to laboratory	10	
5. Preparation for laboratory	20	
6. Preparation of reports	5	
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
Total workload	75	3
Contact hours	50	0
Practical activities	15	0