

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Strategy of Chemical Production		Code 1010702211010700650
Field of study Chemical Technology	Profile of study (general academic, practical) general academic	Year /Semester 1 / 1
Elective path/specialty Organic Technology	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: 30 Classes: - Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: dr inż. Monika Stasiewicz email: monika.stasiewicz@put.poznan.pl tel. 61 6653681 Wydział Technologii Chemicznej ul. Berdychowo 4 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has the necessary knowledge of both natural and synthetic raw materials, products and processes used in chemical technology, and of the directions of development. Student has a basic knowledge of chemical and process engineering.
2	Skills	Student can obtain information from literature, databases and other sources, can interpret the information, draw conclusions and formulate opinions. Based on general knowledge explains the basic phenomena associated with important processes in the chemical and process engineering.
3	Social competencies	Student can appropriately prioritize used to perform a particular task.
Assumptions and objectives of the course: Obtaining knowledge of industrial chemistry.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has knowledge of complex chemical processes involving careful selection of materials, raw materials, methods, techniques, apparatus and equipment for chemical processes and the characterization of the resulting products. - [K_W03]		
2. Student has an extended knowledge of environmental issues and technology purification processes associated with chemical. - [K_W08]		
3. Student has knowledge of selected aspects of modern chemical knowledge and aspects of industrial property. - [K_W14]		
Skills:		
1. Student has the ability to adapt the knowledge of chemistry and related disciplines to solve problems in the field of chemical technology and planning of new industrial processes. - [K_U12]		
2. Student is able to critically evaluate the practical suitability of the use of new developments in chemical technology. - [K_U17]		
3. Student has the ability to multi-faceted technology project planning. - [K_U20]		
Social competencies:		
1. The student has formed awareness of the limitations of science and technology related to chemical technology, including the protection of the environment. - [K_K02]		

Assessment methods of study outcomes		
Written exam.		
Course description		
Designing processes. The research literature and patents. Industrial property. Treatment technology. The solvents in the organic synthesis (classical and alternative). Microwave techniques. Catalysis in technology (heterogeneous, homogeneous and enzymatic PTC). Enlarging the scale. Chemical and technological concepts. The selection process instruments and flow diagram. Fire and explosion hazards. Economics (profitability problems and calculations).		
Basic bibliography:		
1. L. Synoradzki, J. Wisialski, Projektowanie procesów technologicznych, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006.		
2. Pyrża A., Poradnik wynalazcy, UPRP, Warszawa 2009.		
3. M. Ziólek, I. Nowak, Kataliza heterogeniczna: wybrane zagadnienia, Wydawnictwo UAM, Poznań.		
4. G.C. Bond, Kataliza heterogeniczna. Podstawy i zastosowanie, PWN, Warszawa 1979.		
5. F. Próchnik, Kataliza homogeniczna, PWN, Warszawa 1993.		
6. T. Paryczak, A. Lewicki, M. Zaborski, Zielona chemia, Wydawnictwo PAN, Łódź 2005.		
7. B. Burczyk: Zielona chemia. Zarys, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2006.		
Additional bibliography:		
1. K. Weissermel, H.J. Arpe: Industrial organic chemistry, VCH, Weinheim, New York, Basel, Cambridge, Tokio, 1993		
Result of average student's workload		
Activity		Time (working hours)
1. Lectures		30
2. Consultation		5
3. Exam		15
Student's workload		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	35	0
Practical activities	0	0