

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Process chromatography		Code 1010702221010702971
Field of study Chemical Technology	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
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: 15 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: Prof. dr hab. inż. Adam Voelkel email: Adam.Voelkel@put.poznan.pl tel. 0616653687 Wydział Technologii Chemicznej ul. Berdychowo 4 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic physical, inorganic, organic and analytical chemistry on academic level; knowledge of mathematical tools used in chemical calculations
2	Skills	Can use basic laboratory techniques of separation and cleaning chemical compounds
3	Social competencies	Understands the need to supplement her/his education and increasing personal and professional competences
Assumptions and objectives of the course: Presentation of process applications of chromatographic techniques. Newest achievements and tendencies in process design. Basic of process chromatography dedicated to separation of biologically active substances.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. knowledge in the field of techniques, methods connected with the application of techniques in process chromatography - [K_W03, K_W11] 2. can describe methods, techniques, tools and materials used for the solution of simple problems connected with process chromatography - [K_W07, K_W13]		
Skills: 1. Student can select the proper technique for process - [K_U01, K_U08, K_U09, K_U14] 2. Student can discuss chromatographic problems in English - [K_U05, K_U06]		
Social competencies: 1. Student understands the need to supplement her/his education and increasing professional competences - [K_K01] 2. Student has the awareness to obey the engineer ethic rules - [K_K03, K_K05] 3. Student can act and cooperate in the group accepting different roles - [K_K04]		
Assessment methods of study outcomes		
written control work		

Course description		
<p>Combined techniques on process chromatography. Sample derivatization for chromatographic analysis. Miniaturization in process gas chromatography. Process applications of chromatography as a tool of separation of biologically active substances. Engineering of chromatographic installation. Modeling of chromatographic processes. Chromatography in biochemical industry.</p>		
<p>Basic bibliography:</p> <p>1. Chromatografia procesowa, K. Kadlec, A. Voelkel, WPP, Poznań, 2011.</p> <p>2. Zastosowanie metod chromatograficznych, K. Bielicka-Daszkiwicz, K. Milczewska, A. Voelkel, Wyd. PP, Poznań, 2005, 2010</p>		
<p>Additional bibliography:</p> <p>1. L. Mondello, Comprehensive Chromatography in Combination with Mass Spectrometry, Wiley, Singapur, 2011.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. lecture	15	
2. lecture consultations	15	
3. credit preparation	18	
4. credit	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	30	0
Practical activities	0	0