



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Chromatografia procesowa (Process chromatography)

### Course

Field of study	Year/Semester
Technologia chemiczna (Chemical Technology)	I/2
Area of study (specialization)	Profile of study
Technologia organiczna (Organic technology)	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
full-time	compulsory

### Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15		
Tutorials	Projects/seminars	

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:  
prof. dr hab. inż. Adam Voelkel

Responsible for the course/lecturer:

### Prerequisites

Basic physical, inorganic, organic and analytical chemistry on academic level; knowledge of mathematical tools used in chemical calculations; Can use basic laboratory techniques of separation and cleaning chemical compounds

### Course objective

resentation of process applications of chromatographic techniques. Newest achievements and tendencies in process design. Basic of process chromatography dedicated to separation of biologically active substances.

### Course-related learning outcomes

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 chromatography - [K\_U01, K\_U08, K\_U09, K\_U14]
2. Student can discuss chromatographic problems in English. - [K\_U05, K\_U06]

#### Social competences

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]

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:  
written control work

#### Programme content

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.

#### Teaching methods

lecture

#### Bibliography

##### Basic

1. Chromatografia procesowa, K. Kadlec, A. Voelkel, WPP, Poznań, 2011.
2. Zastosowanie metod chromatograficznych, K. Bielicka-Daszkiewicz, K. Milczewska, A. Voelkel, Wyd. PP, Poznań, 2005, 2010.

##### Additional

L. Mondello, Comprehensive Chromatography in Combination with Mass Spectrometry, Wiley, Singapur, 2011.



### 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 for tests) <sup>1</sup>	25	1,0

<sup>1</sup> delete or add other activities as appropriate