

Course code: .....

Plan position: .....

## A. INFORMATION ABOUT THE COURSE

### B. Basic information

Name of course	<b>Chromatographic methods of analysis</b>
Field of studies	Chemical Technology
Level of studies	First degree
Profile of studies	General academic
Form of studies	stationary
Specialty	1. Chemical process technology 2. Bioengineering 3. Chemistry and technology of cosmetics
Unit responsible for the field of studies	Faculty of Chemical Technology and Engineering/ Division of Food Analytics and Environmental Protection
Name and academic degree of teacher(s)	Łukasz Dąbrowski, PhD
Introductory courses	n.a.
Introductory requirements	Basic knowledge of analytical chemistry and computer operation.

### C. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
winter	30 <sup>E</sup>		15				5

## 2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
<b>KNOWLEDGE</b>			
W1	He has specialist knowledge in the field of chromatographic methods of compound analysis.	K_W21	P6S_WG
<b>SKILLS</b>			
U1	Selects chromatographic analytical methods and conditions for their conduct for the qualitative and quantitative determination of chemical compounds.	K_U11	P6S_UW
<b>SOCIAL COMPETENCES</b>			
K1	Is aware of the responsibility for jointly performed tasks related to teamwork during exercises in the chromatography laboratory.	K_K04	P6S_KK P6S_KO

## 3. TEACHING METHODS

### A. Traditional methods used

Multimedia lectures and laboratory exercises.
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## 4. METHODS OF EXAMINATION

Final written exam, acceptance of laboratory reports.
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## 5. SCOPE

Lectures	Fundamentals of chromatographic methods, basic terms, and definitions, columns, stationary phases, injectors, and detectors used in gas and liquid chromatography. Qualitative and quantitative analysis in chromatography. Evaluation of the obtained results.
Laboratories	Determination of the operating conditions of a gas chromatograph (injector, chromatographic column, detector, etc.) in order to obtain the correct separation of the analyzed compounds; selecting the operating conditions of the liquid chromatograph and examining the influence of the elution force on the separation of compounds; qualitative and quantitative analysis in gas, liquid and thin-layer chromatography.

## 6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	Laboratory reports
W1		x				
U1		x				x
K1						x

## 7. LITERATURE

Basic literature	1. Chromacademy.com (free access for students and teachers) 2. Ahuja S., 2003, Chromatography and Separation Science, Elsevier. 3. Grob R. (ed.), Barry E. (ed.), Hetper J., 2004, Modern Practice of Gas Chromatography, Wiley.
Supplementary literature	1. Jackie., 2020, Basics & Fundamentals Gas Chromatography, Shimadzu Corporation. 2. Mayors, R., E., 2013, Sample preparation fundamentals for chromatography, Agilent Technologies.

## 8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload—number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	45
	Supervision hours	20
Student's own work	Preparation for classes	20
	Reading assignments	15
	Other (preparation for exams, tests, carrying out a project etc)	25
Total student workload		125

Number of ECTS points	<b>5</b>
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