

COURSE OFFERED

Name of the course	Polish	Spektrometria ruchliwości jonów (IMS) i techniki pokrewne
	English	Ion mobility spectrometry (IMS) and related techniques

1. LOCATION OF THE COURSE OF STUDY WITHIN THE EDUCATION SYSTEM

1.1. Section¹	Section of Exact and Natural Sciences
1.2. Discipline²	Chemical Sciences
1.3. Type of education	Stationary
1.4. Level of education	Doctoral School
1.5. Person preparing the course description	prof. dr hab. inż. Paweł Mochalski
1.6. Contact	pawel.mochalski@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Type of course³	Specialized subject in the discipline
2.2. Language of the course	English

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Type of classes⁴		Lecture
3.2. The number of hours⁵		15h
3.3. Location of classes		Lecture room at the Institute of Chemistry UJK
3.4. Type of assessment		Pass with a grade
3.5. Didactic methods		Oral lectures
3.6. Literature	basic	G.A. Eiceman, Z. Karpas, H. H. Hill „Ion Mobility Spectrometry”, ISBN: 9781138199484 (CRC Press 2016)
	supplementary	A. M. Ellis and C. A. Mayhew “Proton Transfer Reaction Mass Spectrometry: Principles and Applications”, ISBN: 978-1-4051-7668-2 (Wiley 2014)

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDEND LEARNING OUTCOMES

4.1. Course objectives (including the form of classes) C01 - To introduce state-of-the-art soft chemical ionisation mass spectrometric techniques (SCIMS): Ion Mobility Spectrometry (IMS), Proton Transfer Reaction Mass Spectrometry (PTR- MS), Selected Ion Flow Tube – Mass Spectrometry (SIFT-MS)
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¹ Section of Humanities; Social Sciences, Section of Exact and Natural Sciences, Section of Medical and Health Sciences, Section of Arts.

² History, Linguistics, Literary Studies, Medical Sciences, Health Sciences, Political and Administrative Sciences, Legal Sciences, Security Sciences, Pedagogy, Communication and Media Studies, Management and Quality Studies, Biological Sciences, Chemical Sciences, Physical Sciences, Earth and related Environmental Sciences, Visual Arts and Artwork Conservation, Musical Arts.

³ General courses, domain specific subjects in the section, disciplinary subjects in the sections, specialized subjects in the discipline.

⁴ Classes, lecture, seminar.

⁵ Consistent with the education program at the Doctoral School Jan Kochanowski University in Kielce.

Soft chemical ionisation mass spectrometry (SCIMS), non-dissociative and dissociative proton transfer, operational principles and methods of ion mobility spectrometry (AIMS, DT-IMS, FAIMS, HEiK), operational principles of Proton Transfer Reaction Mass Spectrometry and Selected Ion Flow Tube Mass Spectrometry, hyphenated techniques: GC-IMS, GC-PTR-MS, IMS-MS), application of soft chemical ionisation mass spectrometry in food science, homeland security (detection of drugs, explosives, toxic substances, warfare agents), health sciences.

5. SUBJECT LEARNING OUTCOMES

Learning outcomes	A doctoral student who has passed the subject:	Reference to the learning outcomes of Doctoral School (according to the training program at the Doctoral School)
		in the area of KNOWLEDGE:
W01	The doctoral student possesses advanced knowledge of the latest scientific or artistic achievements, encompassing theoretical foundations, general issues, and selected specific topics relevant to the scientific or artistic discipline in which the doctoral dissertation is being prepared	SD_W01
W02	The doctoral student has advanced knowledge of development trends in disciplines related to the research or artistic/project theme being pursued	SD_W02
in the area of SKILLS:		
U01	is able to define the aim and scope of scientific research, formulate research hypotheses within the discipline in which they are preparing their doctoral thesis, and critically analyse and evaluate the results of scientific research, expert work and other creative works, as well as their contribution to the advancement of knowledge	SD_U01
U02	is able to apply knowledge from various scientific or artistic fields to creatively identify, formulate and innovatively solve complex problems or carry out research tasks	SD_U03
U03	The doctoral student can effectively use a foreign language in research, artistic, or project activities.	SD_U07

6. METHODS OF ASSESSMENT OF THE INTENDED LEARNING OUTCOMES

[illegible]

	<i>classes</i>			<i>classes</i>			<i>classes</i>			<i>classes</i>			<i>classes</i>			<i>classes</i>			<i>classes</i>		
	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>	<i>L</i>	<i>C</i>	<i>S</i>
W01				x																	
W02				x																	
S01				x																	
S02				x																	
K01				x																	

7. CRITERIA OF ASSESSMENT OF THE INTENDED LEARNING OUTCOMES

Form of classes	Grade	Criterion of assessment
Lecture (L) ⁶	3,0	51-60% percentage score of the final test
	3,5	61-70% percentage score of the final test
	4,0	71-80% percentage score of the final test
	4,5	81-90% percentage score of the final test
	5,0	91-100% percentage score of the final test

Accepted for execution

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⁶ Niepotrzebne usunąć.