Course ID: HAH204	**Course name: MECHANISMS OF ION EXCHANGE**		
Cycle: FIRST	**Year: SECOND**	**Semester: IV**	**ECTS credits: 2**
Course status: ELECTIVE		**Total course hours: 30** Lectures: 15 Laboratory: 15	
Teaching participants:	**Teachers and associates with expertise in the field to which the subject belongs**		
Prerequisite for enrollment:	-		
Course aims:	Acquiring of knowledge and laboratory skills in the application of ion exchangers for different purposes		
Thematic course units:	- The ion exchange - general terms - Classification of ion exchange resins (exchangers of cations and anions) - Properties of ion exchange resins - The selectivity of ion exchange resins, selectivity coefficient - Dissociation and the pK value - The kinetics of ion exchange - The capacity of ion exchange - Networking, size and density of the resin particles - Application of ion exchange for water and wastewater - Water softening - Demineralization of water - Regeneration and maintaining of ion exchange resins - Soiling of cationic ion exchange resins - Soiling of anionic ion exchange resins - Special ion exchange procedures in water treatment		
Learning outcomes:	Acquired knowledge and laboratory skills in the application of ion exchangers for various purposes.		
Teaching methodology:	Theoretical and practical teaching		
Assessment methods and grading system[1]:	Grading criteria Criteria — Maximal score — Required score		

[1]The grading structure for each subject is determined bythe Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

1.	Class attendance	5	3
2.	Class activities	10	5
3.	Midterm	45	25
4.	Final exam	40	22
	Total	100	55

Scores and grading		
Score	Grade (B&H)	Grade (ECTS)
< 55	5	F, FX
55–64	6	E
65–74	7	D
75–84	8	C
85–94	9	B
95–100	10	A

Literature[2]:

Mandatory literature:

1. Jasna Huremović, Mehanizmi jonske izmjene, Prirodno-matematički fakultet, Univerzitet u Sarajevu, 2012

Supplementary literature:

1. D.A. Skoog, D.M. West, F.J. Holler, Osnovi analitičke kemije, šesto izdanje(englesko), prvo izdanje (hrvatsko), Školska knjiga, Zagreb, 1999.
2. Jelena Savić- Momir Savić, Osnovi analitičke hemije, Klasične metode, Svjetlost , Sarajevo, 1989.
3. Abraham Clearfield, Inorganic Ion Exchange Materials, CRC Press. Inc., Boca Raton, Florida, 1982.
4. Veljko Korać, Primjena ionskih izmenjivača, Udruženje za tehnologiju vode Beograd, 1986.
5. Richard Anderson, Sample Pretreatment and Separation, Analytical Chemistry by Open Learning, JOHN WILEY & SONS, 1987-reprinted 1995.
6. Husnija Resulović, Pedologija, univerzitetski udžbenik, Univerzitet u Sarajevu, 2002.

[2]The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton