



Course ID: HODTH26	Course name: SELECTED CHAPTERS IN RADIOCHEMISTRY		
Cycle: THIRD	Year: FIRST	Semester: II	ECTS credits: 10
Course status: ELECTIVE		Total course hours: 60 Lectures: 30 Laboratory: 30	
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	Radiochemistry		
Course aims:	The objective of this course is to explore the fundamental aspects of nuclear and radiochemistry, with emphasis on the determination of radioactive species and the application of nuclear processes, radioactive materials, and radiochemical techniques in chemical analysis.		
Thematic course units:	Natural and artificial radionuclides Radionuclide monitoring Behavior of selected radionuclides in the environment NAA-application in environmental studies Application of radioactivity and radioisotopes in industry Polymer modification Application of radioisotopes in process optimization Non-destructive methods of determination Production and use of radionuclides in medicine and biology Radiopharmaceuticals (labeling methods, the role of techniques in nuclear medicine) Fission Application of nuclear energy Recent trends in the field of radiochemistry		
Learning outcomes:	<p>Knowledge: After the course the student will be able to: acquire knowledge related to selected trends in nuclear chemistry and radiochemistry; explain the behavior of selected natural and artificial radionuclides in environmental matrices; acquire knowledge related to different radiometric and radioanalytical methods applied in different fields of research and technology</p> <p>Skills: Students should be able to: provide baseline data on background radioactivity levels of environment, evaluate the impact of nuclear accidents and incidents, for emergency preparedness and radiation protection for humans and the environment; use radioactive materials and radiological measurement methods in their own work.</p> <p>Competences: This course is designed to provide students fundamental theoretical concepts and calculations that are core to all aspects of radiochemistry within a framework of real-world applications. Students</p>		

	will adopt the major purposes of radionuclide monitoring and the processes for implementing the monitoring program
Teaching methodology:	Auditory lectures, Laboratory exercises
Assessment methods and grading system¹:	Grading criteria
	Criteria Maximal score Required score
	1. Class attendance 5 3
	2. Class activities 10 5
	3. Midterms 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	
Literature²:	<p>Supplementary literature:</p> <ol style="list-style-type: none"> Gregory Choppin, Jan-Olov Liljenzin, Jan Rydberg (2016) Radiochemistry and Nuclear Chemistry: Theory and Applications, 2nd Edition, UK Raymond L. Murray, Keith E. Holbert (2015) Nuclear Energy: An Introduction to the Concepts, Systems, and Applications of Nuclear Processes, 7th Edition, UK W. D. Loveland, D. J. Morrissey, G. T. Seaborg (2005) Modern Nuclear Chemistry, John Wiley & Sons, USA Michael J. Welch, Carol S. Redvanly (2002) Handbook of Radiopharmaceuticals: Radiochemistry and Applications, John Wiley & Sons, USA Peter Scott, Michael Kilbourn (2020) Handbook of Radiopharmaceuticals: Methodology and Applications, Second Edition, John Wiley & Sons, USA

¹ The grading structure for each subject is determined by the 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

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