



<b>Course ID:</b> HDRH31	<b>Course name: RADIOPHARMACEUTICALS</b>		
<b>Cycle:</b> THIRD	<b>Year:</b> FIRST	<b>Semester:</b> II	<b>ECTS credits:</b> 15
<b>Course status:</b> ELECTIVE		<b>Total course hours: 90</b> Lectures: 45 Laboratory: 45	
<b>Teaching participants:</b>	<b>Teachers and associates with expertise in the field to which the subject belongs</b>		
<b>Prerequisite for enrollment:</b>	Radiochemistry		
<b>Course aims:</b>	The aim of this course is introduction of the basic concept of radiation protection, radionuclide production, the use of radioactive isotopes for obtaining labeled pharmaceuticals, as well as to get acquainted with the techniques of preparation and application of the radiopharmaceuticals in diagnosis and therapy.		
<b>Thematic course units:</b>	<p>Basic of GLP, which provides full control of the environment, materials, procedures, equipment, and personnel involved in the preparation of (radio)pharmaceuticals</p> <p>Design of a radiopharmacy lab</p> <p>Fundamental concepts of radiation protection</p> <p>Documentation of radiopharmaceutical procedures</p> <p>Working in a sterile environment</p> <p>Interactions between radiation and matter</p> <p>Use a variety of radioactivity detectors ( PET, SPECT)</p> <p>Production of radioactive nuclides (<math>^{99}\text{Mo}</math> - <math>^{99\text{m}}\text{Tc}</math> generator)</p> <p>Synthesis of target molecules labeled with radionuclides</p> <p>Quality control of radiopharmaceuticals</p> <p>Use of labelled target molecules in clinical diagnostics, medical research, and drug development</p>		
<b>Learning outcomes:</b>			
<b>Teaching methodology:</b>			
<b>Assessment methods and grading system<sup>1</sup>:</b>	<b>Grading criteria</b>		
	Criteria	Maximal score	Required score
	1. Class attendance	5	3

<sup>1</sup> 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. Class activities	10	5
	3. Midterms	45	25
	4. Final exam	40	22
	Total	100	55
	<b>Scores and grading</b>		
	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
<b>Literature<sup>2</sup>:</b>	<p>Supplementary literature:</p> <ol style="list-style-type: none"> <li>1. W. D. Loveland, D. J. Morrissey, G. T. Seaborg (2005) Modern Nuclear Chemistry, John Wiley &amp; Sons, USA</li> <li>2. Michael J. Welch, Carol S. Redvanly (2002) Handbook of Radiopharmaceuticals: Radiochemistry and Applications, John Wiley &amp; Sons, USA</li> <li>3. Peter Scott, Michael Kilbourn (2020) Handbook of Radiopharmaceuticals: Methodology and Applications, Second Edition, John Wiley &amp; Sons, USA</li> <li>4. G.B. Saha (2018) Fundamentals of Nuclear Pharmacy, Springer, 5<sup>th</sup> Edition</li> <li>5. N.Vanlić-Razumenić, Radiofarmaceutici - sinteza, osobine i primena, Velarta, Beograd, 1998</li> </ol>		

<sup>2</sup> 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