



Course ID: HRHI02	Course name: IONIZING RADIATION AND BIOLOGICAL EFFECTS		
Cycle: SECOND	Year: FIRST	Semester: I	ECTS credits: 4
Course status: ELECTIVE	Total course hours: 60 Lectures: 60		
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	-		
Course aims:	The aim of the module is to explain to students the impact of ionizing radiation on tissue and the induction of biological effects, as well as the application of ionizing radiation to prevent the possibility of occurrence of malignant tumors.		
Thematic course units:	<ol style="list-style-type: none">1. Phases of biological activity of ionizing radiation2. Effect of radiation on tissues3. Changes in cells after radiation4. Division of the biological effects of ionizing radiation5. The influence of ionizing radiation on the degree of radiation injury6. Physical basics of radiation application7. Biophysical basics of the action of ionizing radiation8. Acute illness of irradiation of the whole body9. The consequences of radiotherapy of malignant tumors on surrounding organs10. Adverse effects of radiation in medical diagnostics		
Learning outcomes:	Knowledge: Students will gain knowledge about the impact of ionizing radiation on tissues. Skills: Students will be able to interpret changes in cells after radiation. Competences: The use of ionizing radiation in the ability to prevent the formation of malignant tumors.		
Teaching methodology:	Lectures (oral presentation and interactive classes)		
Assessment methods and grading system¹:	Grading criteria		
	Criteria	Maximal score	Required score
	1. Class attendance	5	3
2. Midterm I	25	13,5	

¹The 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

	3. Midterm II	30	16,5
	4. Final exam	40	22
	Total	100	55
	Scores and grading		
	Score	Grade (BiH)	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"> 1. A. Hebrang, R. Klarić-Čustović, Radiologija, Medicinska naklada, Zagreb, 2007 2. D.R. Dance, S.Christofides, A.D.A.Maidment, I.D. McLean, K.H. Ng, Diagnostic Radiology Physics, IAEA, Vienna, 2014 3. S.Vallabhajosula, Molecular Imaging, Radiopharmaceuticals for PET and SPECT, Springer, 2009 4. M.J.Welch, C. S.Redvanly, Handbook of Radiopharmaceuticals, Radiochemistry and Applications, Wiley Inc.USA, 2003 5. W. Loveland, D.J. Morrissey, G.T. Seaborg, Modern Nuclear Chemistry, Wiley Inc.USA 		

²The 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