

Program	Level of studies		First cycle	
	Program name		Physics	
Course name	RADIOLOGICAL PROTECTION			
Course ID	Semester	Course status	ECTS credits	L+E
PAP7411	VII	ELECTIVE	6	2+2
Lecturer	Doc. dr. Adnan Beganović			
Aims and intended learning outcomes	Objective: To give students detailed theoretical and practical knowledge of radiological protection. Outcomes: master and understand modern methods and techniques of radiological protection used in medicine and other activities and apply them in everyday practice			
Course content				
<p>1. Basics of Ionizing Radiation Physics: Sources of ionizing radiation; Physical quantities and units in radiation protection; Basic principles of detection and measurement of ionizing radiation; Dosimetry calculations and measurements; Exercises</p> <p>2. Basics of Radiation Biology: The effects of ionizing radiation at molecular and cellular levels; Deterministic effects; Somatic stochastic effects; Hereditary stochastic effects; Influence on embryo and foetus; Epidemiological studies; Radiation risk; Basics of biodosimetry; Exercises</p> <p>3. Basic principles of radiation protection: Radiation protection system; Basic principles of protection: justification, optimization and dose limitation; The role of international organizations in radiation protection; Safety culture.</p> <p>4. Legal regulations: The legal system in radiation protection and the safe use of sources of ionizing radiation in Bosnia and Herzegovina and the world;</p> <p>5. Radiation Protection in professional exposure: Methods of protection and safe use of sources of ionizing radiation; Optimization principle; Individual monitoring and monitoring of work space; Health surveillance; Potential exposure to ionizing radiation; Estimation of external and internal exposure to ionizing radiation sources; Occupational exposure to ionizing radiation in medicine, industry and scientific research</p> <p>7. Medical exposure to ionizing radiation: Justification of medical exposure to ionizing radiation; Optimization of medical exposure protection; Accidental exposure to ionizing radiation in medical applications</p> <p>8. Emergency Events: General principles and types of possible events; Basic concept of procedures and preparation for nuclear or radiological accidents; Assessment and procedures in case of radiological hazards; Medical care of injuries caused by accidental exposure to ionizing radiation; Public relations; International co-operation.</p>				
Student workload (hours)		Grading		
Lectures and Exercises	60	Assessment method	Points	
Exam preparation	80	Midterm	45	
Other	10	Final	45	
Total	150	Activity	10	
		Total	100	
Literature				
<p>1. Dance DR, Christofides S, Maidment ADA, McLean ID, Ng KH, editors. Diagnostic Radiology Physics: A Handbook for Teachers and Students. Vienna, Austria: IAEA; 2014.</p> <p>2. Pdgoršak EB, editor. Review of Radiation Oncology Physics: A Handbook for Teachers and Students. Vienna, Austria: IAEA; 2005.</p> <p>3. Bailey DL, Humm JL, Todd-Pokropek A, van Aswegen A, editors. Nuclear Medicine Physics: A Handbook for Teachers and Students. Vienna, Austria: IAEA; 2014.</p> <p>4. Johns HE, Cunningham JR. The Physics of Radiology. 4th ed. Springfield, IL: Charles C Thomas; 1983.</p> <p>5. IAEA. Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards. Vienna, Austria: IAEA; 2014.</p>				
Remarks				
Exercises are performed at the Clinical Centre of Sarajevo University.				