

Study Programme: Physics			
Course Unit Title: Fundamentals of nuclear physics			
Course Unit Code: F18ONF			
Name of Lecturer(s): Full Professor Nataša Todorović			
Type and Level of Studies: Bachelor Academic Degree			
Course Status (compulsory/elective): Compulsory			
Semester (winter/summer): Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 7			
Prerequisites: -			
Course Aims: To introduce students with interaction of radiation with matter, nuclear radiation detection and characteristics of radioactive decay.			
Learning Outcomes: General Skills: Gaining knowledge of fundamentals of nuclear physics. Specific Competencies: Gaining knowledge about the interaction of radiation with matter, nuclear radiation detection and radioactive decay.			
Syllabus: <i>Theory</i> Interaction of radiation with matter (Ionization energy loss of charged particles. Bremsstrahlung. Cherenkov radiation. Range. The interaction of gamma radiation with the matter. Detectors of nuclear radiation (gas counters, scintillation spectrometers, semiconductor spectrometers.). Radioactive decay (Radioactive decay law apart. Types of radioactive decay.) Basic properties of atomic nuclei. Composition of the nucleus. Nucleus dimensions. Binding energy. Fission. Fusion. <i>Practice</i> Experimental and computational exercises.			
Required Reading: 1. Joseph Magill, Jean Galy, Radioactivity Radionuclides Radiation, Springer Verlag 2005.			
Weekly Contact Hours:	Lectures: 3	Practical work: 4	
Teaching Methods: Lectures, seminars and practical work.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	20
Practical work	10	oral exam	50
Preliminary exam(s)	-	

Seminar(s)	15		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			