Course Unit Descriptor

Study Programme: Physics			
Course Unit Title: Radiation Detectors			
Course Unit Code: M18DEZ			
Name of Lecturer(s): Full Professor Miodrag Krmar			
Type and Level of Studies: Master Academic Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 8			
Prerequisites: Fundamentals of Nuclear Physics, Nuclear Physics			
Course Aims: Students should acquire knowledge in the field of radiation detection, on the basic ways of functioning of radiation detection devices and about the methods of use.			
Learning Outcomes: General Skills: Adopting specific knowledge in the field of detection of radiation and particles. Specific Competencies: Students should acquire basic practical knowledge related to the detection of all types of radiation. This knowledge should enable them to be successfully in all kinds of activities in which radiation detection is performed, starting from routine use in the applied areas where radiation is used, to different kinds of research tasks.			
Syllabus: *Theory* General characteristics of the detector (Detection efficiency, dead time, energy resolution). Ionization detectors (Ionization and transport phenomena in gases. Ionization chambers, proportional counters, Geiger-Miller counter, Multi-point proportional chambers. Photographic emulsion. Cloud and a bubble chamber. Scintillation detectors (Organic and inorganic scintillators). Photomultipliers. Semiconductor detectors. Cherenkov's detectors. Calorimeters. Neutron detectors. *Practice* Experimental and computational exercises and individual term paper.			
Required Reading: 1. Glenn F.Knoll Radiation Detection and Measurement, John Wiley & Sons, N.York 1979			
Weekly Contact Hours:	**Lectures:** 3	**Practical work:** 2	
Teaching Methods: Lectures and practical work.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	-

Practical work	5	oral exam	70
Preliminary exam(s)	20	…….	
Seminar(s)	-		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			