Study program: Basic academic studies Physics / Integrated master studies Professor of Physics		
Course title: Fundamentals of nuclear physics		
Status of the course: compulsory		
Number of ECTS: 7		
Requirement:		
Course goal To introduce students with interaction of radiation with matter, nuclear radiation detection and characteristics of radioactive decay.		
Outcome **- General skills:** Gaining knowledge of fundamentals of nuclear physics **- Specific competences:** Gaining knowledge about the interaction of radiation with matter, nuclear radiation detection and radioactive decay		
Contents **Theoretical** Interaction of radiation with matter (Ionization energy loss of charged particles. Bremsstrahlung. Čerenkov 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. **Practical lessons:** Experimental and computational exercises		
Literature 1. Joseph Magill, Jean Galy, Radioactivity Radionuclides Radiation, Springer Verlag 2005		
Number of active teaching	**Theoretical classes:** 3	**Study research:** 4
Methods of teaching Lectures (3 times a week, during the term), computing practice (2 time per week during the term), the practical teaching (2 time per week during the term).		