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| <b>Level :</b> Master   |                    |                     |
| <b>Course title:</b> Radiation Detectors  |                    |                     |
| <b>Status:</b> elective   |                    |                     |
| <b>ECTS:</b> 8  |                    |                     |
| <b>Requirements:</b> Fundamentals of Nuclear Physics, Nuclear Physics   |                    |                     |
| <b>Learning objectives</b><br>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.  |                    |                     |
| <b>Learning outcomes</b><br>- General Skills:<br>Adopting specific knowledge in the field of detection of radiation and particles.<br>- Specific Competencies:<br>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.  |                    |                     |
| <b>Syllabus</b><br><i>Theoretical instruction:</i><br>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.<br><i>Practical instruction:</i><br>Experimental and computational exercises and individual term paper. |                    |                     |
| <b>Literature</b><br>1. Glenn F.Knoll Radiation Detection and Measurement, John Wiley & Sons, N.York 1979.  |                    |                     |
| <b>Weekly teaching load</b>   | <b>Lectures:</b> 3 | <b>Exercises:</b> 2 |