UNIVERSITÀ DI PAVIA

Anno Accademico 2017/2018

IONIZING RADIATION LABORATORY COURSE

Enrollment year	2017/2018
Academic year	2017/2018
Regulations	DM270
Academic discipline	FIS/04 (NUCLEAR AND SUBNUCLEAR PHYSICS)
Department	DEPARTMENT OF PHYSICS
Course	
Curriculum	Fisica biosanitaria
Year of study	1°
Period	2nd semester (01/03/2018 - 15/06/2018)
ECTS	6
Lesson hours	60 lesson hours
Language	Italian or English upon request (English friendly course - http://fisica.unipv.it/dida/English-friendly-programme.pdf)
Activity type	ORAL TEST
Teacher	DE BARI ANTONIO (titolare) - 6 ECTS
Prerequisites	Basic notions of interaction of radiation with matter, electronics, statistics and data analysis.
Learning outcomes	Learning the practical use of scintillation detectors, solid-state detectors (HPGe) and health physics instrumentation.
Course contents	Suggested laboratory experiments: - NaI(Tl) Gamma-Ray Spectroscopy System Assembly. - NaI(Tl) Gamma-Ray Spectroscopy System Energy Calibration. - Gamma-Ray Spectrum Analysis. - Unknown Gamma Source Identification. - Energy Resolution.v - Activity of a Gamma Emitter. - Mass Absorption Coefficient Measurements for Gamma-Rays in Pb and Al. - Surface Contamination Evaluation.

	- HPGe Gamma-ray Spectroscopy System Calibration. - Neutron Activation of a Few Samples Followed by Gamma-Ray Spectroscopy Analysis. - Radon Gas Concentration Measurements.
Teaching methods	The course is structured as presentations on screen and laboratory experiments. During the presentations some underlaying theory is refreshed and it is introduced the basic technology of the instruments to be used in laboratory.
Reccomended or required readings	William R. Leo, Techniques for Nuclear and Particle Physics Experiments: A How-To Approach (Springer-Verlag, 2nd revised edition, 1994). PDF format presentations.
Assessment methods	Oral and pratical examination based on the followed experiments and the laboratory notebook. Each student keeps and updates her/his own laboratory notebook.
Further information	The following web page: http://www2.pv.infn.it/~debari/links.html has html hyperlinks to databases and free software that may be used during the laboratory experiments.
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile