



## Subject card

Subject name and code	, PG_00050108						
Field of study	Biomedical Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Physics and Applied Computer Science -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Brygida Mielewska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		2.0		18.0	50
Subject objectives	To show experimental aspects of dozymetry of ionizing radiation						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U02] can perform tasks related to the field of study in an innovative way as well as solve complex and nontypical problems, applying knowledge of physics, in changing and not fully predictable conditions		- improvement in understanding nuclear physics, dosimetry and radiological protection, -ability of physical analysys of functions and phenomena appearing in the presence of ionizing radiation - improvement in understanding methods of graphical data presentation and its analysis, interpretation and concluding from graphs illustrating physical processes - ability of applying of simple physical models - student describes problem on the basis of recommended literature		[SU1] Assessment of task fulfilment		
	[K6_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions		- ability of performing experiments including radioactive sources and proper data presentation - ability of estimating experimental uncertainties directly measured or determined indirectly, - ability of analysis of correlations and its estimation		[SU4] Assessment of ability to use methods and tools		

Subject contents	List of Experiments:  1. Parameters of photon beam profile  2. Determination of accelerator's dose rate  3. Clinical dosimetry  4. Experimental functional imaging		
Prerequisites and co-requisites	Physics - elementary course, Nuclear Physics, Radiological Protection		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	4 lab excercises positively marked and accepted reports	50.0%	100.0%
Recommended reading	Basic literature	W. Łobodziec "Dozymetria promieniowania jonizującego w radioterapii"  Technical Reports series No 398 IAEA "Absorbed dose determination in external beam brachytherapy"	
	Supplementary literature	E.B. Podgorsak "Review of Radiation oncology physics"	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Types of doses in dosymtery		
Work placement	Not applicable		

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