University of Gdańsk

Subject card

Subject name and code	Laboratory of Medical Applications of Physics, PG_00207567						
Field of study	Medical Physics						
Date of commencement of studies	October 2027		Academic year of realisation of subject	2027/2028			
Education level	Master's studies		Subject group	Obligatory subject group in the field of study 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	1		Language of instruction	Polish			
Semester of study	2		ECTS credits	5.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Angelina Łobejko				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	60.0	0.0	0.0	60
	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	60		0.0		65.0	125
Subject objectives	not applicable						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[FIZMEDMU2_W03] Knows and understands to an in-depth degree advanced experimental and numerical techniques that allow for planning and performing complex physical experiments.	The student is familiar with advanced experimental techniques used in nuclear physics laboratories and understands radiation detection methods. The student also understands the process of designing simple experiments in nuclear physics, including the selection of appropriate tools, detectors, data analysis methods and safety procedures.	[SW2] presentation/project/paper/ report
	[FIZMEDMU2_U02] Can plan and conduct an experiment using new or adapt existing methods and tools, and critically analyse the results of measurements, observations or numerical calculations, assessing the accuracy of the results using known methods and tools.	The student is able to apply known methods of radiation detection and experimental techniques to plan and conduct an appropriate experiment. The student is also able to select appropriate detectors and use the right equipment for nuclear analysis in medicine, as well as analyse measurement results and calculations and assess their accuracy.	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[FIZMEDMU2_U05] Can present research results (experimental, theoretical, numerical, medical) in writing, orally, in a multimedia presentation or poster, using specialist terminology.	The student is able to compile the results of nuclear physics experiments in the form of a report, using appropriate specialist terminology in the description. The student is able to analyse and interpret measurement results and formulate correct conclusions based on experimental data.	[SU2] presentation/project/paper/ report
	[FIZMEDMU2_K05] He is ready to fulfil social obligations, inspire and organise activities for the benefit of the social environment, initiate actions for the public interest and take responsibility for carrying out tasks for society.	The student is prepared for responsible teamwork in the implementation of nuclear experiments, compliance with radiation safety rules and scientific research ethics. They are able to inspire others to take a reliable and conscious approach to issues related to nuclear physics and recognise the social role of knowledge in the field of nuclear energy and ionising radiation.	[SK8] observation of student's independent or team work
	[FIZMEDMU2_U01] Can apply the scientific method in solving physical and medical problems, carrying out experiments and drawing conclusions in the field of physics, medical physics and other fields, based on in-depth knowledge, appropriate selection of sources, and mathematical and computer science methods and tools.	The student is able to: – apply experimental techniques for the analysis of radioactive materials, – plan and conduct experiments using radioactive materials, – analyse measurement and calculation results, assess their accuracy and present them in written reports, – use certain nuclear analysis devices in medicine, – work independently and as part of a team	[SU2] presentation/project/paper/ report
	[FIZMEDMU2_W07] Knows and understands the principles of occupational health and safety to a degree that allows for independent work in medical facilities and research laboratories.	The student knows and understands the principles of occupational health and safety in nuclear physics laboratories and medical facilities, and is able to apply them when conducting laboratory experiments. The student also understands the importance of complying with safety rules for their own protection, that of their colleagues, and the laboratory environment.	[SW2] presentation/project/paper/ report

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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[FIZMEDMU2_W04] Knows and understands in depth the theoretical foundations and principles of operation of measurement systems and research, diagnostic and therapeutic equipment specific to the field of physics and medicine.</td><td>The student knows:
– facts and concepts in the field of nuclear physics, advanced experimental and numerical techniques for conducting experiments involving ionising radiation and some of its medical applications,
– thermal imaging technology, methods of analysing its results and possible applications,
– principles of operation of measuring systems used in nuclear analysis laboratories,
– health and safety rules applicable in laboratories with sealed sources.</td><td>[SW2] presentation/project/paper/ report</td></tr>
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<tr><td>Subject contents</td><td>not applicable</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>not applicable</td><td>51.0%</td><td>100.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>not applicable</td></tr>
<tr><td>Supplementary literature</td><td>not applicable</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>not applicable</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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