University of Gdańsk

Subject card

Subject name and code	Study Visits, PG_00182205		
Field of study	Medical Physics		
Date of commencement of studies	October 2027	Academic year of realisation of subject	2028/2029
Education level	Master's studies	Subject group	Obligatory subject group in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	3.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Justyna Strankowska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	0.0	45.0	45

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	45	0.0	30.0	75

Subject objectives

The objective of these study visits is to introduce Medical physics students to the practical aspects of working in various healthcare and research facilities. They are designed to enable students to:

- Understand the specifics of a medical physicist's work in both clinical and research environments.
- Directly observe modern equipment and technology in a real-world setting.
- Network with practicing specialists, which can help them choose a career path and potentially secure internships or jobs.
- Verify the theoretical knowledge gained during their studies against real-world professional problems and challenges.
- Understand the entire lifecycle of medical equipment, from the design and production phase, through clinical implementation, to daily use and maintenance.
- Identify potential career paths within the industry.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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 to: Understand and take responsibility for the quality and safety of patient treatment processes, inspired by observations of medical staff's work. Acknowledge the role of the medical physicist in the therapeutic team and take responsibility for their tasks for the public good. Initiate activities to popularize knowledge about modern methods of oncological treatment, thereby contributing to public education.	[SK1] oral statement/conversation/ discussion
	[FIZMEDMU2_W10] Knows the general principles of creating and developing forms of individual entrepreneurship using knowledge in the field of medical physics.	Defines the principles of establishing and developing entrepreneurial ventures in the field of medical physics, identifying the market potential of advanced diagnostic techniques (MRI, CT, PET), dosimetry services, and R&D activities in light of current legal regulations and safety procedures.	[SW1] oral statement/ conversation/discussion
	[FIZMEDMU2_U08] Can determine directions for further improvement of knowledge and skills (including self-education) within the scope of the chosen specialisation and beyond, and guide others in this area, e.g. through popularisation.	Identifies areas where modern diagnostic and radiotherapy techniques require further research and development, justifying their stance based on observations from study visits. Indicates specific professional and research pathways in medical physics (e.g., in diffusion imaging or radiotherapy planning), defining their personal interests. Popularizes knowledge about advanced medical techniques among non-specialists.	[SU1] oral statement/conversation/ discussion
	[FIZMEDMU2_K02] Is ready to create, adhere to and develop patterns of good conduct, including the principles of professional ethics and intellectual honesty in one's own activities and in the work environment; is aware of ethical issues in the context of research integrity and in the work of a medical physicist.	The student is prepared to: Identify ethical dilemmas and issues related to modern medical technologies (e.g., ethics in diagnostic imaging or radiotherapy). Discuss the responsibilities of a medical physicist concerning research and clinical integrity, based on observations from study visits.	[SK1] oral statement/conversation/ discussion
	[FIZMEDMU2_K06] Is ready to think and act in an entrepreneurial manner.	The student is prepared to: Recognize opportunities for innovation and development in the fields of diagnostics and radiotherapy, such as improving existing techniques or creating new solutions. Identify potential market gaps and formulate project concepts that can streamline processes in medical facilities. Assess the economic effectiveness of various medical technologies when considering their implementation in a facility.	[SK1] oral statement/conversation/ discussion

Course outcome	Subject outcome	Method of verification
[FIZMEDMU2_U06] Can effectively communicate on specialised topics in the field of physics and medical physics with diverse audiences (specialists and non-specialists), skillfully justifying his/her position.	Explains the principles of operation of modern medical equipment (e.g., linear accelerators) and diagnostic/ therapeutic processes (e.g., MR spectroscopy, brachytherapy) in a way that is understandable to various audiences. Justifies the selection of specific treatment and diagnostic techniques within a clinical case, using appropriate specialized language when speaking with experts and simple language when communicating with patients or laypeople. Formulates questions for specialists (e.g., medical physicists or radiologists) regarding clinical processes, demonstrating a thorough understanding of the presented material.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[FIZMEDMU2_U10] He can lead a debate.	Leads a discussion on technologies used in diagnostic imaging (MR, CT, PET/CT) and radiotherapy, formulating clear arguments and answering questions. Compares and evaluates various medical imaging and radiotherapy techniques, presenting their advantages and disadvantages in a clinical context.	[SU1] oral statement/conversation/ discussion

Subject contents

The study visit program includes:

Modern Diagnostic Imaging Techniques: This involves observing the operation of equipment such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT), PET/CT, and SPECT/CT. Students will learn the principles of image formation and reconstruction in various modalities, including advanced techniques like spectroscopy and diffusion imaging.

Radiotherapy: Students will gain an understanding of the entire oncological treatment process, from treatment planning using Treatment Planning Systems (TPS) to its execution with modern linear accelerators and techniques like IMRT, VMAT, and brachytherapy.

Dosimetry and Quality Assurance: This covers the practical aspects of equipment calibration, performing quality assurance (QA) tests on diagnostic and therapeutic equipment, and assessing the radiation doses received by patients and staff.

Legal and Ethical Aspects of the Profession: Students will become familiar with radiological safety procedures and the medical physicist's responsibilities concerning supervision and documentation.

The Role of the Medical Physicist: This section provides an opportunity to verify theory against practice by directly observing a medical physicist's daily duties within an interdisciplinary team, including in a research and development (R&D) and industrial context (medical equipment manufacturing).

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Debate	51.0%	50.0%
Raport	51.0%	50.0%

Recommended reading

Basic literature	not applicable
Supplementary literature	not applicable
eResources addresses	

Example issues/ example questions/ tasks being completed

not applicable

Work placement

Not applicable

Document generated electronically. Does not require a seal or signature.