

Subject card

Subject name and code	Research/Professional Project, PG_00165984						
Field of study	Quantum Information Technology						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		English		
Semester of study	4		ECTS credits		10.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paweł Mazurek				
	Teachers		dr hab. inż. Marek Krośnicki				
			dr hab. Thomas Złotnik				
			dr Felix Huber				
			dr Antonio Mandarino				
			dr Akshata Shenoy				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	195.0	0.0	0.0	195
	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	195		0.0		0.0	195
Subject objectives	The aim of the subject is to make the student part of the ongoing active research in the area of Quantum Information Technologies, to foster connections with other scientists, and to prepare the student to work as an independent reseracher in academia or industry.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[QITL3_U10] can popularize science within quantum information theory or related areas of physics	Student can present their research project using a non-technical language	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report
	[QITL3_K09] can think and act in an entrepreneurial way	Student can pinpoint to possible application of their results in technology and industry, is aware about patent procedures and copyright laws	[SK1] oral statement/conversation/discussion
	[QITL3_U07] can present research results (experimental, theoretical or numerical) in written, oral, multimedia presentation or poster form	Student can present results of the research project through a talk or a poster	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report
	[QITL3_K08] is able to formulate competent opinions on professional issues and opinions on certain issues that concern general audience	Student can present their research project to the general audience in a non-technical language, can explain challenges and opportunities offered by Quantum Information Technology, and can put the research in the wider context of scientific progress	[SK1] oral statement/conversation/discussion [SK3] text preparation/written work
	[QITL3_K06] is aware of the risks of obtaining information from unverified sources, including those from the Internet	Student knows effective and reliable ways of conducting literature search and is aware about mechanisms related to misinformation, manipulation and fraud in science	[SK1] oral statement/conversation/discussion
	[QITL3_K04] understands and appreciates the importance of intellectual honesty in one's own and other people's actions; is aware of ethical problems in the context of research integrity	Student understands and appreciates ethical way of conduct in research, publishing, patent and copyright laws	[SK1] oral statement/conversation/discussion
	[QITL3_K03] can work individually and in a team; is aware of responsibility for jointly performed tasks	Student can perform literature search, calculations and writing, as well as participates in discussions about the master project with his collaborators, is aware about responsibility for timely and accurately addressing tasks within the research project	[SK1] oral statement/conversation/discussion [SK3] text preparation/written work [SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[QITL3_U12] can use a selected foreign language to the extent that allows for independent supplementation of education and communication with specialists in the same or related specialization	Student can present their research project to international specialists in the field	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU3] text preparation/written work
	[QITL3_U06] is able to adapt to related scientific disciplines the knowledge and theoretical methods and methodology of physics	Student can relate the methodology used in the research project to research in similar fields	[SU1] oral statement/conversation/discussion
	[QITL3_W10] knows the general principles of creating and developing forms of individual entrepreneurship, using knowledge in the field of physics and other exact and natural sciences	Student knows regulations regarding copyright related to the results obtained within the research project	[SW1] oral statement/conversation/discussion
	[QITL3_W09] knows and understands the basic concepts and principles of industrial property and copyright protection and the need to manage intellectual property resources; knows the rules for using patent information resources	Student is aware about patent laws relevant from the perspective of the research project	[SW1] oral statement/conversation/discussion
	[QITL3_W07] knows the principles safety rules to the extent that allows for independent work in the area corresponding to the chosen specialization	Student knows the rules of safety in the research environment where the research project is conducted	[SW1] oral statement/conversation/discussion
	[QITL3_U09] can work independently and in a team	Student can perform literature search, calculations and writing, as well as participates in discussions about the research project with the collaborators	[SU3] text preparation/written work [SU5] implementation of a problem task [SU8] observation of student's independent or team work

	Course outcome	Subject outcome	Method of verification
	[QITL3_U05] has the ability to synthesize methods and ideas from various areas of physics and other branches of science; is able to notice that distant phenomena are sometimes described by similar models	Student can relate the models used in the research project to other fields of science and technology, and can suggest ways the research project can benefit from taking inspiration from them, or how the results can be used in advancing other fields	[SU1] oral statement/conversation/discussion [SU3] text preparation/written work
	[QITL3_U08] is able to communicate effectively with both specialists and non-specialists regarding issues relevant to the studied area	Student is aware about ethical way of conduct in reserach, in particular in the research project	[SU1] oral statement/conversation/discussion
	[QITL3_K07] is aware of responsibility for research tasks executed as team	The student can perform literature search related to the research project, calculations and writing, as well as participates in discussions about the research project with his collaborators, is aware about responsibility for timely and accurately addressing his/her tasks	[SK1] oral statement/conversation/discussion [SK3] text preparation/written work [SK5] implementation of a problem task [SK8] observation of student's independent or team work
Subject contents	Participation in research project: discussions, literature search, research planning, calculations, simmlations, writing scientific paper, preparing poster/oral presentations of the results		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	evaluation of the project report or presentation of the results	51.0%	100.0%
Recommended reading	Basic literature	Depending on the research project.	
	Supplementary literature	None.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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