University of Gdańsk

Subject card

Subject name and code	Research Project, PG_00182309						
Field of study	Physics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2028/2029		
Education level	Bachelor'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	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		5.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Michał Studziński				
	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		60.0	120
Subject objectives	The aim of the course is to familiarize the student with elements of independent scientific and project work through active participation in ongoing research conducted at the Faculty. The student becomes acquainted with advanced measurement equipment, experimental and numerical methods, as well as theoretical research methodology, including model formulation, mathematical analysis, and computer simulations. During the internship, the student takes part in the work of one of the research groupseither theoretical or experimentalaccording to individual preferences. Assignment to a particular research group takes place after a preliminary meeting with the group leader and depends on his/her decision. The internship provides an opportunity to experience diverse research approaches and tools, and helps develop skills in teamwork, communicating results, and adhering to the principles of scientific ethics.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[FIZL3_U15] can work in a team, plan and organize his/her own work and in a team	The student is able to work effectively in a research team, taking on different roles and responsibilities; the student is able to plan and organize both their own work and the group's activities, establishing tasks, a schedule, and methods of communication.	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work [SU8] observation of student's independent or team work
[FIZL3_U16] can independently plan and implement his/her own learning	The student is able to independently plan the stages of a project (theoretical or experimental), defining objectives and a schedule of activities; the student is able to select and expand the necessary knowledge and skills, using scientific literature and available tools, in order to carry out research tasks effectively.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU8] observation of student's independent or team work
[FIZL3_U17] can competently express opinions and actively participate in discussions and debates on the problems of physics and its applications	The student is able to present and justify the results of their own project (theoretical or experimental) in oral or written form, using appropriate physics terminology; the student is able to take an active part in scientific discussion by asking questions, responding to comments, and defending their position in relation to problems in physics and its applications.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work
[FIZL3_U10] is able to independently search for information in Polish and English-language professional and popular science literature, as well as on the Internet	The student is able to independently search for and select information necessary for the implementation of a project in Polish- and English-language scientific and popular-science literature, as well as in reliable online sources; the student is able to critically evaluate the quality and reliability of the collected data and use it to develop their own research and present the results.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU5] implementation of a problem task [SU8] observation of student's independent or team work

Subject contents	The course content is flexible, and its detailed scope depends on the choice of research group (including the specific project) as well as the students individual interests and skills. Below are examples of activities that may be undertaken during the research project: **Introduction to research work:** -Familiarization with the topics and current projects of the selected research group. -Preparation of a comprehensive literature review with discussion -Overview of safety regulations, research ethics, and laboratory procedures. **Project in a theoretical group (scope depending on specialization):** -Learning selected analytical and numerical methods. -Formulating and analyzing theoretical models, including carrying out ones own calculations or computer simulations. **Project in an experimental group (scope depending on available equipment):** -Preparation, calibration, and operation of research apparatus. -Participation in planning and conducting measurements, data collection, and preliminary analysis. **Integration and presentation of results:** -Preparation of a report in the form of a scientific article based on the completed research project. Specific tasks, methods, and the schedule are determined individually in consultation with the head of the selected research group and the students supervisor after preliminary discussions with the student. The program may include both experimental and theoretical activities in proportions that match the students aptitudes and interests.
Prerequisites and co-requisites	**A. Formal requirements:** completion of courses thematically related to the internship topic at the bachelors level (years 1 and 2). **B. Prerequisites:** knowledge of selected areas of physics at the level of the 1st and 2nd year of bachelors studies.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Report from the project in the form of a scientific article.	51.0%	100.0%

Recommended reading

Basic literature	Appropriate to the subject matter of the research conducted in the given research group and to the students interests. The reading list should be proposed by the students research supervisor in consultation with the head of the research group.
Supplementary literature	Relevant to the subject matter of the research carried out in the given research group and to the students interests. A supplementary reading list should be proposed by the students research supervisor in consultation with the head of the research group.
eResources addresses	

Example issues/ example questions/ tasks being completed	1. Research Group Theoretical Example topic: Simulations of the quantum dynamics of a chosen many-body system. 2. Research Group Experimental Example topic: Optical characterization of semiconductor materials.
Work placement	Not applicable

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