

Subject card

Subject name and code	Atomic and molecular physics - exercises, PG_00158356						
Field of study	Physics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
Education level	Bachelor'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	3		Language of instruction		Polish not applicable		
Semester of study	6		ECTS credits		4.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Ryszard Drozdowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	45.0	0.0	0.0	0.0	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		45.0	90
Subject objectives	not applicable						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[FIZL3_W10] has knowledge about the elementary components of matter and the types of fundamental interactions between them, about the manifestations of these interactions in phenomena occurring at various scales from subatomic to astronomic, knows the time and energy scales associated with these phenomena	not applicable	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
	[FIZL3_K01] knows the limitations of his own knowledge and understands the need for further education	not applicable	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
	[FIZL3_U06] can use the formalism of quantum physics to describe physical phenomena in the microworld	not applicable	[SU3] text preparation/written work
	[FIZL3_U05] can describe electric and magnetic fields in vacuum and in material media, as well as physical phenomena occurring in electric circuits; can classify material media by the way they interact with an external electromagnetic field	not applicable	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
	[FIZL3_U01] can formulate basic physical laws using mathematical formalism	not applicable	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
	[FIZL3_W02] understands the role of physical experiments, mathematical theoretical models approximating reality and computer simulations in the methodology of scientific research; is aware of technological, equipment and methodological limitations in scientific research	not applicable	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
	[FIZL3_W01] has advanced knowledge of physical concepts, principles and theories, understands their historical development and significance not only for physics, but also for other exact and natural sciences and cognition of the world	not applicable	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
	[FIZL3_U07] has the ability to quantitatively analyze vibrational and wave motion and describe optical and acoustic phenomena and the interaction of light with matter	not applicable	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
	[FIZL3_U09] knows how to extrapolate the results obtained in the Earth laboratory to the Universe	not applicable	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
	[FIZL3_K02] can precisely formulate problems to deepen understanding of a given topic	not applicable	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
	[FIZL3_K08] is able to speak competently on basic problems of physics and its applications	not applicable	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
	[FIZL3_K05] understands the need and importance of popularizing physical knowledge	not applicable	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
	[FIZL3_U16] can independently plan and implement his own learning	not applicable	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
Subject contents	not applicable		
Prerequisites and co-requisites	not applicable		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	not applicable	51.0%	100.0%
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	

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