



## Subject card

Subject name and code	Physics II, PG_00044797						
Field of study	Geodesy and Cartography						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	first-cycle 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Anna Rybicka				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	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		9.0		56.0	125
Subject objectives	Knowledge of electrical and magnetical field.						
	Knowledge of geometrical and wave optics.						
	Knowledge of basic modern physics problem.						
	Ability to analyze physical phenomena and solving engineering problems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U02] can make basic geodetic drawings and read an architectural technical drawing		Students understand physical laws and solve problems on the basis of them.		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W01] has knowledge and understands the concepts of physics which allow to use optical and immersive instruments as well as positioning and satellite imaging		Students recognize basic physical phenomena; can formulate, explain and use fundamental laws of classical and modern physics.		[SW1] Assessment of factual knowledge		

Subject contents	<p>Basic laws of electricity and magnetism (Coulomb's, Gauss's, Ampere's, Biot-Savart's, Faraday's laws).</p> <p>Basic laws of geometric and wave optics.</p> <p>Black body radiation.</p> <p>Quantum theory of light.</p> <p>Models of an atom.</p> <p>Radioactivity.</p>											
Prerequisites and co-requisites	Continuation of course of physics, given during the first semester.											
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Subject passing criteria</th> <th style="width: 33%;">Passing threshold</th> <th style="width: 33%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Practical test II</td> <td>50.0%</td> <td>50.0%</td> </tr> <tr> <td>Practical test I</td> <td>50.0%</td> <td>50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Practical test II	50.0%	50.0%	Practical test I	50.0%	50.0%
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	Practical test II	50.0%	50.0%									
Practical test I	50.0%	50.0%										
Recommended reading	<p>Basic literature</p> <p>Ohanian, Markert, Physics for Engineers and Scientists, NY Norton, 2007</p> <p><a href="http://www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne_(University_Physics)">www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne (University Physics)</a></p>											
	<p>Supplementary literature</p> <p>Tipler, Llewellyn, Modern Physics, 6ed Freeman, 2012</p>											
	<p>eResources addresses</p> <p>Adresy na platformie eNauczenie:</p>											
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Determine the electric field, coming from a given distribution of point charges.</li> <li>2. Describe the motion of a charged particle in a magnetic field.</li> <li>3. Determine the velocity of electrons in the photoelectric effect.</li> <li>4. Determine the energy of the electron according to Bohr's postulates.</li> </ol>											
Work placement	Not applicable											

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