



Subject card

Subject name and code	Physics of electronic collisions, PG_00021073						
Field of study	Technical Physics						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Fizyki Zderzeń Elektronowych -> Instytut Fizyki i Informatyki Stosowanej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Paweł Możejko					
	Teachers	dr hab. Paweł Możejko					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30	0.0		0.0	30	
Subject objectives	Fundamentals of the physics of electron collisions. Review of the basic experimental and theoretical methods used in the study of electron scattering on atoms and molecules.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U09						
	K6_W02						
Subject contents	1) Collisional processes 2) Total cross section and differential cross section 3) Linear transmission method - total cross-sections measurements 4) Basic methods of generating and monoenergizing electron beams 5) Theoretical description of the collision process 6) Elastic scattering of two identical spin-less particles in the Born approximation 7) Partial wave analysis						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		exam	65.0%
Recommended reading	Basic literature	1) S.P. Khare "Introduction to the Theory of Collisions of Electrons with Atoms and Molecules" Springer DOI 10.1007/978-1-4615-0611-9 2) I. Shimamura, K. Takayanagi "Electron-Molecule Collisions" Springer DOI: 10.1007/978-1-4613-2357-0	
	Supplementary literature	H. Massey "Zderzenia atomowe i cząsteczkowe" PWN 1982	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1) Give the assumptions of the linear transmission method. 2) Define the total and differential cross section.		
Work placement	Not applicable		