

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Physics		Code 1010804121010420024
Field of study Electronics and Telecommunications	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 30 Classes: 15 Laboratory: - Project/seminars: -		No. of credits 6
Status of the course in the study program (Basic, major, other) basic		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 6 100% 6 100%
Responsible for subject / lecturer: dr Danuta Stefańska email: danuta.stefanska@put.poznan.pl tel. 61 665 3232 Wydział Fizyki Technicznej ul. Nieszawska 13 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	fundamental knowledge of physics and mathematics (program basis for high schools, standard level)
2	Skills	skills in solving elementary problems in physics based on the knowledge possessed, ability to extract information from the recommended sources
3	Social competencies	understanding of the necessity of extending one's competences
Assumptions and objectives of the course: 1. Transfer of fundamental knowledge in physics, within the range defined by the program relevant for the field of study 2. Development of skills in solving elementary problems and performing simple experiments, as well as the analysis of results obtained, based on the knowledge possessed 3. Development of skills in self-study		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. student can define basic physical concepts, within the range covered by program relevant for the field of study, and indicate simple examples of their application in the surrounding world - [K_W02] 2. student can formulate and explain fundamental physical laws, within the range covered by program relevant for the field of study, define general restrictions and the range of their applicability, give examples of their application in phenomena in the surrounding world - [K_W02] 3. student can explain the aim and meaning of simplified models in description of physical phenomena - [K_W02]		
Skills: 1. student can use, with understanding, the recommended sources of knowledge (basic references list), as well as gain knowledge from other sources - [K_U01, K_U05] 2. student can formulate simple conclusions on the basis of the obtained results of calculations - [K_U01, K_U08] 3. student can apply basic physical laws and simple models in solving simple problems within the range covered by program relevant for the field of study - [K_U08]		
Social competencies: 1. student can get actively involved in solving problems stated, develop and extend his (her) competences unaided - [K_K01]		

Assessment methods of study outcomes	
<p>W01,W02,W03: written/oral exam 3.0: 50.1%-60.0% 3.5: 60.1%-70.0% 4.0: 70.1%-80.0% 4.5: 80.1%-90.0% 5.0: from 90.1%</p> <p>U01: solving problems in physics at auditory classes, written/oral exam, written test</p> <p>U02: solving problems in physics at auditory classes</p> <p>U03: written test 3.0: 50.1%-60.0% 3.5: 60.1%-70.0% 4.0: 70.1%-80.0% 4.5: 80.1%-90.0% 5.0: from 90.1%</p> <p>K01: activity at auditory classes</p>	
Course description	
<p>1.Electromagnetism part II - electric current - magnetostatics (including: Ampere's law) - electromagnetic induction (including: Faraday's law) -electromagnetic waves (including: energy and momentum, polarization)</p> <p>2.Optics - geometrical optics (including: reflection and refraction laws) - wave optics (including: interference and diffraction)</p> <p>3.Fundamentals of quantum physics - quantum nature of light - wale properties of matter - elementary problems of atomic structure</p> <p>4.Elements of modern physics (short review) - selected problems in atomic, solid state, nuclear and elementary particie physics - selected problems relevant for the field of studies (atomic time and frequency standards, basics of quantum computing)</p>	
Basic bibliography:	
<p>1. D.Halliday, R.Resnick, J.Walker, Podstawy fizyki t 1-5, PWN Warszawa 2003 2. K.Jeziński, B.Kołodka, K.Sierański, Fizyka. Zadania z rozwiązaniami t 1-2, Oficyna Wydawnicza Scripta, Wrocław</p>	
Additional bibliography:	
<p>1. J.Masalski, Fizyka dla inżynierów t.1-2, WNT Warszawa 1980</p>	
Result of average student's workload	
Activity	Time (working hours)
1. participation in lectures	30
2. participation in auditory classes	15
3. preparation for auditory classes	36
4. preparation for written test	30
5. participation in consultation concerning education process, in particular auditory classes	15
6. preparation for exam	50
7. participation in exam	4

Student's workload		
Source of workload	hours	ECTS
Total workload	180	6
Contact hours	64	2
Practical activities	51	2