

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Physics</b>		Code <b>1010804111010420024</b>
Field of study <b>Electronics and Telecommunications</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>30</b> Classes: <b>-</b> Laboratory: <b>15</b> Project/seminars: <b>-</b>		No. of credits <b>6</b>
Status of the course in the study program (Basic, major, other) <b>basic</b>		(university-wide, from another field) <b>university-wide</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>6 100%</b> <b>6 100%</b>
<b>Responsible for subject / lecturer:</b>  dr Danuta Stefańska email: danuta.stefanska@put.poznan.pl tel. 61 665 3232 Wydział Fizyki Technicznej ul. Nieszawska 13 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	fundamental knowledge of physics and mathematics (program basis for high schools, standard level)
2	<b>Skills</b>	skills in solving elementary problems in physics based on the knowledge possessed, ability to extract information from the recommended sources
3	<b>Social competencies</b>	understanding of the necessity of extending one's competences, readiness to cooperate within a team
<b>Assumptions and objectives of the course:</b> 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 and team work		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 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]		
<b>Skills:</b> 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 measurements performed - [K_U01, K_U08] 3. student can plan and perform standard measurements concerned with basic physical phenomena, identify and judge the importance of basic factors disturbing the measurement - [K_U08] 4. student can perform a qualitative and quantitative analysis of the results of simple physical experiments - [K_U08]		
<b>Social competencies:</b>		

1. student can get actively involved in solving problems stated, develop and extend his (her) competences unaided - [K\_K01]  
 2. student can cooperate within a team, fulfill the duties resulting from division of team work, show responsibility for his (her) own work and joint responsibility for the results of team work - [K\_K02]

### Assessment methods of study outcomes

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%

U01: laboratory classes report, oral and written answers, written/oral exam

U02, U03, U04: laboratory classes report, oral and written answers

K01: activity at laboratory classes

K02: realization of laboratory exercise

### Course description

1.Classical mechanics

- classification of the modes of motion
- kinematics and dynamics of translatory motion (including: laws of dynamics, conservation laws for energy and momentum)
- kinematics and dynamics of rotary motion (including: laws of dynamics, conservation law for angular momentum)
- harmonic oscillations ? simple and driven (including: resonance phenomenon)
- mechanical waves
- gravity interactions

2.Fundamentals of special relativity

3.Thermodynamics

- temperature, 0 thermodynamics law
- heat and mechanical work, I thermodynamics law
- elements of kinetic theory of gases
- entropy, II thermodynamics law

4.Electromagnetism, part I

- electrostatics (including: Gauss law)

### Basic bibliography:

1. D.Halliday, R.Resnick, J.Walker, Podstawy fizyki t 1-5, PWN Warszawa 2003
2. St.Szuba, Ćwiczenia laboratoryjne z fizyki, Wydawnictwo Politechniki Poznańskiej, Poznań 2007

### Additional bibliography:

1. J.Masalski, Fizyka dla inżynierów t.1-2, WNT Warszawa 1980
2. H. Szydłowski, Pracownia fizyczna, PWN, Warszawa 2003

### Result of average student's workload

Activity	Time (working hours)
1. participation in lectures	30
2. participation in laboratory classes	15
3. preparation for laboratory classes	36
4. preparation of laboratory classes reports	30
5. participation in consultation concerning education process, in particular laboratory classes	15
6. preparation for exam	50
7. participation in exam	4

<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	180	6
Contact hours	64	2
Practical activities	96	3