

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Physics		Code 1010604111010410206
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
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: 20 Classes: - Laboratory: 10 Project/seminars: -		No. of credits 6
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 6 100%
Responsible for subject / lecturer: Prof. dr hab. Danuta Wróbel email: danuta.wrobel@put.poznan.pl tel. 61 665 3179 Wydział Fizyki Technicznej ul. Nieszawska 13a, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of physics and mathematics from secondary school
2	Skills	Skills in solving of physical problems; classical mechanics, electricity, optics. Skills in getting information from the research data sources
3	Social competencies	Understanding of necessity to develop own competency, readiness for cooperation in a student team and other groups, and in taking decision in student community.
Assumptions and objectives of the course: The subject belongs to a group of the basic physics at the 1st stage of education of the stationary studies program. Objectives of the course: the aim of the lecture is to give knowledge to students on the basic phenomena and laws in physics. The aim of the classes and laboratory exercises is to get knowledge by students on the topic how to solve physical problems by task text and experiment.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. posses knowledge in physical phenomena and processes essential in the area of classical physics; has sufficient knowledge in field of basic physics. - [K1A_W01] 2. has knowledge about physics, including the basis of classical mechanics, electricity and magnetism; he knows and understands phenomena and processes occurring in physical systems and knows the mathematical approach to study physical problems. - [K1A_W01] 3. has a basic knowledge in the main branches of technical mechanics: statics, kinematics and dynamics of a particle and rigid body. - [K1A_W02] 4. is able to characterized physical systems by determination of essential phenomena and physical processes; knows how to take advantage from knowledge of physics in engineering. - [K1A_W03] 5. knows the current stage of physics and in development of physics; realizes the needs of advance of physics in engineering and technology. - [K1A_W04]		
Skills:		

<p>1. is able to take advantage from a knowledge in basic physics and to use a knowledge to describe physical processes and phenomena - [K1A_U01]</p> <p>2. is able to take advantage from mathematical methods in solving physical problems and to do experiments and measurements and evaluate physical parameters; is responsible for experimental results and their interpretation; is able to explain the aim and meaning of the simple physical models used in physics - [K1A_U02]</p> <p>3. is able to get information from literature, data website, and other sources; is able to interpret the results of physical experiments and draw conclusions. - [K1A_U03]</p>
<p>Social competencies:</p> <p>1. understands the need of permanent education (first, second and third levels of education and education in other fields); extending of own competition - [K1A_K01]</p> <p>2. is able to think and act in creative manner - [K1A_K02]</p>

Assessment methods of study outcomes	
<p>1. Lecture: Testing of student 's knowledge.</p> <p>2. Classes: Testing of student's knowledge and skills in solving tasks in the field of physics on the basis of short written tests and testing of student's preparation to the current classes.</p> <p>3. Laboratory: Testing of student's preparation to experimental classes, testing of student's theoretical knowledge and skills in current experimental measurements. Checking of the student previous exercises protocol. Written exam ? student scores</p> <p>2 - < 50%</p> <p>3 - 51%-70%</p> <p>4 - 71%-90%</p> <p>5 ? from 91%</p> <p>Student activity during the lectures</p>	
Course description	
<p>Lectures and classes following topics are presented: basis of classical mechanics: kinematics, dynamics of a particle and rigid body, gravitation, harmonic motion, wave motion, relativistic mechanics, electrostatics, electricity, electric current, Faraday electromagnetic induction, Ampere laws, Maxwell laws, electromagnetic wave. Laboratory exercises: selected experiments of mechanics, electricity, optics.</p>	
Basic bibliography:	
<p>1. D. Halliday, R. Resnick, J. Walker, Podstawy fizyki t 1-5, PWN Warszawa 2004.</p> <p>2. K.Jeziński, B.Kołodka, K.Sierański, Fizyka. Zadania z rozwiązaniami t 1-2, Oficyna Wydawnicza Scripta, Wrocław</p> <p>3. St.Szuba, Ćwiczenia laboratoryjne z fizyki, Wydawnictwo Politechniki Poznańskiej, Poznań 2007</p>	
Additional bibliography:	
<p>1. J. Orear, Fizyka, WNT 1990.</p> <p>2. J. Masalski, Fizyka dla inżynierów t.1-2, WNT Warszawa 1980.</p> <p>3. K.Łapsa, Ćwiczenia laboratoryjne z fizyki, Wydawnictwo Politechniki Poznańskiej, Poznań 2008</p> <p>4. H. Szydłowski, Pracownia fizyczna, PWN, Warszawa 2003</p>	
Result of average student's workload	
Activity	Time (working hours)

1. Participation in lectures	30	
2. Participation in classes	15	
3. Participation in laboratory experiments	15	
4. Preparation to classes	24	
5. Preparation to classes	7	
6. Preparation to experimental laboratory ? practical classes	18	
7. Preparation of reports from laboratory experiments (home-work)	18	
8. Direct contact with academic teachers, Individual contact with lecturer	6	
9. Preparation to exam	32	
10. Presence in exam	6	
Student's workload		
Source of workload	hours	ECTS
Total workload	60	6
Contact hours	15	0
Practical activities	0	0