STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Physics		**1011104211011000382**
Field of study	Profile of study (general academic, practical)	Year /Semester
Safety Engineering - Part-time studies - First-	**(brak)**	**1 / 1**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**
Cycle of study:	Form of study (full-time,part-time)	
First-cycle studies	**part-time**	
No. of hours		No. of credits
Lecture: **10** Classes: **10** Laboratory: **10** Project/seminars: **-**		**6**
Status of the course in the study program (Basic, major, other)	(university-wide, from another field)	
(brak)	**(brak)**	
Education areas and fields of science and art		ECTS distribution (number and %)
technical sciences		**6 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student: has a basic knowledge of physics and mathematics (program basis for high schools, basic level)
2	**Skills**	Student can obtain information from literature, databases and other sources, is able to solve problems (simple) in physics.
3	**Social competencies**	Understanding of the need to expand their competence, their willingness to cooperate within the team.

Assumptions and objectives of the course:

Objectives of the course:

1 Provide students with a basic knowledge of physics, to the extent specified by the curriculum relevant to the field of study.

2. Acquisition of the ability to solve problems in physics

3 Acquisition of the ability to perform simple experiments and the analysis and evaluation of the result of an error on the basis of acquired knowledge.

4 Development of the students' teamwork skills

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. - has a basic knowledge of physics, (including mechanics, optics, electricity, magnetism)including the knowledge necessary to understand the physical phenomena - [K1_W02]

Skills:

1. - can obtain the informations from literature, databases and other sources, is able to integrate the informations, make the interpretation of them, as well as draw conclusions and formulate and justify opinions - [K1_U01, K1_U05]

2. - is able to work independently and in a team, is able to estimate the time needed for the commissioned tasks, is able to develop and implement a schedule of work to ensure deadlines - [K1_U08]

Social competencies:

1. - is unconscious of responsibility for his own work and a willingness to comply with the principles of teamwork and sharing responsibility for the implementation of tasks - [K1_K01, K1_K02]

Assessment methods of study outcomes

Lecture: written and oral
Auditory classes: solving problems in physics, final colloquium
Laboratory: laboratory reports, written and oral answers

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%)

Course description

kinematics of a material point (linear motion and curvilinear)
dynamics of material point (Newton's principles, friction, momentum, work, power and energy)
rigid body dynamics (force momentum and moment of inertia, Steiner?s Theorem, principles of dynamic rotational motion, angular momentum, kinetic energy of rotation)
conservation laws in mechanics (the law of conservation: momentum, angular momentum, energy),
the collision of bodies (perfectly elastic and inelastic) statics of rigid bodies (simple machines)
harmonical vibration (free and forced ? phenomenon of resonance
mechanical waves (reflection and refraction, phenomena of diffraction and interference, Doppler effect, the bascis of acoustics)
electric field (Coulomb's law, the intensity and the potential of the electric field, the work force of the electric field)
electric current
magnetic field (Lorentz force, electrodynamic force)
electromagnetic induction (fluxinduction Faraday's law of induction, Lenz's law),
electromagnetic waves (Maxwell equations)
geometric and wave optics

Basic bibliography:

1. D. Halliday, R. Resnick, J. Walker, ?Podstawy fizyki? t. I - IV, PWN, Warszawa 2005.
2. J. Massalski, M. Massalska, ?Fizyka dla inżynierów? t.I, WNT, Warszawa 2006.
3. K. Jezierski, A. Kołodka, K. Sierański, ?Fizyka - zadania z rozwiązaniami?, t. 1-2, Wydawnictwo Scripta, Wrocław 2009
4. St. Szuba, ?Ćwiczenia laboratoryjne z fizyki?, Wydawnictwo Politechniki Poznańskiej, Poznań 2007

Additional bibliography:

1. Cz. Bobrowski, ?Fizyka - krótki kurs dla inżynierów?, WNT, Warszawa 2004.
2. H. Szydłowski, ?Pracownia fizyczna? PWN, Warszawa 2003r.

Result of average student's workload

Activity	Time (working hours)
1. - Participation in lectures,	10
2. - Participation in auditory classes	10
3. - Participation in laboratory classes	10
4. - Preparation for auditory classes	32
5. - Preparation for laboratory classes	22
6. - Preparation for laboratory classes reports	20
7. - Preparation for exam	25
8. - Participation in consultations	3
9. - Participation in exam	2

Student’s workload

Source of workload	hours	ECTS
Total workload	134	6
Contact hours	35	2
Practical activities	20	1