STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Technical Physics		**1011101231011100146**
Field of study: **Engineering Management - Full-time studies -**	Profile of study (general academic, practical): **(brak)**	Year /Semester: **2 / 3**
Elective path/specialty: **-**	Subject offered in: **Polish**	Course (compulsory, elective): **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time): **full-time**	
No. of hours: Lecture: **30** Classes: **15** Laboratory: **-** Project/seminars: **-**		No. of credits: **4**
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		ECTS distribution (number and %)

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basics of physics and mathematics ? secondary school level.
2	**Skills**	solving elementary physics problems based on their knowledge, ability to acquire information from identified sources.
3	**Social competencies**	Understanding of the need to expand their competence, their willingness to cooperate within the team.

Assumptions and objectives of the course:

-Students should obtain knowledge of fundamentals physical phenomena and their theoretical descriptions on the academic level.

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

Knowledge:

1. Formulate and explain the basic laws of physics in an embrace by the content of the curriculum appropriate to the field of study. - [K04-InzA_W02]
2. Explain the purpose and importance of simplified models in the description of physical phenomena. - [K07-InzA_W5]

Skills:

1. Apply the basic laws of physics and simplified models in solving simple problems in physics. - [K01-InzA_U2]
2. Formulate conclusions on the basis of the results of calculations. - [K01-InzA_U7]

Social competencies:

1. Actively engage in solving your problems, self-develop and expand their skills. - [K01-InzA_K1]
2. Work within a team. - [K01-InzA_K1]

Assessment methods of study outcomes

Formative assessment: grades received during classes (presentations, tests)

Summative assessment: written exam.

Course description

-Kinematics. Newton's Laws. Work and energy. Motion of a system of particles. Rotation of a rigid object. Harmonic oscillator. Mechanical waves. Thermodynamics - the kinetic theory of gases, the first and the second law of thermodynamics. Vectorial

and scalar description of fields - gravitational field, electric field. Electric current. Magnetic field. Induction. Electromagnetic waves. Theory of relativity. Elements of geometrical and wave optics. Light and matter. Selected problems of atomic and nuclear physics

Teaching methods:
Lecture - informative lecture
Exercises - exercises method

Basic bibliography:

1. D.Halliday, R.Resnick, J.Walker, Podstawy fizyki t 1-5, PWN Warszawa 2003
2. J. Massalski, M. Massalska. Zadania z rozwiąaniami t 1-2.
3. D.Halliday, R.Resnick, J.Walker, Podstawy fizyki t 1-5, PWN Warszawa 2003
4. J. Massalski, M. Massalska. Zadania z rozwiąaniami t 1-2.

Additional bibliography:

1. Fizyka dla inżnieró cz. 1 i 2, J. Massalski, M. Massalska, Wydawnictwa Naukowo-Techniczne, Warszawa, 2006
2. Fizyka dla inżnieró cz. 1 i 2, J. Massalski, M. Massalska, Wydawnictwa Naukowo-Techniczne, Warszawa, 2006

Result of average student's workload

Activity	Time (working hours)
1. lectures	30
2. exercises	15
3. consultations	10
4. preparation for exercises	25
5. preparation for the final colloquium - lectures	6
6. preparation for the final colloquium - exercises	10
7. final colloquium - exercises	2
8. final colloquium - lectures	2

Student’s workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	59	2
Practical activities	15	1