STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Mechanics		**1011104221011000143**

Field of study	Profile of study (general academic, practical)	Year /Semester
Safety Engineering - Part-time studies - First-	**(brak)**	**1 / 2**
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: **8**	Classes: **10**	Laboratory: **-**	Project/seminars: **-**	**3**

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 %)

Responsible for subject / lecturer:

MSc Eng. Jacek Kroczak
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Responsible for subject / lecturer:

Prof. Janusz Mielniczuk
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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of mathematics and physics
2	**Skills**	Application of principal rules of physics during solving simple problems of kinematics and dynamics
3	**Social competencies**	Creative and consistent during solving the problems

Assumptions and objectives of the course:

Learning of theoretical and practical basics of applied mechanics in order to solve independently the selected mechanical problems

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

Knowledge:

1. Student knows equilibrium problems of convergent and arbitrary force systems, moments of inertia of plane figures and solids, kinematics and dynamics of material particle and rigid body, vibrations of material systems. - [K1A_W07]
2. Student has knowledge about life cycle of products, objects and technical systems. - [K1A_W19]
3. Student knows basic methods and tools applied in techniques. - [K1A_W23]

Skills:

1. Student can gather, integrate and interprete information from literature, data bases and other sources, and make conclusions. - [K1A_U01]
2. Student can use analytical and simulation methods to formulation and solving engineering tasks. - [K1A_U09]
3. Student can conduct a critical analysis of the ways in which technical solutions function. - [K1A_U13]

Social competencies:

1. Student is aware of responsibilty of his own work and is ready to follow the rules of group working. - [K1A_K03]
2. Student can perceive a cause and effect dependency in the realization of goals. - [K1A_K04]

Assessment methods of study outcomes

Formative assessment:

a) In regards to classes, on the basis of written tests

b) Regarding lectures: on the basis of oral or written assignments relating to the material covered during current or previous lectures.

Collective assessment:

a) In respect to classes: the average of marks given

b) Considering lectures: written exam

Course description

Basic concepts, rules and axioms of mechanics. Statics: force, moment of force and coupe of forces, plane convergent and arbitrary force systems, spatial systems, some remarks on trusses, centres of gravity and moments of inertia of plane figures and solids. Sliding and rolling friction. Kinematics: kinematics of material particle and rigid body, plane motion, rotary motion, rotation about a fixed point, relative motion, Coriolis acceleration. Dynamics: dynamics of material particle and rigid body, d?Alembert?s principle, equation of motion of material particle and rigid body, mechanical vibrations, work and power, mechanical efficiency, laws of conservation. Elements of fluid mechanics.

Basic bibliography:

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	8
2. Participation in classes	10
3. Preparation to exam	15
4. Preparation to classes	7
5. Preparation to written tests	15
6. Exam	2
7. Discussion about the exam results	2
8. Participation in laboratories	10

Student’s workload

Source of workload	hours	ECTS
Total workload	69	3
Contact hours	32	1
Practical activities	20	1