

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Mechanics</b>		Code <b>1011101121010620143</b>
Field of study <b>Safety Engineering - Full-time studies - First-</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 2</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>full-time</b>	
No. of hours Lecture: <b>30</b> Classes: <b>15</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> MSc Eng. Jacek Krocak email: jacek.krocak@put.poznan.pl tel. 61 665 2042 Faculty of Working Machines and Transportation ul. Piotrowo 3, 60-965 Poznań		<b>Responsible for subject / lecturer:</b> Prof. Janusz Mielniczuk email: janusz.mielniczuk@put.poznan.pl tel. 61 665 2335 Faculty of Working Machines and Transportation ul. Piotrowo 3, 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Knowledge of mathematics and physics
2	<b>Skills</b>	Application of principal rules of physics during solving simple problems of kinematics and dynamics
3	<b>Social competencies</b>	Creative and consistent during solving the problems
<b>Assumptions and objectives of the course:</b> Learning of theoretical and practical basics of applied mechanics in order to solve independently the selected mechanical problems		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 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]		
<b>Skills:</b> 1. Student can gather, integrate and interpret 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]		
<b>Social competencies:</b> 1. Student is aware of responsibility 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]		
<b>Assessment methods of study outcomes</b>		

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		
<b>Course description</b>		
Basic concepts, rules and axioms of mechanics. Statics: force, moment of force and couple 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.		
<b>Basic bibliography:</b> 1. J. Kubik, J. Mielniczuk, A. Wilczyński, Mechanika techniczna, PWN, Warszawa 1983. 2. R. Bąk, A. Stawinoga, Mechanika dla niemechaników, WNT, Warszawa 2009.		
<b>Additional bibliography:</b> 1. J. Rżysko, Statyka i wytrzymałość materiałów, PWN, Warszawa 1971. 2. J. Leyko: Mechanika ogólna, PWN, Warszawa 1971. 3. Mały poradnik mechanika, praca zbiorowa, WNT.		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Participation in lectures	30	
2. Participation in classes	15	
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	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	86	3
Contact hours	49	2
Practical activities	15	1