

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Technical mechanics II		Code 1010601131010203291
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 1 Classes: 1 Laboratory: - Project/seminars: -		No. of credits 3
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 Technical sciences		ECTS distribution (number and %) 3 100% 3 100%
Responsible for subject / lecturer: Dr hab. inż. Maciej TABASZEWSKI email: Maciej.Tabaszewski@put.poznan.pl tel. 61 665 23 90 Faculty of Mechanical Engineering and Management ul. Jana Pawła II 24, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic mathematics in the field of vector calculus, differential and integral calculus, static and kinematics.
2	Skills	Logical and creative thinking, using the Internet and library resources
3	Social competencies	Understands the need for continuous learning and acquiring new knowledge
Assumptions and objectives of the course: Improving students' knowledge in the field of dynamics, and the transfer of theoretical knowledge and practical skills necessary to study the strength of materials, theory of machines and mechanisms, the basics of machine design and mechanical vibrations		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has a structured knowledge in the main branches of technical mechanics: dynamics of a particle and rigid body. - [K1A_W04]		
Skills: 1. Is able to obtain information from the literature, internet, databases and other sources. Can integrate the information to interpret and learn from them, create and justify opinions. - [K1A_U03] 2. Student can build the model of particle or body motion under the influence of the forces. - [K1A_U07] 3. Student is able to determine the theoretical moment of inertia of machine elements - [K1A_U07] 4. Student can describe mathematically motion of a rigid body under the influence of the forces - [K1A_U07] 5. Is able to use mathematical theories to create and analyze machines and constructions - [K1A_U07]		
Social competencies: 1. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions. - [K1A_K02]		
Assessment methods of study outcomes		

Lecture - exam.		
Classes - two tests performed in the semester.		
Course description		
Two basic problems of dynamics. Differential equation of motion. The d'Alembert's principle. Moments of inertia. The vibrations of the material point. Work, power, kinetic and potential energy. The dynamics of the complex motion of a material point. The principle of momentum and impulse, the principle of conservation of momentum. The motion of mass center. Move the object with variable mass.		
Basic bibliography:		
1. Sałata W., Mechanika ogólna w zarysie, Poznań, Wyd. PP 1998.		
2. Leyko J., Mechanika ogólna. T. 2, Warszawa, PWN 2008.		
3. Misiak J., Mechanika ogólna. T. II, Warszawa, WNT 1995.		
4. Misiak J. Zadania z mechaniki ogólnej. Część III, Warszawa, WNT 1994.		
5. Nizioł J. Metodyka rozwiązywania zadań z mechaniki. Warszawa, WNT 2002.		
6. Mieszczerski I. W., Zbiór zadań z mechaniki. Warszawa, PWN 1969.		
Additional bibliography:		
1. Osiński Z. Mechanika ogólna. Warszawa, PWN 2000.		
2. Awrajcewicz J. Mechanika techniczna, Warszawa WNT 2009		
3. Arczewski K. Drgania układów fizycznych, Warszawa, Wyd. PW. 2008		
4. Szcześniak W. Dynamika teoretyczna w zadaniach dla dociekliwych, Warszawa, Wyd. PW. 2010		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for the lecture	3	
2. Participation in the lecture	15	
3. Fixing the lecture	7	
4. Consultation for the lecture	6	
5. Preparing to exam	15	
6. Participation in the exam	2	
7. Preparation of practical classes	6	
8. Participation in the classes	15	
9. Consultation for the classes	3	
10. Preparing to pass the classes	6	
11. Participation in the completion of the classes	2	
12. Fixing the classes	4	
Student's workload		
Source of workload	hours	ECTS
Total workload	84	3
Contact hours	43	2
Practical activities	0	0