

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Technical mechanics II | | Code 1010604131010213291 |
| 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) part-time | |
| No. of hours Lecture: 10 Classes: 10 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 | | ECTS distribution (number and %) 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 | | |
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| 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. Salata 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 |