

| <b>STUDY MODULE DESCRIPTION FORM</b>   |  |   |
|--|--|---|
| Name of the module/subject<br><b>Foundations of Machine Construction and CAD</b>   |  | Code<br><b>1011104341010640152</b>  |
| Field of study<br><b>Logistics - Part-time studies - First-cycle</b>   | Profile of study<br>(general academic, practical)<br><b>general academic</b> | Year /Semester<br><b>2 / 4</b>  |
| Elective path/specialty<br><b>-</b>  | Subject offered in:<br><b>Polish</b>   | Course (compulsory, elective)<br><b>obligatory</b>  |
| Cycle of study:<br><b>First-cycle studies</b>  | Form of study (full-time, part-time)<br><b>part-time</b>                     |   |
| No. of hours<br>Lecture: <b>12</b> Classes: <b>12</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>  |  | No. of credits<br><b>3</b>  |
| Status of the course in the study program (Basic, major, other)<br><b>other</b>  |  | (university-wide, from another field)<br><b>university-wide</b>   |
| Education areas and fields of science and art<br><b>technical sciences</b><br><b>Technical sciences</b>  |  | ECTS distribution (number and %)<br><b>3 100%</b><br><b>3 100%</b>  |
| <b>Responsible for subject / lecturer:</b><br>dr inż. Krzysztof Talaśka<br>email: krzysztof.talaska@put.poznan.pl<br>tel. 2244512<br>Faculty of Working Machines and Transportation<br>Ul. Piotrowo 3 60-965 Poznań  |  | <b>Responsible for subject / lecturer:</b><br>dr inż. Dominik Wilczyński<br>email: dominik.wilczynski@put.poznan.pl<br>tel. 2244512<br>Faculty of Working Machines and Transportation<br>Ul. Piotrowo 3 60-965 Poznań |
| <b>Prerequisites in terms of knowledge, skills and social competencies:</b>  |  |   |
| 1  | <b>Knowledge</b>   | Basics of physics, mechanics and strength of materials, the principles of preparation of technical documentation.   |
| 2  | <b>Skills</b>  | The ability to make a technical documentation in accordance with the principles of engineering drawing, strength calculations.  |
| 3  | <b>Social competencies</b>   | A consciousness of responsibility for taking the decisions during engineering calculations.   |
| <b>Assumptions and objectives of the course:</b><br>Transfer of knowledge concerning mechanical engineering and application of basic elements and assemblies used in mechanical engineering. Focus on the possibilities of practical application of knowledge from physics, mechanics, strength of materials and engineering drawing.  |  |   |
| <b>Study outcomes and reference to the educational results for a field of study</b>  |  |   |
| <b>Knowledge:</b><br>1. Student has a basic knowledge in a scope of engineering drawing; construction and technology and mechanical engineering and operation of machines. - [K1A_W05]<br>2. Student has a basic knowledge in a scope of mechanics and mechanical engineering and strength of materials. - [K1A_W07]   |  |   |
| <b>Skills:</b><br>1. Student can independently elaborate the given problem which is put in a scope of studied subject. - [K1A_U05]<br>2. Student can formulate project task and solve it with the use of analytical methods and simulations which are put in a scope of studied subject. - [K1A_U09]<br>3. Student can select the proper tools and solution methods for the given engineering task in a scope of mechanical engineering. - [K1A_U15] |  |   |
| <b>Social competencies:</b><br>1. Student is conscious of the need of learning through the whole life, inspiration and organization of learning process for other persons in a scope of issues which are put in the studied subject. - [K1A_K01]<br>2. Student is eager to cooperate and work in a team for solving the problems which are put in a scope of studied subject. - [K1A_K03]  |  |   |

| <b>Assessment methods of study outcomes</b>  |                      |      |
|--|----------------------|------|
| Forming assessment:<br>a) in a scope of the project: assessment of current progress of the project<br>b) in a scope of lectures: assessment of the answers for the questions concerning the knowledge which was presented during previous lectures<br>Summarizing assessment:<br>a) in a scope of project: assessment of the course of work on the project and the final result of the project<br>b) in a scope of lectures: written exam.   |                      |      |
| <b>Course description</b>  |                      |      |
| Design process, computer aided design, the principles of designing, constructional features, dimensional tolerances and fits, basic strength calculations. Bonded connections: soldered connections, welded joints, glue joints; riveted joints, shaped connections: key joints, pin joints, spigot joints; screwed connections. Screw gears: examples and applications, engineering calculations, constructional solutions. Elastic elements: springs, rubber elastic elements, thermal bimetals. Axles and shafts: designing, materials. Bearings: friction phenomenon, slide and rolling bearings. Clutches and brakes: the principles of selection, permanent couplings, controlled and self-acting couplings. Transmissions: friction gears, toothed gears and strand gears.<br><br>Teaching methods: informative lecture, practice method. |                      |      |
| <b>Basic bibliography:</b>   |                      |      |
| 1. 1. Maluśkiewicz P.; Podstawy konstrukcji maszyn dla studentów kierunków niemechanicznych, Wydawnictwo Politechniki Poznańskiej, Poznań 2009.<br>2. 2. Skrzyszowski Z.; Podnośniki i prasy śrubowe - PKM projektowanie, Kraków 1999.   |                      |      |
| <b>Additional bibliography:</b>  |                      |      |
| 1. 1. Dietrich M.; Podstawy konstrukcji maszyn, Wydawnictwo Naukowo - Techniczne 1995.<br>2. 2. Niezgodziński M. E., Niezgodziński T.; Wzory, wykresy i tablice wytrzymałościowe, Wydawnictwo Naukowo-Techniczne, 1996,<br>3. 3. Sempruch J., Piątkowski T.; Podstawy konstrukcji maszyn z CAD, Piła, Państwowa Wyższa Szkoła Zawodowa w Pile, 2006  |                      |      |
| <b>Result of average student's workload</b>  |                      |      |
| Activity   | Time (working hours) |      |
| 1. Lecture   | 12                   |      |
| 2. Project   | 12                   |      |
| 3. Consultations   | 20                   |      |
| 4. Preparing to pass   | 25                   |      |
| 5. Pass the exam   | 2                    |      |
| <b>Student's workload</b>  |                      |      |
| Source of workload   | hours                | ECTS |
| Total workload   | 71                   | 3    |
| Contact hours  | 46                   | 2    |
| Practical activities   | 12                   | 1    |