

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Foundations of Machine Construction and CAD		Code 1011101341010600152
Field of study Management - Full-time studies - First-cycle	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 4
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: 30 Classes: - Laboratory: - Project/seminars: 15		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 study effects leading to the acquisition of engineering qualifications		ECTS distribution (number and %) 3 100%
Responsible for subject / lecturer: dr inż. K. Talaška email: krzysztof.talaska@put.poznan.pl tel. 61 224 4512 Faculty of Working Machines and Transportation Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basics of physics, mechanics and strength of materials, the principles of preparation of technical documentation.
2	Skills	The ability to make a technical documentation in accordance with the principles of engineering drawing, strength calculations.
3	Social competencies	A consciousness of responsibility for taking the decisions during engineering calculations.
Assumptions and objectives of the course: 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.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has a basic knowledge on life cycle of machines. - [K01-InzA_W01] 2. Student has a basic knowledge on life cycle of industrial products. - [K02-InzA_W01] 3. Student knows basic methods, techniques, tools and materials which are used during solving the simple engineering tasks in a scope of mechanical engineering and operation. - [K04-InzA_W02] 4. Student knows standard production technologies and has a broad knowledge on mechanical engineering and operation of machines. - [K07-InzA_W5]		
Skills:		
1. Student can perform a critical analysis of production technologies and organization of product systems. - [K01-InzA_U5] 2. Student can perform an identification of project tasks and can solve simple project tasks in a scope of mechanical engineering and operation of machines. - [K01-InzA_U6] 3. Student can apply a standard solution methods for simple problems in a scope of mechanical engineering and operation of machines. - [K01-InzA_U7] 4. Student can design of construction and production technology of simple parts and subassemblies of machines and can design of organization of production units of first stage of complexity. - [K01-InzA_U8]		
Social competencies:		

1. Student is conscious of responsibility for his/her own work and is ready to conform to the principles of team work and can be responsible for joint tasks. - [K01-InzA_K1]
2. Student can notice the reason-result relations during obtaining the objectives and can graduate a significance of alternative or competitive tasks - [K01-InzA_K2]

Assessment methods of study outcomes

Forming assessment:

- a) in a scope of the project: assessment of current progress of the project
- b) in a scope of lectures: assessment of the answers for the questions concerning the knowledge which was presented during previous lectures

Summarizing assessment:

- a) in a scope of project: assessment of the course of work on the project and the final result of the project
- b) in a scope of lectures: written exam.

Course description

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.

Basic bibliography:

1. Maluśkiewicz P.; Podstawy konstrukcji maszyn dla studentów kierunków niemechanicznych, Wydawnictwo Politechniki Poznańskiej, Poznań 2009.
2. Skrzyszowski Z.; Podnośniki i prasy śrubowe - PKM projektowanie, Kraków 1999.
3. Shigley J., Mischke Ch, Budynas R.: Mechanical Engineering Design, 2003

Additional bibliography:

1. Dietrich M.; Podstawy konstrukcji maszyn, Wydawnictwo Naukowo - Techniczne 1995.
2. Niezgodziński M. E., Niezgodziński T.; Wzory, wykresy i tablice wytrzymałościowe, Wydawnictwo Naukowo - Techniczne, 1996
3. Sempruch J., Piątkowski T.; Podstawy konstrukcji maszyn z CAD, Piła, Państwowa Wyższa Szkoła Zawodowa w Pile, 2006

Result of average student's workload

Activity	Time (working hours)
1. Lecture	30
2. Consultations	15
3. Project	15
4. Preparing to pass	20
5. Pass the exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	82	3
Contact hours	67	2
Practical activities	15	1