

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Fundamentals of machine construction		Code 1010314331010645636
Field of study Power 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: 30 Classes: - Laboratory: - Project/seminars: 15		No. of credits 4
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 %) 4 100%
Responsible for subject / lecturer: Michał Śledziński, Ph.D, Eng. email: michal.sledzinski@put.poznan.pl tel. 48616652245 Working Machines and Transportation ul. Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basics of mechanics and strength of materials. Basics of materials science and heat treatment. Engineering graphics.
2	Skills	Basic engineering calculations. Technical thinking. Preparation of technical documentation.
3	Social competencies	Individual and team work. Creativity. Honesty and reliability. Regularity. Activity.
Assumptions and objectives of the course: Transfer of theoretical and practical knowledge in a range of machine design fundamentals. Learning of structure, principles of design and calculations of mechanical devices and their elements. Acquisition of practical skills of designing ? on the basis of project of a screw gear.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Knowledge of design methodology and design assumptions. - [-K_W01++, K_W04++] 2. Identification of load and stress state of machine elements. - [-K_W05++] 3. Selection of construction materials. - [-K_W05++] 4. Characteristic of properties and application of connections and mechanical assemblies. - [-K_W05++]		
Skills:		
1. Analysis of kinematics of the designed devices. - [-K_U02++] 2. Forming of construction shape of machine elements. - [-K_U04++] 3. Calculation of machine elements in a scope of strength and stability. - [-K_U03++] 4. Design of basic parts of constructions. - [-K_U14++] 5. Estimation of variants of construction solutions. - [-K_U06++] 6. Make use of standards and safety regulations. - [-K_U03++] 7. Elaboration of design documentation. - [-K_U03++]		
Social competencies:		
1. Creativity and conceptual thinking. Presentation of technical solutions in a group. - [-K_K01++] 2. Perception of the influence of knowledge and occupational improvement on the level of life and society. - [-K_K02++] 3. Pro-ecological thinking. - [-K_K03++]		

Assessment methods of study outcomes		
<p>- Lectures Assessment of knowledge and practical skills during written exam. Additional points for knowledge, activity, interest and creativity.</p> <p>- Project classes Verification of individual projects. Assessment of knowledge and practical skills of design and calculation of machine elements, sketching and drawing of project solutions and unaided work and creativity. Assessment of individual project and its defence in a scope of assembly and production drawings and calculations. Additional points for activity, creativity and methodology of work.</p>		
Course description		
<p>Teaching of design methodology and elaboration of design assumptions. Training of skills of load and stress state determination of machine elements. Gaining of skills of materials selection and forming of construction shape. Acquisition of skills of tolerance and fit selection and strength calculations of machine elements for static and changing loads. Elaboration of individual project ? a screw gear. Skills of characterization of basic elements of power transmission systems, their calculation and selection. Making use of standards and safety regulations.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> Horwatt W., Bartoszewicz J.: Podstawy konstrukcji mechanicznych dla elektryków. WNT Warszawa 1975. Praca zbiorowa pod red. Z. Osińskiego: Podstawy konstrukcji maszyn. PWN Warszawa 2003. Praca zbiorowa pod red. E. Mazanka: Przykłady obliczeń z podstaw konstrukcji maszyn. Juchnikowski W., Żółtowski J.: Podstawy konstrukcji maszyn. Pomoce do projektowania. Oficyna Wydawnicza Politechniki Warszawskiej. Warszawa 2004. Skrzyszowski Z.: Podnośniki i prasy śrubowe. PKM ? projektowanie. Kraków 2001. 		
Additional bibliography:		
<ol style="list-style-type: none"> Oleksiuk W., Paprocki K.: Konstrukcja mechanicznych zespołów sprzętu elektronicznego. WKŁ Warszawa 1997. Poradnik mechanika. Wydawnictwo Rea. Warszawa 2009. 		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in lectures	30	
2. participation in project classes	15	
3. consultations concerning lectures	4	
4. consultations concerning project classes	6	
5. preparation to project classes	15	
6. carrying out the individual project at home	15	
7. preparation to examination	5	
8. participation in examination	3	
Student's workload		
Source of workload	hours	ECTS
Total workload	93	4
Contact hours	58	2
Practical activities	15	1