STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Foundations of Machine Construction and CAD	**1011101241010600152**

Field of study	Profile of study (general academic, practical)	Year /Semester
Engineering Management - Full-time studies -	**(brak)**	**2 / 4**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours	No. of credits
Lecture: **30** Classes: **15** Laboratory: **-** Project/seminars: **-**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**
Technical sciences	**3 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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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 in a scope of engineering drawing; construction and technology and mechanical engineering and operation of machines. - [K1A_W05]
2. Student has a basic knowledge in a scope of mechanics and mechanical engineering and strength of materials. - [K1A_W07]

Skills:

1. Student can independently elaborate the given problem which is put in a scope of studied subject. - [K1A_U05]
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]
3. Student can select the proper tools and solution methods for the given engineering task in a scope of mechanical engineering. - [K1A_U15]

Social competencies:

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]
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]

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.

Teaching methods:

Lecture - informative, conversational lecture, demonstration method

Project - project method, production exercises

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.

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. Project	15
3. Consultations	20
4. Preparing to pass	23
5. Pass the exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	90	3
Contact hours	67	2
Practical activities	15	1