COURSE DESCRIPTION CARD - SYLLABUS

Course name
Basic of Machin Design [N1MiBP1>PKM]

Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
18

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
18

Number of credit points

4,00

Coordinators

dr hab. inż. Michał Śledziński
michal.sledzinski@put.poznan.pl

Lecturers

Prerequisites

Knowledge: The student has knowledge of physics (mechanics in the field of: statics, kinematics and dynamics), mathematics, after being credited as part of the study program Skills: The student has the ability to solve problems in the field of mechanics, strength of materials, selection of materials based on the acquired knowledge and the ability to obtain information from the indicated sources Social competences: The student understands the need to expand their competences, shows readiness to cooperate as part of a team

Course objective

1. Provide students with knowledge of the basics of machine design, within the scope defined by the program content appropriate for the field of study. 2. Developing students" skills: - calculating and constructing elements and assemblies of machines, - documentation and reading of technical documentation based on the acquired knowledge machine engineering graphics, - practical use of knowledge acquired in the following subjects: mechanics, strength of materials, machine science, materials science. 3. Shaping students" teamwork skills

Course-related learning outcomes

Knowledge:
Has basic knowledge of the basics of machine design and the theory of machines and mechanisms, including mechanical vibrations.
Has a basic knowledge of the standardized rules of notation of structures and engineering graphics.
Has basic knowledge of the strength of materials, including the basics of the theory of elasticity and plasticity, strain hypotheses, calculation methods for beams, membranes, shafts, joints and other simple structural elements, as well as methods of testing the strength of materials and the state of deformation and stress in mechanical structures.

Skills:
Is able to plan and carry out the process of constructing uncomplicated machine assemblies or machines and formulate requirements for electronic components and automatic control systems for industry specialists in mechatronic systems.
He can prepare a technical descriptive and drawing documentation of an engineering task.

Social competences:
He is ready to critically assess his knowledge and received content.
Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.
Is ready to fulfill professional roles responsibly, including:
- compliance with the rules of professional ethics and requiring this from others,
- care for the achievements and traditions of the profession.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Written lecture exam, project execution. Evaluation criteria: for each question there is a certain number of points to be scored. On this basis, the percentage score of the colloquium is calculated. Grading scale: up to 49% - 2.0, from 50% - 3

Programme content

Basic principles of the construction process, elements of the mechanism, characteristics of the types of loads, defining loads and formulating appropriate strength conditions. Connections and their calculation: soldered, welded, welded, glued; riveted and shaped connections: key, bolt, threaded connections. Screw mechanisms: examples and application, design calculations. Flexible elements: springs, rubber flexible elements.

Course topics

none

Teaching methods

Information lecture, project method.

Bibliography

Basic
1. Praca zbiorowa pod red. Z. Osińskiego, Podstawy konstrukcji maszyn, PWN, W-wa, 1999
2. Praca zbiorowa pod red. M. Dietricha: Podstawy konstrukcji maszyn. Tom 3, WNT, Wa-wa, 1999.
3. J. Żółtowski, Podstawy Konstrukcji Maszyn, Oficyna Wydawnicza Politechniki Warszawskiej, 2002.
4. R. Knosala, A. Gwiazda, A. Baier, P. Gendarz, Podstawy Konstrukcji Maszyn, WNT, Warszawa 2000.
5. A. Dziurski, L. Kania, A. Kasprzycki, E. Mazanek, Przykłady obliczeń z Podstawy Konstrukcji Maszyn, Tom 1 i 2, WNT, Warszawa 2005.
Additional
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 Szkołą

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4. Bahl G., Beitz W., Nauka konstruowania, WNT, Warszawa 1984

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	36	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	64	2,00