Code 101064126101064033 Field of study (general academic, practical) (brak) Year /Semester Mechanical Engineering Subject offered in: (brak) Course (compulsory, elec obligatory) Elective path/specialty Mechatronics Polish Course (compulsory, elec obligatory) Cycle of study: First-cycle studies Form of study (full-time,part-time) No. of credits Lecture: 2 Classes: 1 Laboratory: - Project/seminars: - No. of credits ECTS distribution (number status of the course in the study program (Basic, major, other) (brak) (university-wide, from another field) No. of credits ECTS distribution (number and %) Responsible for subject / lecturer: dr in2. Janusz Plotkowiak email: janusz, plotkowiak @put,poznan,pl tel. 61 665 2254 email: janusz, plotkowiak @put,poznan,pl tel. 61 665 2254 email: janusz, not wisk @put,poznan,pl tel. 61 665 2254									
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3 Social Understanding the need to broaden their competence, willingness to cooperate within the									
competencies ^{team.}									
Assumptions and objectives of the course: Understanding the structure and elements of mechatronic systems. Acquisition of skills interdisciplinary approach to the issues related to the design of machines.									
Study outcomes and reference to the educational results for a field of study									
Knowledge:									
1. Has a basic knowledge of the basics of machine design and the theory of machines and mechanisms, including mechanisms [K1A_W05]									
2. Has a basic knowledge of linear measurement methods, stress, strain, velocity, temperature and fluid streams measurement, including electrical methods of measurement [K1A_W14]									
3. Has an elementary knowledge of automation systems, microcontrollers, control algorithms, industrial robots, electronic navigation systems used in machines, wired and wireless communications in local area networks used in machines [K1A_W17]									
4. Is up-to-date with the latest trends in mechanical engineering [K1A_W18]									
4. Is up-to-date with the latest trends in mechanical engineering [(TA_WTo]									
5. Has a basic knowledge of the impact of technological change on the organization of social life, health and psyche of individuals in human-machine interactions [K1A_W21]									
 Superovate with the latest denos in mechanical engineering. • [KTA_WT0] Has a basic knowledge of the impact of technological change on the organization of social life, health and psyche of individuals in human-machine interactions. • [K1A_W21] Skills: 									
5. Has a basic knowledge of the impact of technological change on the organization of social life, health and psyche of individuals in human-machine interactions [K1A_W21]									

1.	Understands	the need a	nd knows t	the poss	ibilities of	lifelong	learning.	- [K1A_	K01]	l

2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions. - [K1A_K02]

3. Is aware of the importance of behavior in a professional manner, compliance with the rules of professional ethics and respect for cultural diversity - [K1A_K03]

4. Has a sense of responsibility for one?s own work and is willing to comply with the principles of teamwork and taking responsibility for collaborative tasks - [K1A_K04]

Assessment methods of study outcomes

Written test.

Course description

The essence of the mechatronic system, the basic units of the system. Construction of actors, sensors and their functions and rules of selection. Transmission and signal processing. Create a model of the system. The structure of the process of design and engineering of mechatronic devices. Stages of mechatronic design. Conceptual design, system modeling, design principles of mechanical, electronic and control, selection and construction of components, Identification. Examples of mechatronic design.

Basic bibliography:

1. Heimann B., Gerth W., Popp K.: Mechatronika. Komponenty. Metody. Przykłady, PWN, Warszawa 2001,

2. Świder J., Wszołek J.: Metodyczny zbiór zadań laboratoryjnych projektowych ze sterowania procesami technologicznymi,

3. Gawrysiak M.: Analiza systemowa urządzenia mechatronicznego, Wyd. Politechniki Białostockiej, Białystok 1997.

Additional bibliography:

1. Pahl G., Beitz W. : Nauka konstruowania , WNT Warszawa 1984.

Result of average student's workload

Activity	Time (working hours)	
1. Lectures	30	
2. Own work with the material of the lecture	1	
3. Consultation	1	
4. Preparing to the exam	4	
5. Exam	2	
6. Preparing to participation in exercise classes	1	
7. Exercise classes	15	
8. Own work with the material of the classes	1	
9. Consultation	1	
10. Preparing to pass the test	4	
11. Written test	2	
Student's workload		

Source of workload	hours	ECTS
Total workload	62	2
Contact hours	51	2
Practical activities	0	0