

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Passing Project		Code 1010642221010640466
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty Industrial Mechatronics	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 4		No. of credits 5
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 Technical sciences		ECTS distribution (number and %) 5 100% 5 100%
Responsible for subject / lecturer: PhD Eng. Krzysztof Talaśka email: krzysztof.talaska@put.poznan.pl tel. 61 665-2246 Faculty of Transport Engineering ul. Piotrowo 3, 60-965 Poznań		Responsible for subject / lecturer: PhD Eng. Dominik Wilczyński email: dominik.wilczynski@put.poznan.pl tel. 61 224-2242 Faculty of Transport Engineering ul. Piotrowo 3 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Mechanics and strength of materials. Fundamentals of machine design. Basics of hydraulics and pneumatics. Mechatronics. Fundamentals of computer science engineering.
2	Skills	Defining functions and tasks of the machines. Designing mechatronic constructions using CAD software. Control Systems Design and regulation process. The incorporation of automation and robotics.
3	Social competencies	Acquiring engineering knowledge in the field of mechatronics, in particular in the field of mechanical engineering.
Assumptions and objectives of the course: Implementation of individual mechatronic design of a mechanical device having elements of automation and robotics.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has general knowledge about the principles and methods of constructing working machines, in particular the methods of functional and strength calculations, optimization of mathematical mechanical constructions and modeling of machine structures in 3D systems. - [M2_W17]		
2. He has in-depth knowledge of the construction and operation principles and classification of machines from a selected group - [M2_W16]		
3. He knows the main development trends in the field of machine construction - [M2_W20]		
Skills:		
1. Is able to perform an average complex design of the construction of a work machine or its assembly using modern CAD tools, including tools for spatial modeling of machines and calculations using the finite element method - [M2_U15]		
2. Is able to develop a technical description and offer and construction documentation for a complex machine from a selected group of machines - [M2_U07]		
3. Can use a popular system for numerical calculations to program a simple simulation task of a system with a small number of degrees of freedom - [M2_U11]		
Social competencies:		
1. Is ready to critically evaluate your knowledge and content you receive - [M2_K01]		
2. Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in the event of difficulties in solving the problem - [M2_K02]		

Assessment methods of study outcomes		
Completion of the course is based on the project individually performed by the student.		
Course description		
Designing the geometric and physical structure of mechanical device. Kinematics and dynamics of motor components, design propulsion systems. Mechatronic control and regulation, control, electric, pneumatic and hydraulic. The use of programmable controllers. Sensors. Robotics. Computer Engineering.		
Basic bibliography:		
1. Dietrich M.: Podstawy konstrukcji maszyn, WNT Warszawa 1999, 3 tomy 2. Schmid D.: Mechatronika, Europa-Lehrmittel, polish edition REA Warszawa 2002,		
Additional bibliography:		
1. Honczarenko J.: Elastyczna automatyzacja wytwarzania, obrabiarki i systemy obróbkowe, WNT Warszawa 2000		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation of the project	100	
2. Consultations	15	
3. Preparing to pass	15	
4. Participation in the pass	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	132	5
Contact hours	17	1
Practical activities	132	5