

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mechatronics in Transportation		Code 1010612321010642251
Field of study Transport	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty Logistics of Transport	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: 2 Classes: - Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 2 100%
Responsible for subject / lecturer: Piotr Perz email: piotr.perz@put.poznan.pl tel. 61 665 2054 Faculty of Transport Engineering ul. Piotrowo 3, 60-965 Poznań		Responsible for subject / lecturer: Piotr Perz email: piotr.perz@put.poznan.pl tel. 61 665 2054 Faculty of Transport Engineering ul. Piotrowo 3, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Knowledge of vehicle component systems, their construction, parameters and the basics of action.
2	Skills	Selection of sensors, components and measuring systems in vehicles.
3	Social competencies	Is aware of the responsibility for decisions made in the construction process.
Assumptions and objectives of the course: -Acquainting with the construction, operation, mechatronic systems in means of transport.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. has knowledge about development trends and the most important new achievements of transport means and other, selected, related scientific disciplines - [T2A_W04]		
2. knows advanced methods, techniques and tools used to solve complex engineering tasks and conduct research in a selected area of transport - [T2A_W06]		
Skills:		
1. can make a critical analysis of existing technical solutions and propose their improvements (improvements) - [T2A_U08]		
2. can - using conceptually new methods - solve complex tasks in the field of transport engineering, including atypical tasks and tasks containing a research component - [T2A_U10]		
Social competencies:		
1. understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems - [T2A_K02]		
2. is aware of the need to develop professional achievements and comply with the rules of professional ethics - [T2A_K04]		
3. understands the importance of popularizing activities regarding the latest achievements in the field of transport engineering - [T2A_K03]		
Assessment methods of study outcomes		
-Written test		

Course description		
<p>-The principle of operation and construction of systems responsible for maintaining the temperature in the vehicle (heating, air conditioning). Electronic engine control. Electronic clutch control. Automatic speed regulation (cruise control). Application of data bus and protocols for sending information and commands between mechanical components and controllers. Block schemes of systems. Types of data transmission networks used in vehicles. Bus used in vehicles: CAN, LIN, MOST, FlexRay. Construction and operation of automated storage systems. Construction of stacker cranes with drive and control. Construction of cargo handling systems. Automated parking systems.</p>		
<p>Basic bibliography:</p> <p>1. Gajek A. , Juda Z. , : Czujniki 2. Fryśkowski B. , Grzejszczyk E.: Systemy transmisji danych</p>		
<p>Additional bibliography:</p> <p>1. Herner A., Riehl H.J.: Elektrotechnika i elektronika w pojazdach samochodowych</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in the lecture	30	
2. Fixing the content of the lecture	15	
3. Consultations regarding the content provided during the lecture	5	
4. Preparation for the exam from the material provided during the lecture	8	
5. Participation in the exam	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	36	1
Practical activities	0	0