

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject (-)		Code 1010621361010628500
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Railway Transport	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 2 Classes: - Laboratory: - Project/seminars: 1		No. of credits 2
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		ECTS distribution (number and %)
Responsible for subject / lecturer: EngD Wojciech Sawczuk email: wojciech.sawczuk@put.poznan.pl tel. 61 224 4510 Faculty of Transport Engineering Piotrowo 3 Street, 60-965 Poznan		Responsible for subject / lecturer: M.Eng Julian Kominowski email: julian.kominowski@put.poznan.pl tel. 61 665 2841 Faculty of Transport Engineering Piotrowo 3 Street, 60-965 Poznan
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student has a basic knowledge of railway infrastructure. In addition, he knows the construction and repair of railways and traction network. The student knows the main production technologies and ways to assemble railways.
2	Skills	The student can use the acquired knowledge to plan the process of assembly and maintenance of railways and traction network. The student is able to solve specific technical and technological problems occurring during the production and repair of railways.
3	Social competencies	The student is able to cooperate in a group, organize the production process and operation in its main outlines. Student is able to determine priorities important for solving and tasks posed before him. Student demonstrates independence in solving technical problems, acquiring and improving acquired knowledge and skills.
Assumptions and objectives of the course: The aim of the course is to familiarize with the basic parameters of the rail road, traction network, principles of design, construction and operation.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. has a structured and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues of this discipline in transport engineering - [T1A_W04] 2. has basic knowledge about the life cycle of transport means, both hardware and software, and in particular about the key processes taking place in them - [T1A_W06] 3. knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of engineering nature - [T1A_W07]		
Skills:		
1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, appropriate to integrate them, make their interpretation and critical assessment, draw conclusions, and fully justify the opinions they formulate - [T1A_U01] 2. can properly plan and perform experiments, including measurements and computer simulations, interpret the obtained results, and correctly draw conclusions from them - [T1A_U03] 3. can, by formulating and solving tasks in the field of transport, apply properly selected methods, including analytical, simulation or experimental methods - [T1A_U04]		
Social competencies:		

1. understands that in the technology knowledge and skills quickly become obsolete - [T1A_K01]
 2. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the reasons for malfunctioning transport systems that led to serious financial or social losses or to serious health and even life loss - [T1A_K02]

Assessment methods of study outcomes		
Written exam, final test		
Course description		
General characteristics of rail transport, components of the railway road, traction network and its shape, information about rolling stock. Railway subgrade, railway surfaces, rails, connectors, sleepers, railway ballast. Understanding the directions of development of railway surfaces due to increasing the speed of travel and greater load on freight. Knowledge of earthworks, parameters of railways. Classification of railways. General rules for the design of lines and railway stations. Operating rules.		
Basic bibliography:		
1. Sysak J.: Podstawy dróg kolejowych. PWN Warszawa 1982 2. Praca zbiorowa pod redakcją Sysak J.: Drogi kolejowe. WKŁ, Warszawa 1986 3. Batko M.: Drogi kolejowe. WKŁ, Warszawa 1986 4. Szajer R.: Drogi kolejowe. WKŁ, Warszawa 1977		
Additional bibliography:		
1. Zamięcki H.: Budowa i utrzymanie dróg kolejowych ? tom I. WKŁ, Warszawa 1972		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for the lecture	2	
2. Participation in the lecture	15	
3. Strengthening the content of the lecture	2	
4. Consultations for the lecture	2	
5. Preparation for the exam	5	
6. Participation in the exam	2	
7. Preparation for exercises	2	
8. Participation in the exercises	15	
9. Strengthening the content of the exercises	5	
10. Consultations for exercises	2	
11. Preparation for passing	5	
12. Participation in the credit	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	59	2
Contact hours	38	2
Practical activities	0	0