

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject (-)		Code 1010611261010618163
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Heavy Machinery	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: 1 Classes: - Laboratory: 1 Project/seminars: -		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: PhD. Eng. Żaneta Staszak email: zaneta.staszak@put.poznan.pl tel. 61 665 2882 Transport Engineering ul. Piotrowo 3, Poznań		Responsible for subject / lecturer: PhD. Eng. Żaneta Staszak email: zaneta.staszak@put.poznan.pl tel. 61 655 2882 Transport Engineering ul. Piotrowo 3, Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Familiar with the basic concepts of engineering centres. Familiar with the basic concepts and the laws of physics. Has an elementary knowledge of inorganic and organic chemistry.
2	Skills	Can use the basic measuring equipment for measuring the size of mechanical and linear, temperatures and pressures.
3	Social competencies	Knows how to work in a group. Understand much soil and land in a natural environment of human life.
Assumptions and objectives of the course: Taxonomy and classification concepts of mechanics. Knowledge of the properties and methods of their research.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has basic knowledge in chemistry, in terms of the construction of the periodic table of elements and their properties, the theory of chemical bonds, organic and inorganic compounds, types of chemical reactions, chemical Analytics: with regard to understand the lectures about metal materials and non-metal, construction materials and soil. - [M1_W03] 2. Has a basic knowledge in the field of technical thermodynamics, IE. the theory of thermodynamic transformation, heat flow, thermal and heating equipment, drying and cooling. - [M1_W08] 3. Has a basic knowledge of strength of materials, including the basics of theory of elasticity and plasticity, methods of calculation, membranes, and other simple structural elements, as well as the testing methods strength of materials and the State of deformation and stress in the mechanical constructions. - [M1_W11]		
Skills: 1. It can retrieve information from the literature, the Internet, databases, and other sources. Can integrate the information to interpret and draw conclusions from them, and create and justify reviews. - [M1_U01] 2. Able to use computer Office suites for editing technical texts including designs and tables, technical and economic calculations using a spreadsheet and conducting a simple relational database. - [M1_U03] 3. Can correctly use the modern equipment for the measurement of the main physical quantities, applicable in the study of machines and production control. - [M1_U04] 4. Can interact with others in the framework of the team (as well as interdisciplinary in nature). - [M1_U26] 5. Has the ability of self-study using modern teaching tools, such as remote lectures, Web site and database, educational programs, electronic books. - [M1_U27]		
Social competencies:		

1. Is willing to critically evaluate your knowledge and receive content. - [M1_K01]
2. Is ready for the recognition of the importance of knowledge in solving cognitive problems and practical and seeking the opinion of the experts in the event of difficulties with an independent solution to the problem. - [M1_K02]
3. Is ready to fulfil the obligations of social współorganizowania social-environmental activities. - [M1_K03]

Assessment methods of study outcomes		
Written exam with the subject of the lecture.		
Control of the preparations for the exercises in oral and written form and protocols of laboratory activities.		
Course description		
Physical and mechanical properties of the land. Fractions of land. The strength of the soil on shear. Laboratory methods. Methods for the determination of strength characteristics directly in a fluid. Land classifications according to the criterion of workable. The criterion of manual excavation. The criterion of the uniaxial compression. The criterion of resistance unit (excavation. The criterion of pressure (shear). The criterion brevity. Background with specific characteristics. Background soil, marshy, frozen. The rock base of the geology. The basic scope of work.		
Basic bibliography:		
1. Pisarczyk S. (2010): Mechanika gruntów. Wyd. Politechnika Warszawska		
2. Sawicki A. (2012): Zarys mechaniki gruntów sypkich. Wyd. Instytut Budownictwa Wodnego PAN		
Additional bibliography:		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	10	
2. Participation in auditory classes	30	
3. Preparation for auditory classes	15	
4. Participation in consultations	2	
5. Preparation for exam	2	
6. Participation in exam	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	60	2
Contact hours	32	1
Practical activities	30	1