

FACULTY:	Department of Mechanical Engineering
FIELD OF STUDY:	Transport
ERASMUS COORDINATOR OF THE FACULTY:	Dr hab. inż. Agnieszka Kułakowska, Prof. PK
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COURSE TITLE:	Technical mechanics I
LECTURER'S NAME:	Dr hab. inż. Łukasz Bohdal, Prof. PK
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COURSE CODE (USOS):	7S
ECTS POINTS FOR THE COURSE:	5 ECTS
ACADEMIC YEAR:	2026/2027
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p>Introduction. Basic concepts. The axioms of statics. Systems of forces. Reduction of forces converging flat. Conditions of equilibrium of forces converging flat. A pair of forces. Moment of a force couple.</p> <p>Flat arbitrary system of forces - reduction, the equilibrium conditions. Friction and friction law. The spatial arrangement converging forces - reduction, the equilibrium conditions. Spatial any system of forces - reduction and equilibrium conditions. Introduction. Basic concepts and determine the strength of materials. Introduction. Types of loads. External forces, and internal stresses. The concept of deformation - deformation of a purely volumetric, purely amorphous. Elements of the theory of elasticity, the characteristics of elasticity of the material, the characteristics of the material strength. Hooke's law for simple stretching. Experimental basis of the strength of materials. Allowable stress. Burden sharing. The de Saint-Venant, superposition.</p> <p>Presentation of force in the form of vector representation and analysis. Determining the resultant of two forces not parallel to the plane. The distribution of forces on the two components of the data lines of action. Exercise of the present reaction bonds.</p> <p>Tasks for analytical and convergent diagram of the conditions of equilibrium of forces.</p> <p>Presentation of analytical geometry and the balance of power in any plane.</p> <p>The tasks of the balance of forces plane taking into account the forces chafing.</p>

	<p>The tasks of the conditions of static equilibrium of any spatial system of forces.</p> <p>Determining the center of gravity of plane figures and space.</p> <p>Determination of cross-sectional moments of inertia of plane figures, the use of Theorem Steiner.</p>
ADDITIONAL INFORMATION:	

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