

FACULTY:	Department of Mechanical Engineering
FIELD OF STUDY:	Transport
ERASMUS COORDINATOR OF THE FACULTY:	Dr hab. inż. Agnieszka Kułakowska, Prof. PK
E-MAIL ADDRESS OF THE COORDINATOR:	agnieszka.kulakowska@tu.koszalin.pl
COURSE TITLE:	Material strength
LECTURER'S NAME:	Dr hab. inż. Agnieszka Kułakowska, Prof. PK
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COURSE CODE (USOS):	6S
ECTS POINTS FOR THE COURSE:	5,5 ECTS
ACADEMIC YEAR:	2025/2026
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
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?)	Laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p>Introduction. Health and safety information in the laboratory. Presentation of the general scope of the laboratory exercises. Impact bending test. Static tensile and compression test. Analysis of stress and strain in the straight rod during bending test using numerical analysis. Moments of inertia of cross-sectional plane - numerical exercise. Determination of forces and stresses in a plane truss rods - numerical exercise. Analysis of stress and strain in the beam statically indeterminate.</p> <p>Basic concepts and determine the strength of materials. The concept of strain - strain of pure volume, purely amorphous. Elements of the theory of elasticity of the elastic properties of the material, the strength properties of the material. Hooke's law for simple stretching. Tension and compression of straight bars. Bending simple beams. Pure bending of simple beams with the participation of shear forces. Torsion bars. Analysis of stress and strain. Complex strength.</p> <p>Determination of stress and strains- Hooke's law. Quantitative analysis of straight bars statically determinate and statically indeterminate in tension and compression. Analysis of bending a straight bar. Determination of stresses in a bending bar. Determination of stresses in the beams. Bending diagonal beams. The graphs of bending moments, shear forces and normal stress determination within the framework of statically determinate</p>
ADDITIONAL INFORMATION:	

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