Title **Strength of Materials**	Code **10102511310102101882**
Field **Material Enginering**	Year / Semester **2 / 3**
Specialty **-**	Course **core**
Hours Lectures: **3** Classes: **1** Laboratory: **1** Projects / seminars: **-**	Number of credits **6**
	Language **polish**

Lecturer:

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Status of the course in the study program:

- Obligatory

Assumptions and objectives of the course:

- Students will obtain knowledge of the basics of strength of materials and ability
 of strength analysis of basic machines? elements.

Contents of the course (course description):

- Internal forces. Uniaxial stress and strain.
 Stress-strain diagram. Hooke?s law.
 Axially loaded members.
 Statically determinate and indeterminate axially loaded systems.
 Shear stress and strain.Generalized Hooke?s law.
 Transformation of stress at a point.Mohr?s circle of stress.
 Centroid, moment of inertia, own centroidal axis.
 Parallel-axis theorem. Torsion of circular shafts, bar with rectangular,
 thin-walled open and closed sections.Bending moment and shear force diagrams.
 Normal and shear stresses in bending.Deflection of beams.
 Statically indeterminate beams.
 Clebsch?s method, by superposition, three-moment equation.
 Theory of columns.Strength theories.
 Combined stresses.Static tensile test.
 Torsion test. Brinell, Rockwell, Vickers, Poldi hardness test. Microhardness.
 Fatigue of metals. Impact test. Strain gauge. Photoelasiticity. Finite element method.
 Buckling. Spring constant. Ultrasonic test.

Introductory courses and the required pre-knowledge:

- Mathematics at the secondary school?s level and mechanics (statics).

Courses form and teaching methods:

- Lectures, classes and laboratory

Form and terms of complete the course - requirements and assessment methods:

- Written reports and exam.

Basic Bibliography:

Additional Bibliography: