

Title <b>Strength of Materials and Structures</b>	Code <b>10102514310102102033</b>
Field <b>Management and Engineering of Production</b>	Year / Semester <b>2 / 3</b>
Specialty -	Course <b>core</b>
Hours Lectures: <b>2</b> Classes: <b>2</b> Laboratory: <b>1</b> Projects / seminars: -	Number of credits <b>6</b>
	Language <b>polish</b>

**Lecturer:**

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**Status of the course in the study program:**

- This is one of the core courses for undergraduate studies in the field of Management and Engineering Production at the Faculty of Mechanical Engineering and Management.

**Assumptions and objectives of the course:**

- To provide introduction to key topics related to strength of materials applied in design of structures. Discussion of basic calculation procedures, with emphasis on economic aspects of strength related calculations.

**Contents of the course (course description):**

- Introduction to key topics related to strength of materials. Analysis of states of stresses and strains. Stress-Strain diagrams and their significance. Strength conditions and their applications, conditions of deformation. Calculation procedures for bar structures, circular cross-section shafts and straight beams (internal forces diagrams, stresses, deflections). Calculations of statically indeterminate structures. Analysis of combined stresses of statically determinate structures. Economic aspects of the strength calculations. Selected problems ? fatigue of metals, buckling of structures, experimental methods, optimal design of structures. Students should be able to learn the basic theoretical knowledge and possess skills for solving practical engineering problems and perform simple strength experiments.

**Introductory courses and the required pre-knowledge:**

- Fundamentals of mathematics. Knowledge of mechanics, with special emphasis on fundamentals of statics. Elementary skills in engineering drawing.

**Courses form and teaching methods:**

- Lectures supported by slides presentations. Classes focused on solving practical engineering problems. Laboratory classes focused on experiments and exercises.

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

- Written exam in the scope of theoretical and practical knowledge.

**Basic Bibliography:**

**Additional Bibliography:**