Title	Code
Strength of Mechanical Structures	**10102553110102102464**
Field: **Mechatronics ? graduate studies (II degree), variant I**	Year / Semester: **1 / 1**
Specialty: **-**	Course: **core**
Hours: Lectures: **1** Classes: **1** Laboratory: **1** Projects / seminars: **-**	Number of credits: **4**
	Language: **polish**

Lecturer:

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Faculty:

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Status of the course in the study program:

- This is one of the core courses for graduate studies in the field of Mechatronics at the Faculty of Mechanical Engineering and Management, variant I for undergraduates in the field of Mechatronics.

Assumptions and objectives of the course:

- To provide concise introduction to key topics related to strength of materials applied in design of mechatronic structures. Discussion of basic calculation procedures. Students should be able to learn the basic theoretical knowledge and possess skills for solving practical engineering problems and perform simple strength experiments.

Contents of the course (course description):

- Safety and reliability of mechanical structures. Calculation procedures for composite structures, (bars, shafts and beams). Introduction to the strain energy methods. The theorem of Castigliano and Menabrea?s theorem. Strength calculations of frames and arcs. Analysis of thin-walled ves-sels. Thick-walled pressure vessels ? Lame?s equations. Stress and strain in rotating discs. Strength analysis of thin-walled plates. Fundamentals of optimal design of structures.

Introductory courses and the required pre-knowledge:

- Fundamentals of mathematics. Knowledge of mechanics and strength of materials on under-graduate level. 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 tests in the scope of theoretical and practical knowledge

Basic Bibliography:

Additional Bibliography: