

Title Analysis and Synthesis of Mechanisms	Code 10102122210102103241
Field Mechanical Engineering	Year / Semester 1 / 2
Specialty Mechanics of Materials and Structures	Course elective
Hours Lectures: 1 Classes: 1 Laboratory: - Projects / seminars: -	Number of credits 2
	Language polish

Lecturer:

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Status of the course in the study program:

- Eligible course.

Assumptions and objectives of the course:

- Knowledge of the analysis and synthesis of mechanisms required for solving technical problems connected with construction and exploitation of machines.

Contents of the course (course description):

- Structure of mechanisms Basic definitions. Classification of kinematic pairs. Structural and functional classification of mechanisms. Kinematics of mechanisms. Mobility of mechanisms. Analytical methods of kinematic analysis of lever mechanisms: four-bar linkage, slider-crank mechanism. Dynamics of mechanisms. Inertia forces and moments of inertia forces. Reactions in kinematic pairs. Total compensating torque. Synthesis of mechanisms. Introduction and review of the main mechanisms synthesis problems. Four bar linkage as an angle function generator. Four bar linkage as a path generator. Synthesis of cam mechanisms. Problems of synthesis of gears and belt transmissions.

Introductory courses and the required pre-knowledge:

- Basic knowledge of calculus of vectors, differential calculus, static, kinematics and dynamics of rigid body.

Courses form and teaching methods:

- Lectures and exercises.

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

- Test

Basic Bibliography:

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Additional Bibliography:

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