

Code: 10 „TECHNICAL MECHANICS”

ECTS credits: 4

Forms of assessments: Continuous assessment

Number of hours per week: 2+1+0

Types of assessment: Continuous assessment
mark - Achievement tests

Department, providing instruction on the discipline:

Department: *MECHANICS AND MACHINE ELEMENTS*

FACULTY OF MECHANICAL ENGINEERING AND TECHNOLOGIES

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Annotation:

The discipline "Technical Mechanics" comprises four main parts: Statics, Strength of Materials, Kinematics and Dynamics. In Statics methods for reduction and conditions of equilibrium of force systems are studied, their application for solving of specific engineering problems as well. Mainly, the problems concerning determination of support reactions are solved, while equilibrium of bodies with dry friction is additionally considered here. Strength of Materials is a continuation of Statics. In this part the internal forces in structures and sizing methods at major cases of loading are studied. In Kinematics the motion of a particle and the basic motions of a rigid body, such as translation, rotation and planar motion, are considered. Kinematics of some conventional planar mechanisms is introduced here. The problems concerning relative motion with respect to the two different moving observers are discussed as well. The Dynamics part is devoted to the classical mechanical methods for determination of motion of the restricted mechanical systems. Here the Kinematics and Dynamics of the spherical motion of a rigid body are represented, considering the elementary theory of the gyroscope.

Each student receives an individual assignment for course work, which must be developed and defended within certain deadlines. Condition for successful mastering of the discipline is the knowledge of the following mathematical sections: vector calculus, analytical geometry, differential and integral calculus, differential equations.

Main issues of the syllabus content:

- STATICS
- STRENGTH OF MATERIALS
- KINEMATICS
- DYNAMICS
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Content presentation:

The content is presented in lectures and seminar classes.

The basic theoretical knowledge is explained by means of examples, while the theory applications are demonstrated by solution of real engineering problems.