Course Unit Descriptor

Study Programme: Agricultural engineering and information systems

Course Unit Title: Mechanics

Course Unit Code: 19.URV002

Name of Lecturer(s): Dragi M. Radomirović

Type and Level of Studies: Undergraduate

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): winter

Language of instruction: Serbian

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 7

Prerequisites: None

Course Aims:

Introducing students to the basic concepts and principles of statics and kinematics.

Learning Outcomes:

The student's ability to recognize the loads of the object and to know which equilibrium equations can solve the problem. The student's ability to recognize the type of object movement and to apply appropriate theoretical knowledge can solve a specific problem in kinematics.

Syllabus:

Theory: Fundamentals of statics, Coplanar and non-coplanar concurrent force system (equilibrium and resultant), System of couples (equilibrium and resultant couple), Coplanar non concurrent force system (equilibrium and resultant), System of bodies (free body diagrams and equilibrium conditions), Structures (plane trusses, methods for solving), Beams. Internal forces (shear and axial forces, bending moment), Three-dimensional force systems (moments and couples in three dimensions, equilibrium and simpler equivalent systems), Dry friction (Coulomb's law), Rolling friction, Center of gravity, Kinematics of a particles (trajectory, velocity, acceleration and the radius of curvature of the path) , Kinematics of rigid bodies (rotation about a fixed axis, translational motion and general plane motion) , Kinematics of reative motion

Practice: Exercises, Other forms of teaching, Study research work, Application of theoretically acquired knowledge to specific problems of statics and kinematics

Required Reading:

1. Radomirovic Dragi, 2001. Mechanics-part 1 (in Serbian). Faculty of Agriculture, Novi Sad
2. Kovacic Ivana, Zvonko Rakaric, 2006. Collection of Problems in Statics I (in Serbian). Faculty of Technical Sciences, Novi Sad
3. Kovacic Ivana, Zvonko Rakaric, 2006. Collection of Problems in Statics II (in Serbian). Faculty of Technical Sciences, Novi Sad
4. Djukic Dj.S. Cveticanin L.J. 2005. Kinematics (in Serbian). Faculty of Technical Sciences, Novi Sad
5. Maretic Ratko, 2007. A collection of solved problems in kinematics (in Serbian). Faculty of Technical Sciences, Novi Sad

Weekly Contact Hours: 7	**Lectures: 3**	**Practical work: 4**

Teaching Methods:

Oral presentation of theory and problem solving are combined with presentations using computers. Students have access to all presentations with theory and a large number of solved tasks on the faculty website.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	30
Practical work	5	oral exam	

Preliminary exam(s)	50	…….	
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			