

Study program: Mechanical engineering			
Type and level of studies: Doctoral studies			
Course unit: Modelling the Mechanisms and Systems of Construction and Transport Mechanization			
Teacher in charge: Prof. Dr Milomir Gašić			
Language of instruction: English			
ECTS: 5			
Prerequisites: None			
Semester: Autumn			
Course unit objective: Systematic obtaining a higher level of knowledge in the field of modelling mechanisms and systems of construction and transport mechanization, workloads, as well as the necessary evidence in their dimensioning.			
Learning outcomes of the Course unit Mastering the principles and improving the knowledge in the field of modelling and calculation of the systems of construction and transport mechanization.			
Course unit contents <i>Theoretical classes</i> Types of mechanisms of construction and transport mechanization systems. Dynamic parameters. Modeling driving and power transmission systems. Modelling of loads of construction and transport mechanization mechanisms and systems. Modelling hoisting and moving mechanisms. Modelling mechanisms for changing the reach of the crane arms. Modelling digging mechanisms. Modeling connections between revolving and nonrevolving parts in construction and transport mechanization systems. Modelling metal structures of construction and transport mechanization in simultaneous operation of several mechanisms. Dynamics of construction and transport mechanization mechanisms during nonstationary motion. <i>Practical classes</i> Comments and analysis of solutions models of construction and transport mechanization systems.			
Literature Norton L. R., Design of Machinery – An introduction to the Synthesis and analysis of Mechanisms and Machines, McGraw – Hill, 2004 Lawrence Shapiro and Jay Shapiro: Cranes and Derricks, Fourth Edition. McGraw-Hill Professional. 2010. Patrick M McGuire: Conveyors: Application, Selection, and Integration (Industrial Innovation). CRC Press. 2009.			
Number of active teaching hours			Other classes
Lectures: 3	Practice: 0	Other forms of classes:	Independent work: 0
Teaching methods Theoretical classes in the form of lectures organized in the classroom. The practical classes are organized in the classroom and in computer laboratory in the field of modelling the mechanisms and system of construction and transport mechanization. Simulation examples based on the model are used.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures		oral examination	30
practical classes/tests		written examination	
Seminars/homework	70	
Project			
Other			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	Less than 50	Failing	