



# UNIVERSITY OF NIŠ

**Course Unit Descriptor**

**Faculty**

Faculty of Mechanical Engineering

## GENERAL INFORMATION

Study Program	<b>Mechanical Engineering</b>		
Study Module (if applicable)	-		
Course Title	Dynamics of mobile machines		
Level of Study	<input type="checkbox"/> Bachelor	<input type="checkbox"/> Master's	<input checked="" type="checkbox"/> Doctoral
Type of Course	<input type="checkbox"/> Obligatory	<input checked="" type="checkbox"/> Elective	
Semester	<input checked="" type="checkbox"/> Autumn	<input type="checkbox"/> Spring	
Year of Study	II		
Number of ECTS Allocated	3		
Name of Lecturer/Lecturers	Dragoslav B. Janošević		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input type="checkbox"/> Individual tutorials
	<input checked="" type="checkbox"/> Laboratory work	<input checked="" type="checkbox"/> Project work	<input checked="" type="checkbox"/> Seminar
	<input type="checkbox"/> Distance learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> Other

## Purpose and Overview (max. 5 sentences)

Analysis, modelling and development of dynamic mathematical model functions, kinematic chains, transmissions and drive mechanisms of mobile (construction, transportation, mining, agricultural and communal) machines. Ability to research and analyze the dynamics of mobile machines in their development, design and testing.

## Syllabus (brief outline and summary of topics, max. 10 sentences)

1) Fundamentals of teramechanics - characteristics of the land as subjects of labour and reliance mobile machines, 2) Dynamic relations modelling of objects and tools of mobile machinery, 3) Dynamics of moving mobile machines, 4) Dynamic simulation of the kinematic chains of mobile machines, 5) The dynamics of hydrodynamic transmissions motion of mobile machines, 6) The dynamics of hydrostatic transmissions motion of mobile machines, 7) Dynamic simulation of transmission motion of mobile machines, 8) Dynamic analysis driving mechanisms with hydro-cylinders as actuators, 9) Dynamic analysis driving mechanisms with hydraulic motors as actuators, 10) Dynamic simulation of driving mechanisms mobile machines, 11) Mathematical models for determining the dynamic stability of mobile machines, 12) Stability testing of mobile machinery.

## Language of Instruction

Serbian (complete course)       English (complete course)       Other \_\_\_\_\_ (complete course)

Serbian with English mentoring       Serbian with other mentoring \_\_\_\_\_

## Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
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<b>Activity During Lectures</b>	<b>5</b>	<b>Written Examination</b>	<b>50</b>
<b>Practical Teaching</b>	<b>10</b>	<b>Oral Examination</b>	<b>Max. 35 (depending on Teaching Colloquia)</b>
<b>Teaching Colloquia</b>	<b>35</b>	<b>Overall Sum</b>	<b>100</b>
<b>*Final examination mark is formed in accordance with the Institutional documents</b>			