



# UNIVERSITY OF NIŠ

**Course Unit Descriptor**

**Faculty**

Faculty of Mechanical Engineering

## GENERAL INFORMATION

Study Program	<b>Manufacturing &amp; Information Technologies</b>		
Study Module (if applicable)	-		
Course Title	Advanced application of finite element method		
Level of Study	<input type="checkbox"/> Bachelor	<input checked="" type="checkbox"/> Master's	<input 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	I		
Number of ECTS Allocated	6		
Name of Lecturer/Lecturers	Nikola D. Korunović		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input checked="" 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)

Students should gain theoretical and practical knowledge on finite element analysis of structures that exhibit highly nonlinear behavior and/or are subjected to complex mechanical and thermal loads.

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

- Application of finite element method(FEM) to stress analysis of structures with material, geometrical and contact nonlinearities
- Dynamic analysis
- Transient thermal analysis
- Coupled-field structural-thermal analysis
- Elastic-plastic material behavior
- Examples from engineering practice: rubber based products, transient thermal analysis of machine tools, dynamic analysis of structures with harmonic excitation, FEA of structures exhibiting plastic strains
- Seminar on selected topic

## Language of Instruction

- Serbian (complete course)       English (complete course)       Other \_\_\_\_\_ (complete course)
- Serbian with English mentoring       Serbian with other mentoring \_\_\_\_\_

## Assessment Methods and Criteria

<b>Pre exam Duties</b>	<b>Points</b>	<b>Final Exam</b>	<b>Points</b>
<b>Activity During Lectures</b>	<b>10</b>	<b>Written Examination</b>	<b>0</b>
<b>Practical Teaching</b>	<b>40</b>	<b>Oral Examination</b>	<b>30</b>
<b>Teaching Colloquia</b>	<b>20</b>	<b>Overall Sum</b>	<b>100</b>

**\*Final examination mark is formed in accordance with the Institutional documents**