

Study program: Industrial Engineering			
Course title: Modern Methods of Processing			
Professor/assistant: PhD Anica Milošević			
Type of course: compulsory			
ECTS credits:6			
Pre-requisites: -			
Aims of the course: Preparing students to: - acquire concepts such as electrochemical processing, electro-erosion treatment, laser, plasma, water jet, ultrasound, explosion, - learn the principle of unconventional processing methods, technological parameters, as well as the tools that are used, - learn about machines for unconventional processing methods.			
Learning outcomes: After taking the course, students will be able to: - define the correct choice of machines and tools to use, - list the different types of modern processing methods that can be used in the production of machine parts, - give advantages and disadvantages for different types of modern processing methods, - apply safety and occupational safety measures in modern processing methods.			
Syllabus			
<u>Theoretical part</u> In addition to the roughness of surfaces, the principles of modern methods of processing are studied in classes of theoretical instruction: electroerosion treatment (full and wire electrode), electrochemical (anodic hydraulic and anodic mechanical processing), laser treatment (laser cutting and laser drilling), ultrasonic processing, explosion treatment (explosion formation and blasting), water jet processing (clean and abrasive water jet treatment) and plasma treatment.			
<u>Practical part</u> Advantages and disadvantages, as well as machines for: electro-erosion treatment, electrochemical processing, laser treatment, ultrasonic processing, explosion treatment, water jet processing and plasma. Measures of safety and protection in laser treatment, ultrasound and other modern processing methods. Visits to the economy. Colloquiums.			
Literature			
1. Lazarević, D., Radovanović, M., <i>Nonconventional methods - material processing by mechanical engineering</i> , Faculty of Mechanical Engineering, Niš, 1994. 2. Belić. I., <i>Laser Radiation Processing</i> , Academic Thought, 2003. 3. Belić. I., <i>Unconventional Processes of Processing: Oriented Energy Management</i> , Academic Thought, 2010.			
Number of active classes			Other forms of teaching:
Lectures: 2	Practical classes: 2	Research work:	
Teaching methods Combined, interactive approach with practical problem solving			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	10	written exam	40
practical training		oral exam	
colloquium(s)/seminar papers	40+10		
Sum	60	Sum	40