Course Unit Descriptor

Study Programme: Production Engineering			
Course Unit Title: Modelling and Simulation of Metal Forming Processes			
Course Unit Code: PMISP1			
Name of Lecturer(s): Milutinović Mladomir, Movrin Dejan			
Type and Level of Studies: Master level			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): Winter/Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 5			
Prerequisites: None			
Course Aims: Aim of the course is mastering the content in the field of modelling and simulation of processes in metal forming technologies.			
Learning Outcomes: The knowledge gained from this course allows the analysis of metal forming processes by the methods of modeling and simulation as well as the interpretation of the results in order to improve the technology.			
Syllabus: The importance of modeling the deformation process. Modeling methods. Numerical modeling and simulation of metal forming processes. Theoretical basis of numerical modeling and simulation of metal forming processes. The Finite Element Method (FEM) and its application in deformation. Modern software packages FEM. Modeling and simulation of bulk metal forming using a computer. Modeling and simulation of sheet metal using a computers systems. Analysis of factors influencing on the correctness of the modeling and simulation of metal forming and models calibration. Experimental methods to verify the results of numerical simulations. Experimental determination of the stress-strain components. Experimental determination of process parameters in metal forming technology.			
Required Reading: Relevant literature in English TBD			
Weekly Contact Hours:	**Lectures:**	**Practical work:**	
Teaching Methods: Classes are held with the active participation of students in lectures and exercises. In the lectures the author first discusses the importance of physical and numerical modeling of metal forming processes. After that, exposes the theory of numerical modeling and simulation of metal forming process and summarizes modern software packages. On exercises specifically done some modeling and simulation of metal forming processes with an analysis of stress, strain and process parameters. The simulation results (component stress, strain and process parameters) are verified experimentally in the laboratory. Eliminate possible ambiguities in consultations at specific times			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Group Assignment		Examination Assignment	
Exercises			
Test			

Test			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			