

Study program / course: Mechanical engineering				
Type and level of study: Bachelor academic studies				
Course: Manufacturing technologies				
Teachers: Bogdan Nedić, Srbslav Aleksandrović, Vukić Lazić, Miodrag Lazic, Milentije Stefanovic, Dragan Adamovic				
Status of course: Obligatory, joint for all modules, IV semester				
Number of ECTS: 8				
Precondition: Materials in mechanical engineering exam passed				
The objective of course Gaining of basic knowledge from the most important areas of manufacturing technologies, welding technology, deformation manufacturing technology, cutting manufacturing technology, unconventional manufacturing methods, learning how to properly choose technological method and working parameters, learning of modern manufacturing systems, machines, devices, and modern measuring equipment				
The outcome of course After predicted number of lectures, student is becoming capable to: recognize and differ manufacturing methods and appropriate working parameters; determine basic process parameters for simple tasks; know and understand basic principles of functioning of simple tools, devices, machines and measuring equipment; use computer with proper software, programs and data bases (for choice of tools and determination of working parameters) with goal to prepare technological documentation etc.				
Syllabus <i>Theoretical study</i> Introduction to manufacturing technologies. Basic terms in welding technology. Physical bases of welding and division of methods. Choice of welding method and marking of welded joints. Term weldability of steel. Heat sources for welding. Welding methods. Bases of soldering and gluing. Bases of casting. Montage technology. Technology of surface protection. Theory bases of deformation manufacturing methods, tensions, deformations, speeds, strengthening curves, conditions of plastic behaviour, diagrams of boundary deformability. Manufacture of metal sheets by separation. Manufacture of metal sheets by bending. Deep drawing. Volume shaping. New technologies and new approaches in area of deformation manufacturing. Bases of RP, RT, RM, and RE technologies. Working system. Tribomechanical systems in cutting manufacture. Bases of cutting manufacture theory. Cutting methods (scrapping, milling, grinding, sawing, wiring, thread making etc). Unconventional manufacturing methods: ECM, EDM, laser, ultrasonic, water jet etc. Technological method of manufacture and control, technological documentation <i>Practical classes: Practice, other forms of lectures, research projects</i> During laboratory practice students are becoming capable to define technologies and methods of product manufacture, choose tools, machines, manufacture regime and preparation of technological documentation.				
Recommended reading [1] A. Majstorović, M. Jovanović: <i>Osnovi zavarivanja, lemljenja i lepljenja</i> , Naučna knjiga, Beograd, 1986, 1988, 1991, 1995. [2] S. Aleksandrović: <i>Proizvodne tehnologije (Tehnologija obrade deformisanjem)</i> , skripta, Mašinski fakultet, Kragujevac, 2007. [3] B. Nedić, M., Lazić: <i>Proizvodne tehnologije (Obrada metala rezanjem)</i> , skripta, Mašinski fakultet, Kragujevac, 2007.				
The number of hours of active teaching:				Other classes: 1
Theory: 3	Practical classes: 1	Other forms of teaching: 1	Research study: 0	
Methods of teaching				
Evaluation of knowledge				
Pre-final exam obligations	points	Final exam	points	
Activities during the classes:	3+3+3=9			
Practical classes:	8+8+9=25	Oral exam	30 points	
Colloquiums(s) :	12+12+12=36			
Seminar(s) :				