

Information sheet for the course
Theory and technology of welding processes, casting and powder metallurgy

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of special technology</i>	
Course unit code: <i>STaM/D/3-39/e</i>	Course unit title: <i>Theory and technology of welding processes, casting and powder metallurgy</i>
Type of course unit: <i>optional</i>	
Planned types, learning activities and teaching methods: <i>Lectures three hours per week / 1 hour per week laboratory course.</i>	
Number of credits: <i>15</i>	
Recommended semester: <i>1st semester in the 1st year</i>	
Degree of study: <i>III.</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>Participation in laboratory exercises and submission semester work. The test consists of preparing written and oral tests in the range učebných curricula.</i>	
Learning outcomes of the course unit: <i>This course gives PhD students the knowledge and skills of comprehensive utilization of knowledge of engineering technology and materials engineering disciplines so that the welding, powder metallurgy and foundry proved flexible approaches to the resolution of high standard tasks, as they can in superposition knowledge of technology and materials to arrive at the solution. Subject imposes requirements on the consistent use of performance parameters of materials processed by modern technology in terms of quality and efficiency of the components. The adoption of new materials, production methods, and technology is essential for mastering the theory and technology of that broad spectrum of the subject.</i>	
Course contents: <i>The course presents extension of the basic technological properties of metallic materials processed into a product of interaction of the material properties of the superposition of the weldability, castability, spekatelnosť, homogeneity to plastic and mechanical properties of finished weldments, castings and powder metallurgy. Addresses the relationship between technology disciplines comparing the effectiveness of their particular application with respect to performance parameters and efficiency of production parts. Further explains the unconventional methods of processing materials in foundries and welding and powder metallurgy for example. production of ductile cast iron ADI, friction welding with or shaking the isostatic pressing of powders.</i>	
Recommended of required reading: <i>[1] HRIVŇÁK, I.: Zváranie a zvariteľnosť materiálov, STU Bratislava 2009: ALFA, 468 s.</i> <i>[2] ORSZÁGH, P. - ORSZÁGH, V.: Zváranie MIG/MAG ocelí a neželezných kovov, Polygrafia SAV, Bratislava, 2000.</i> <i>[3] ORSZÁGH, P. - ORSZÁGH, V.: Zváranie TIG ocelí a neželezných kovov.</i> <i>[4] DILLINGER, J. a kol.: Moderní strojírenství pro školu i praxi, EUROPA – SOBOTÁLES.cz, Praha 2007, 608 s.</i> <i>[5] PTÁČEK, L. a kol.: Náuka o materiálu II., Brno: Akademické nakladatelství CERM, 2003</i> <i>[6] HAVALDA, A: Prášková metalurgia, Vydavateľstvo STU Bratislava, 1987.</i>	
Language: <i>Slovak</i>	
Remark: <i>The subject is provided in the winter and the summer semester in the first year. The course is</i>	

elective.

Evaluation history:

Total number of students assessed: 0

A	B	C		E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: *Assoc. prof. Ing. Harold Mäsiar, CSc.*

Last modification: *15.4.2014*

Supervisor: *prof. Ing. Vojtěch Hrubý, CSc., guarantee of the study program “Technologies and Materials in Mechanical Engineering“, Assoc. prof. Ing. Ondrej Híreš, CSc., Assoc. prof. Ing. Viliam Cibulka, CSc. – together-guarantors.*