

**Information sheet for the course
Advanced Materials and Technologies**

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of Industrial Technologies in Púchov</i>	
Course unit code: <i>MI-I-V-12</i>	Course unit title: <i>Advanced Materials and Technologies</i>
Type of course unit: <i>optional</i>	
Planned types, learning activities and teaching methods: <i>Lecture: 2 hours weekly/26 hours per semester of study; face to face</i> <i>Seminar: 0</i> <i>Laboratory tutorial: 0</i>	
Number of credits: <i>2</i>	
Recommended semester: <i>the 3rd semester in the 2nd year of the full-time form of study</i> <i>the 3rd semester in the 2nd year of the part-time form of study</i>	
Degree of study <i>the 2nd degree of study (Engineer's degree)</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>Individual report with presentation : "Application of an advanced material in practice"</i>	
Learning outcomes of the course unit: <i>Students are acquainted with an extensive variety of basic and advanced materials and with their application in practice in dependance on the applied technology. Students can think logically and can develop creative applications by applying the gained technical knowledge. Students will be able to create simple methods of dealing with technical issues. Students will be acquainted with an extensive field of new structural materials.</i>	
Course contents: <ol style="list-style-type: none"> <i>1. Development, production and market of new materials</i> <i>2. Modern technologies in iron and steel metallurgy</i> <i>3. Modern steels for power engineering</i> <i>4. High-strength and high-alloy steels</i> <i>5. Superalloys</i> <i>6. Materials produced by powder metallurgy</i> <i>7. Amorphous, nanocrystalline and microcrystalline materials</i> <i>8. Oxide and nonoxide ceramic materials</i> <i>9. Shape memory materials</i> <i>10. Specific composites for biomedicine</i> <i>11. Biomaterials</i> <i>12. Superconducting materials</i> <i>13. Superplastic materials</i> 	
Recommended references and resources: <ol style="list-style-type: none"> <i>1. Janovec, J. a kol.: Perspektivní materiály. Praha: Vydavatelství ČVUT v Praze, 2008.</i> <i>2. Macek, K. a kol.: Kovové materiály. Praha: Vydavatelství ČVUT v Praze, 2006.</i> 	

Language: <i>Slovak</i>					
Remarks: <i>none</i>					
Evaluation history: <i>Number of classified students : 2</i>					
A	B	C	D	E	FX
0.0	0.0	0.0	100.0	0.0	0.0
Lecturers: <i>prof. Ing. Františka Pešlová, PhD.</i>					
Last modification: <i>3.03.2014</i>					
Supervisor: <i>prof. Ing. Darina Ondrušová, PhD.</i>					