

Information sheet for the course Physics of Solid Substances and Polymers

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of Industrial Technologies in Púchov</i>	
Course unit code: <i>MI-I-P-10</i>	Course unit title: <i>Physics of Solid Substances and Polymers</i>
Type of course unit: <i>compulsory</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: 3	
Recommended semester: <i>2nd semester in the 1st year full-time</i> <i>4th semester in the 2nd year part-time</i>	
Degree of study: <i>the 2nd degree of study (Engineer's degree)</i>	
Course prerequisites: "none"	
Assessment methods: <i>Exam (written and oral part)</i>	
Learning outcomes of the course unit: <i>Students have deeper knowledge of physical states and properties of solids and polymers, ability to use mathematics to solve physical problems, critical thinking skills, effective written and oral communications skills.</i>	
Course contents: <ol style="list-style-type: none"> 1. Chemical bonds 2. Material stiffness 3. Dissolving of substances 4. Elasticity and stiffness of materials 5. Physical and phase states of materials 6. Physical states of polymers 7. Deformation properties of solids 8. Rubber elasticity 9. Rheological properties of polymers in plastic state 10. Glass transition temperature (T_g) 11. Liquid crystals, melting of semicrystalline polymers 12. Mechanical properties of materials, materials failure 13. Deformation properties of solids and polymers 14. Dynamic mechanical properties of solids 15. Thermal properties of solids 16. Electrical properties of solids 	
Recommended of required reading: <ol style="list-style-type: none"> 1. ŠIMEK, I.: <i>Fyzika polymérov</i>. Bratislava: CHTF-SVŠT, 1987. 2. MEISSNER, B. - ZILVAR, V.: <i>Fyzika polymerů</i>. Praha: SNTL, 1987. 3. OLŠOVSKÝ, M. - MACHO, V.: <i>Základy chémie polymérov</i>. Trenčín: TnUAD, 2008. 4. STROBL, G.: <i>The Physics of Polymers</i>. Springer, 1996. 5. ELIAS, H. G.: <i>An Introduction to Polymer Science</i> VCH, 1997. 	
Language: <i>Slovak</i>	

Remarks:					
Evaluation history:					
A	B	C	D	E	FX
Lecturers: <i>doc. Mgr. Ivan Kopal, PhD.</i>					
Last modification: <i>31.03.2014</i>					
Supervisor: <i>prof. Ing. Darina Ondrušová, PhD.</i>					