

Information sheet for the course Material Science II (Nonmetals)

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of Industrial Technologies in Púchov</i>	
Course unit code: <i>MI-P-17</i>	Course unit title: <i>Material science II (Nonmetals)</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: 1 hours weekly/13 hours per semester of study; face to face</i> <i>Laboratory tutorial: 2 hours weekly/26 hours per semester of study; face to face</i>	
Number of credits: <i>6</i>	
Recommended semester: <i>3rd semester in the 2nd year full-time</i> <i>3rd semester in the 2nd year part-time</i>	
Degree of study: <i>the 1st degree of study (Bachelor's degree)</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>Students will prepare and present a project in the field of non-metallic materials. After completing all the Lecturers of the subject, exercises and laboratory exercises, students take a written verification focused on knowledge obtained during the semester. The minimum condition for obtaining credits is the successful presentation of the project and the written examination min. 50 %.</i>	
Learning outcomes of the course unit: <i>The student has a basic knowledge in the field of non-metallic materials, namely: inorganic silicate-based materials (ceramics, glass), polymer materials and textiles. It has a basic knowledge of the chemical composition, structure, important characteristics, production and application. It also has experimental knowledge and skills for application materials sciences and engineering practice.</i>	
Course contents: <i>Inorganic silicate-based materials. Definition of ceramics and glass.</i> <i>Classification of ceramic materials. Structure, properties and applications of classical ceramics.</i> <i>The structure, properties and applications of structural ceramics.</i> <i>Types of glass. Structure, chemical composition and the relevant properties of the glasses.</i> <i>Basic concepts of polymer materials, distribution of polymers.</i> <i>Properties and characterization of polymeric materials.</i> <i>The most important types of plastics - production, processing, use.</i> <i>The most important types of rubbers - production, processing, use.</i> <i>Textile fibers - basic characteristics, classification, properties.</i> <i>Yarn. Textile fabrics - woven and knitted fabrics.</i> <i>Technical textiles, high functional fabric. Field applications of technical textile.</i>	
Recommended of required reading: <ol style="list-style-type: none"> 1. <i>J.Hlaváč: Základy technológie silikátov, SNTL, Praha, 1987.</i> 2. <i>J. Majling a kol.: Technológia špeciálnych anorganických materiálov, STU, Bratislava.</i> 3. <i>Z.Pospíšil a kol.: Jemná keramika, SNTL/Alfa Banská Bystrica.</i> 4. <i>V.Hanykýř, J. Kutzendörfer: Technologie keramiky, vyd. I., VEGA, s.r.o., 2000.</i> 5. <i>M. Olšovský: Kaučuky. Výroba-vlastnosti-použitie. TnUAD Trenčín, 2012.</i> 	

6. *V. Ducháček: Polymery. Výroba-vlastnosti-zpracování-použití. VŠCHT Praha, 2006.*
7. *M. Olšovský - V. Macho: Základy chémie polymérov. TnUAD Trenčín, 2008.*
8. *Militký, J.: Textilní vlákna-klasická a speciální, TU Liberec, 2002.*
9. *Lizák, P., Militký, J.: Technické textilie. FPT Púchov, 2000.*

Language: *Slovak*

Remarks: -

Evaluation history: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Lecturers: *prof. Ing. Darina Ondrušová, PhD., doc. Ing. Petra Skalková, PhD., Ing. Vladimíra Krmelová, PhD.*

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Supervisor: *prof. Ing. Darina Ondrušová, PhD.*