

## Information sheet for the course Composites

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| <b>University:</b> <i>Alexander Dubček University of Trenčín</i>  |   |
| <b>Faculty:</b> <i>Faculty of Industrial Technologies in Púchov</i>   |   |
| <b>Course unit code:</b> <i>MT-P-36</i>   | <b>Course unit title:</b> <i>Composites</i> |
| <b>Type of course unit:</b> <i>compulsory</i>   |   |
| <b>Planned types, learning activities and teaching methods:</b><br><i>Lecture: 2 hours weekly/26 hours per semester of study; face to face</i><br><i>Seminar: 1 hour weekly/13 hours per semester of study; face to face</i><br><i>Laboratory tutorial: -</i>   |   |
| <b>Number of credits:</b> <i>4</i>  |   |
| <b>Recommended semester:</b> <i>6<sup>th</sup> semester in the 3<sup>rd</sup> year full-time</i><br><i>8<sup>th</sup> semester in the 4<sup>th</sup> year part-time</i>   |   |
| <b>Degree of study:</b> <i>the 1<sup>st</sup> degree of study (Bachelor's degree)</i>   |   |
| <b>Course prerequisites:</b> <i>MT-P-4 Material Science I</i>   |   |
| <b>Assessment methods:</b> <i>examination</i>   |   |
| <b>Learning outcomes of the course unit:</b><br><i>The student obtains basic information about : composite materials, their manufacture, mechanical and utility properties. The emphasis is placed on the most common types of composite materials used in construction machinery and equipment in various industries. The student has a general knowledge of manufacturing, testing and violations of composite materials, and knows their application usage. The student will acquire knowledge of mechanical, technological and chemical characteristics in terms of their usage for specific purposes and applications in practice.</i> |   |
| <b>Course contents:</b><br><i>Definition and types of composites</i><br><i>Composites based on polymers</i><br><i>Metal matrix composites</i><br><i>Glass-ceramic and ceramic composites</i><br><i>The reinforcements used in the composites (fiber, fabric, web, ...), types of reinforcing materials</i><br><i>Carbon fiber</i><br><i>PVC coated composites</i><br><i>Manufacturing of composites</i><br><i>Mechanical properties of composites</i><br><i>Testing of composites</i><br><i>Limit states of composites</i><br><i>Rupture of composites</i><br><i>Applications of composites</i>   |   |
| <b>Recommended of required reading:</b> <ol style="list-style-type: none"> <li>1. <i>Ehrenstein, G. W. : Polymerní kompozitní materiály, Scientia, Praha, 2009, ISBN-978-80-86960-29-6.</i></li> <li>2. <i>Laš, Vladislav: Mechanika kompozitních materiálů. Plzeň: Západočeská univerzita, 2004.</i></li> <li>3. <i>Bareš, R. A.: Kompozitní materiály. Praha : SNTL, 1988.</i></li> <li>4. <i>Černý, M.: Vláknové kompozity. Praha : ČVUT, 2001.</i></li> </ol>   |   |

5. Schätz, M., Vondráček, P.: *Zkoušení polymerů. Praha : VŠHCT, 1988.*
6. Pulc, V., Hrnčiar, V., Gondár, E.: *Náuka o materiáli, STU Bratislava, 2004.*

**Language:** *Slovak*

**Remarks:**

**Evaluation history:**

| A   | B   | C   | D   | E   | FX  |
|-----|-----|-----|-----|-----|-----|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Lecturers:** *doc. Ing. Marta Kianicová, PhD., doc. RNDr. Ján Bezecný, CSc.*

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**Supervisor:** *doc. Ing. Marta Kianicová, PhD.*