

## Information sheet for the course: Advanced Composite Materials

<b>University:</b> Alexander Dubček University of Trenčín					
<b>Faculty:</b> Faculty of Industrial Technologies in Púchov					
<b>Course unit code:</b> MI-I-P-20			<b>Course unit title:</b> Advanced Composite Materials		
<b>Form, scope and method of educational activity:</b>					
<b>Form of study:</b> Lecture / Seminar / Laboratory tutorial					
<b>Recommended number of lessons (hours):</b>					
<b>Weekly:</b> 2/ 1 / 0 <b>During the semester:</b> 24/12/0 <b>Method of study:</b> attendance method					
<b>Number of credits:</b> 4					
<b>Recommended semester:</b> summer					
<b>Degree of study:</b> the 2 <sup>nd</sup> degree of study					
<b>Course prerequisites:</b>					
<b>Assessment methods:</b>					
Assessment during the semester:					
Summary assessment of work results during the semester = 40 points. Semester project.					
Final assessment:					
Assessment of exam results = 60 points					
Grading scale:					
Grade A: 91 – 100 points					
Grade B: 81 – 90 points					
Grade C: 71 – 80 points					
Grade D: 61 – 70 points					
Grade E: 55 – 60 points					
Grade FX: less than 55 points					
<b>Learning outcomes of the course unit:</b>					
The student will gain knowledge in the field of composite materials with the application of basic and new innovative materials of matrix and reinforcements with their use in engineering practise. The student will be able to independently design composite materials for specific engineering components.					
<b>Course contents:</b>					
Definition and characteristics of advanced (progressive) composite materials (ACM).					
Applications of ACM in engineering, construction, transport, etc.					
Innovative materials of matrices and reinforcements.					
Strain-stress states of composites.					
Fracture behaviour of fibre composite materials.					
New polymer materials for the manufacture and design of ACM.					
Modern technologies to produce ACM.					
Material input parameters for computational modelling of strain-stress states of composites.					
Design of computational modelling of structural elements made of composites. Composite experiments.					
Freeware CADEC.					
<b>Recommended of required reading:</b>					
BRUCE, T. Advanced Composite Materials. 2020. ISBN 979-8635962305.					
ASM Metals Handbook: Failure Analysis and Prevention, vol. 11, pp. 1039–1071.					
E-learning TnUAD.					
<b>Language:</b>					
English					
<b>Remarks:</b>					
Compulsory course / Profile course					
<b>Evaluation history: 0</b>					
Total number of graded students:					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

<b>Lecturers:</b> Assoc. Prof. Ing. Jan Krmela, Ph.D.
<b>Last modification:</b> 31.08.2022
<b>Supervisor:</b> Prof. RNDr. Mariana Pajtášová, PhD.