

## Description of an Individual Course Unit

<b>Description of an Individual Course Unit</b>				
<b>Study program</b>		Materials engineering		
<b>Module</b>				
<b>Type and level of studies</b>		PhD studies		
<b>Course title</b>		Funcional composite materials		
<b>Professor (for lectures)</b>		Radoslav Aleksić		
<b>Professor/assistant (for practice)</b>				
<b>Professor/assistant (for LAB)</b>				
		6	<b>Type of the course (mandatory/elective)</b>	mandatory
<b>Prerequisite</b>				
<b>Objective of the course</b>		The aim of this course is to give to students theoretical knowledge about the structure, properties and synthesis process of functional composite materials		
<b>Learning outcomes of the course</b>		By completion of this course students will be enabled to: ; • To be able to chose the matrix and treat the functional phase according to the use of functional material ; • To be able to use modern structure characterization and testing methods for properties of functional composite material materials in systems ; • To use functional materials in systems in which they can successfully replace conventional composite materials ;		
<b>Course Contents</b>				
<b>Theoretical contents</b>		<ul style="list-style-type: none"> <li>• Definition and classification of functional composite materials ;</li> <li>• Konstruktion composite mateials: materials for matrix and reinforcement in composites, interphase: reinforcement-matrix, composites with polymer matrix, composites with metal matrix, composites with ceramic matrix. ;</li> <li>• Composite materials for heat uses ;</li> <li>• Composite materials for electric uses ;</li> <li>• Composite materials electromagnetic uses ;</li> <li>• Composite materials for thermoelectric uses ;</li> <li>• Composite materials for dielectric uses ;</li> <li>• Composite materials for optical uses ;</li> <li>• Composite materials for magnetic uses ;</li> <li>• Composite materials for electrochemical uses ;</li> <li>• Composite materials for biomedical uses ;</li> <li>• Composite materials for ballistic protection and vibration absorbtion ;</li> <li>• Multifunctional smart composite materials</li> </ul>		
<b>Practical part (practices, LAB, study research work)</b>				
<b>Literature</b>				
1		P. Aleksić , B. Radojević, P. Jančić, Функционални композитни материјали, белешке са предавања, CD, ТМФ, 2013;		
2		D. D.L. Chung, Applied Materials Science-Applications of Engineering Materials in Structural, Electronics, Thermal, and other industries, CRC Press, Washington, D.C., 2001; ISBN 0-8493-1073-3		
3		D.D.L.Chung, Composite Materials: Science and Applications, Functional Materials for Modern Technologies, Springer, London, 2002; ISBN 978-1-4471-3732-0		
4				
5				
<b>Lessons per week</b>				
<b>Lectures</b>	<b>Practices</b>	<b>LAB</b>	<b>Study research work</b>	<b>Other activities</b>
3	1			
<b>Teaching Methods</b>		Предавања, домаћи задаци, семинарски рад		
<b>Grading methods (max. number of points is 100)</b>				
<b>Pre-exam assesments</b>		<b>points 40</b>	<b>Final examination</b>	<b>points 60</b>
<b>activity during lectures</b>			<b>written exam</b>	60
<b>practical assesments</b>			<b>oral exam</b>	
<b>mid-term exams</b>		20		
<b>seminars</b>		20		