Description of an Individual Course Unit

Study program	All, except Chemistry		
Module			
Type and level of studies	PhD studies		
Course title	Transport phenomena in Metarials Engineering		
Professor (for lectures)	Karlo Raić		
Professor/assistant (for practice)			
Professor/assistant (for LAB)			
Number of ECTS	5	**Type of the course (mandatory/elective)**	elective
Prerequisit			
Objective of the course	Master the principles of analogy to understand the procedures of processing of materials: polymers, ceramics, metals and composites Enabling students to apply appropriate mathematical models to solve complex engineering problems.		
Learning outcomes of the course	Usages of the multiphase modeling of complex systems with simultaneous processing of polymers, ceramics, metals and / or composites..		
Course Contents			
Theoretical contents	The course provides the necessary knowledge to understand the procedures of processing of materials: polymers, ceramics, metals and composites. It explains the principles of momentum (ie, fluid mechanics), heat transport, mass transport, as well as the possibility of an analogous considerations of related phenomena. Through concrete examples and calculations, students are introduced to the procedure of solving engineering problems. This course has the necessary knowledge of mathematics (area of differential equations).		
Practical part (practices, LAB, study research work)	solving practical examples		
Literature			
1	. G.H. Geiger and D.R. Poirier, "Transport Phenomena in Materials Processing", TMS, Pittsburgh 1994		
2	R.B.Bird, W.E. Stewart and E.N. Lightfoot, Transport Phenomena, Wiley, New York, 2002		
3			
4			
5			

Lessons per week				
Lectures	**Practices**	**LAB**	**Study research work**	**Other activities**
1			1	

Teaching Methods	Lectures and calculation classes

Grading methods (max. number of points is 100)			
Pre-exam assesments	**points**	**Final examination**	**points**
activity during lectures		**written exam**	40
practical assesments		**oral exam**	10
mid-term exams	2x20		
seminars	10		