Biomaterials			
Faculty:	Faculty of Geosciences		
Name of study program:	**Materials and Metallurgy**		
Department:	Master		
Level:	MASTER		
The code of subject:	8		
Subject:	**Biomaterials**		
Subject Status:	Elective/ Winter	(Winter / Summer)	
Semester:	II	(According to approved programe)	
Total hours:	2+2	(According to approved programe)	
ECTS:	4		
Schedule / Hall			
Academic year:	**Nurten Deva**		
Professor:			
Assistants:	Lecturer:	Assistant	
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Course description:	The course will address the main features of biomaterials, biomaterials manufacturing processes, chemical-physical spiral of biomaterials, norms or standards for dental materials. Biological evaluation of dental ceramic materials, the teeth of ceramic materials, production and industrial processing),	
Course objectives:	The program course aims to give to students: Learning thescientificbasesforbiomaterial, Biomaterial manufacturing processes, Theimportant biomaterial, Noble meta-materials, Ceramics and Polymer biomaterials.	
Learning outcomes:	Upon successful completion of the course, students will be able to: - Analyze groups of biomaterials, - Compare the production processes of biomaterials, - Distinguish and evaluate the most important biomaterials, - Describes the basic principles of creating biomaterials,	
Designed study plan:	Week	Lectures which will be held
	First week:	Introduction, groups of biomaterial materials
	Second week:	production processes biomaterial, biomaterial with important principles of creating biomaterial,
	Third week:	Materials - Home Models, gypsum, Polymeric Materials, Production of models in order galvanotechnic,
	Fourth week:	Measures for housing (fitting), properties, production, materials science (chemical and electrochemical behaviour of dental alloy, wire materials, surgical instruments,
	Fifth week:	Implantatet (dentures), alloy noble metal (precious metals - gold, silver, platinum),
	Sixth week:	Production of Alloy, noble metal alloy. Alloy processing of precious metals for pouring, bonding techniques (welding, casting), metal Alloy ungrateful (metal Alloy nonferrous(Alloy of cobalt, nickel alloy, Alloy of titanium),
	Seventh week:	Production of metals alloy nonferrous, Alloy properties of metals nonferrous, processing of metals alloy nonferrous),

	Eighth week:	Polymeric Materials for prostheses, teeth of Polymeric Materials), material-metal composite materials polymerase (Bonding Mechanisms, Systems of dental composites,
	Ninth week:	Chemical-physical properties of polymers dental materials
	Tenth week:	Comparative Review of composite systems),
	Eleventh week:	ceramic dental materials (classification of glass and ceramic materials
	Twelfth week:	ceramic materials and structure of glass processing,
	Thirteenth week:	The ceramic and glass materials, the physical properties of ceramic and glass materials,
	Fourteenth week:	Biological evaluation of dental ceramic materials, the teeth of ceramic materials, production and industrial processing),
	Fifteenth week:	For dentistry wax (wax definition, Processing of dental wax combs)

Literature	Basic	1. Balac Igor & group of au, "Biomaterijali" Institut tehnickih nauka, Drustvo za istrazivanje materijala, ISBN 978-86-80321-23-3, Beograd 2010 2. T. Filetin: "Suvremeni materijali i postupci- biomimetički materijali i proizvodi ", Hrv. društvo za materijale i tribologiju, Zagreb, 2005. 3. Buddy D. Ratner, Allan S. Hoffman Frederick J. Schoen "Biomaterials Science" Third Edition Copyright © 2013
	Additional	1. Noel Rutter, "Biomaterials", Natural Sciences Tripos Part IA, Department of Materials Science & Metallurgy, University of Cambridge, 2013/14 2. Paul K. Chu & Xuanyong Liu "Biomaterials Fabrication and Processing –Handbook", ISBN 978-0-8493-7973-4, CRC Press, © 2008 3. Vincent J., "Structural Biomaterials", revised edition, Princeton U P,

Teaching methods	Interactive lectures, numerical and exercises. Tests during lectures

Contribution on student load

Activity	Hours	Days/week	Total
Lectures	2	15	30
Exercise theoretical/laboratory	2	15	30
Practice work	-	-	-
Contact with lecturer/consultations	-	-	-
Field exercises	2		2
Mid-terms, seminars	2	2	4
Homework	2	3	6
Individual time spent studying (at the library or home)	2	15	30
Final preparation for the exam	4	4	16
Time spent in evaluation (tests, quiz, final exam)	2	2	4
Projects, presentations, etc.	1	3	3
Total			**125**

Evaluation methods

Tests / Colloquia	2x15 (%)
Practical test during exercises	10 (%)
Seminar paper	10 (%)
Homework during the semester	10 (%)
Final exam 40 (%)	40 (%)

Academic policies and rules of conduct:	Regular attendance is required of students in lectures and exercises. Rules of conduct as quieting learning, access to the hall of learning time, turn off cell phones, etc. are also mandatory.