

Add. 3		Course program for the first, second and third degree of studies			
1.	Course title	Material science 1			
2.	Code	192			
3.	Study group(s)	ПИ, ТМЛ, ТИ, ХИМВ, МЈСЕ, ИИМ, МВ, ЕЕ, МХТ, АУС			
4.	The organizer of the study program (unit, institute, department)	Faculty of Mechanical Engineering - Skopje, Ss. Cyril and Methodius University in Skopje			
5.	Level (first, second, third degree)	First			
6.	Academic year / semester	winter	7.	Number of ECTS credits	6
8.	Professor	Prof. Jovan Gochev, Ph.D Prof. Zoran Bogatinoski, Ph.D Ass.Prof. Dimitri Kozinakov, Ph.D			
9.	Preconditions for enrolling the course	none			
10.	Purpose of the course program (competences): Introduction to engineering material properties. Application and selection of materials. Qualified for selection and application of appropriate materials for a particular product or application				
11.	Contents of the course program: Introduction to engineering materials. Material selection. Materials in industrial design. Types of materials. Material structure. Basic characteristics of the materials. Alloys of iron. Phase transformation diagrams. Steel. Terms and designation of steels. Cast iron. Grey cast iron, nodular (ductile) cast iron, temper cast iron. Terms and designation of Cast iron. Heat treatment of steels and cast irons. Surface hardening of steels and cast irons. Non-ferrous metals. Composites. Ceramics. Polymers. Production, properties and application. Design using metals, ceramics, polymers and composites. Methodology. Examples.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total available time fund.	6 ECTS x 30 hours = 180 hours			
14.	Distribution of the available time.	30 + 30 + 4 + 30 + 86 = 180 hours			
15.	Forms of teaching activities.	15.1.	Teaching lectures	30 hours	
		15.2.	Practice, seminars, team work	30 hours	
16.	Other forms of activities	16.1.	Project assignments	4 hours	
		16.2.	Selfrunning assignments	30 hours	
		16.3.	Home studying	86 hours	
17.	Evaluation methods				
	17.1.	Tests			70 points
	17.2.	Projects			20 points
	17.3.	Activity and participation			10 points
18.	Evaluation criteria (score / rating)	Under 50		5 (five) (F)	
		51 - 60 points		6 (six) (E)	
		61 - 70 points		7 (seven) (D)	
		71 - 80 points		8 (eight) (C)	
		81 - 90 points		9 (nine) (B)	
		91 - 100 points		10 (ten) (A)	
19.	Signature and final exam requirements	Finished activities 17.2 и 17.3			
20.	Language used for performing the teaching	Macedonian language			
21.	Evaluation method for monitoring the teaching quality	Questionnaire and other type of continuum evaluation			
22.	Literature				

	22.1.	Basic literature				
		No.	Author	Title	Publisher	Year
		1.	Тодор Ациев	Машински материјали книга 1	Атинг	1995
		2.				
	3.					
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
1.						