C O U R S E G U I D E – s h o r t f o r m

Academic year 2014-2015

Course name[1]	**Materials . Laws of behavior. Elastic and plastic modeling .**					Course code		MCMPA.DI.DS.103	
Course type[2]	DS	Category[3]	DI	Year of study	I	Semester	II	Number of credit points	6

Faculty	Mechanical Engineering	Number of teaching and learning hours[4]					
Field	Ingineria Autovehiculelor	Total	L	T	LB	P	IS
Specialization	CMPA	42	28	-	14		84

Pre-requisites from the curriculum[5]	Compulsory	Not needed
	Recommended	Not needed

General objective [6]	Methods for analyzing the structure of materials . The relationship between the chemical composition , processing conditions , structure and properties of the material .
Specific objectives[7]	• Defects and nondestructive testing of materials . Special materials used in mechanical structures (ceramics , powder metallurgy materials , polymers , rubber , elastomer) . The material properties as a result of various environmental stresses . • Specific treatments materials used in mechatronic structures . Other advanced materials . Advanced analysis methods and special techniques for analyzing the structure of materials. Current trends in the field of special techniques and technologies for the production of mechanical components . • Shaping and processing materials development .
Course description[8]	Course contents include notions of crystalline atomic structure of materials, methods of structural analysis and nondestructive testing of materials, special materials used in mechanical structures Components, prop. Components materials used in mechanical structures, specific heat treatment of materials used in mechanical structures, current trends in the field of special techniques and technologies for manufacturing components in mechanical structures, modeling processes for obtaining and processing materials. Content lab contains notions of macroscopic and microscopic study of metallic and nonmetallic materials used in mechanical structures composition, microstructure equilibrium composition of metallic materials used in mechanical structures, m icrostructuri equilibrium composition of special materials used in mechanical structures, equilibrium microstructures of materials heat treated, thermochemical and thermophysical components used in mechanical structures, structural analysis by electron microscopy and x-ray non-destructive analysis of materials used in the composition of mechanical structures, thin film deposition by plasma jet spraying method.

Assessment			Schedule[9]	Percentage of the final grade (minimum grade)[10]
Continuous assessment	Class tests along the semester		Week 7,9	20%
	Activity during laboratory		Week 1-14	20%
Final assessment	Final assessment form[11]	Exam	Session	60%
	Examination procedures and conditions: Conception and design of the vehicle. Used Materials			

Course organizer	**Prof. dr. ing. Corneliu MUNTEANU**	
Teaching assistants	**Prof. dr. ing. Corneliu MUNTEANU**	

[1]Course name from the curriculum
[2] DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)
[3] DI – imposed, DO –optional, DL – facultative (from the curriculum)
[4] Points 3.8, 3.5, 3.6a,b,c, 3.7 from the Course guide – extended form (L-lecture, T-tutorial, LB-laboratory works, P-project, IS-individual study)
[5] According to 4.1 – Pre-requisites - from the Course guide – extended form
[6] According to 7.1 from the Course guide – extended form
[7] According to 7.2 from the Course guide – extended form
[8] Short description of the course, according to point 8 from the Course guide – extended form
[9] For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 14, for final assessment-exam: exam period
[10] A minimum grade might be imposed for some assessment stages
[11] Exam or colloquium