

# COURSE GUIDE – short form

Academic year 2014-2015

Course name <sup>1</sup>	<b>Metallographic expertises</b>					Course code	MDET.DI. DA.203		
Course type <sup>2</sup>	DID	Category <sup>3</sup>	DI	Year of study	II	Semester	II	Number of credit points	5

Faculty	Mechanical Engineering	Number of teaching and learning hours <sup>4</sup>						
Field	Mechanical Engineering	Total	L	T	LB	P	IS	
Specialization	DIAGNOZE SI EXPERTIZE TEHNICE ÎN INGINERIA MECANICA	28	14	-	14	-	84	

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	Not needed
	Recommended	Not needed

General objective <sup>6</sup>	Diagnosis and expertise in the field of mechanical engineering. Methods for analyzing the structure of materials. The relationship between the chemical composition, processing conditions, structure and properties of the material.
Specific objectives <sup>7</sup>	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.
Course description <sup>8</sup>	Course content includes the following aspects crystalline atomic structure of materials, methods of structural analysis and nondestructive testing of materials, special materials used in mechanical structures Components, Components properties of materials used in mechanical structures, specific heat treatment of materials used in mechanical structures, current trends in the field Special techniques and technologies for manufacturing components in mechanical structures. Laboratory content contains the following notions macroscopic and microscopic study of metallic and nonmetallic materials used in mechanical structures composition, microstructure equilibrium composition of metallic materials used in mechanical structures, microstructures balance of special materials used in mechanical structures composition, microstructure faulty materials used in Membership mechanical structures, microstructures steady heat treated materials, 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.

Assessment			Schedule <sup>9</sup>	Percentage of the final grade (minimum grade) <sup>10</sup>
Continuous assessment	Class tests along the semester		Week 7,9	20%
	Activity during laboratory		Week 1-14	20%
Final assessment	Final assessment form <sup>11</sup>	Exam	Session	60%
	Examination procedures and conditions: 1. Metallographic Expertises 40%; 2. Non-destructive analysis methods 30%; 3. Advanced Materials 30%			
Course organizer		Prof. dr. ing. Corneliu MUNTEANU		
Teaching assistants		Prof. dr. ing. Corneliu MUNTEANU		

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<sup>1</sup> Course name from the curriculum

<sup>2</sup> DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)

<sup>3</sup> DI – imposed, DO –optional, DL – facultative (from the curriculum)

<sup>4</sup> 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)

<sup>5</sup> According to 4.1 – Pre-requisites - from the Course guide – extended form

<sup>6</sup> According to 7.1 from the Course guide – extended form

<sup>7</sup> According to 7.2 from the Course guide – extended form

<sup>8</sup> Short description of the course, according to point 8 from the Course guide – extended form

<sup>9</sup> For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 14, for final assessment-exam: exam period

<sup>10</sup> A minimum grade might be imposed for some assessment stages

<sup>11</sup> Exam or colloquium