

COURSE GUIDE – short form

Academic year 2017 - 2018

Course name ¹	THERMO CHEMICAL TREATMENTS 1					Codul disciplinei		4 IPM 03	
Course type ²	DS	Category ³	DI	Year of study	4	Semester	7	Number of credit points	4

Faculty	Material Science and Engineering					Number of teaching and learning hours ⁴					
Field	Materials Engineering					Total	L	T	LB	P	IS
Specialization	IPM					42	28	-	14	-	

Pre-requisites from the curriculum ⁵	Compulsory	
	Recommended	

General objective ⁶	Discipline prepare the specialists in the field of control and exploitation of thermo chemical treatments for the parts such as a cam or ring gear.
Specific objectives ⁷	Knowledge of the phenomena that underlie the field of thermo chemical treatments, of the different procedures and conditions specific to the surface hardening of metallic parts used methods of hardening by diffusion during thermo chemical processing.
Course description ⁸	Surface hardening, a process which includes a wide variety of techniques, is used to improve the wear resistance of parts without affecting the more soft, tough interior of the part. Surface hardening by diffusion involves the chemical modification of a surface. The basic process used is thermo chemical because some heat is needed to enhance the diffusion of hardening species into the surface and subsurface regions of a part. Methods of hardening by diffusion include several variations of hardening species (such as carbon, nitrogen, or boron) and of the process method used to handle and transport the hardening species to the surface of the part. Process methods for exposure involve the handling of hardening species in forms such as gas, liquid, or ions.

Assessment		Schedule ⁹	Percentage of the final grade (minimum grade) ¹⁰
Continuous assessment	Class tests along the semester -	week	%
	Activity during tutorials/laboratory works/projects/practical work		40 %
	Assignments -	week	%
Final assessment	Final assessment form ¹¹	exam	60 % (minimum 5)
	Examination procedures and conditions: 1. Subject with open questions ; tasks answer to open questions ; working conditions oral; percent 50 %; 2. Subject with open questions ; tasks answer to open questions ; working conditions oral; percent 50 %; 3. - ; tasks - ; working conditions - ; percent %;		

Course organizer	Professor Ph.D. Eng. Dan Gelu GALUSCA
Teaching assistants	Asist.Eng.Dumitru Doru BURDUHOS NERGIS

¹Course 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