

# COURSE GUIDE – short form

Academic year 2018 - 2019

Course name <sup>1</sup>	<b>NON-CONVENTIONAL THERMAL TREATMENT</b>				Discipline code		<b>4 IPM 12</b>		
Course type <sup>2</sup>	<b>DS</b>	Category <sup>3</sup>	<b>DO</b>	Year of study	4	Semester	<b>8</b>	Number of credit points	<b>5</b>

Faculty	Material Science and Engineering				Number of teaching and learning hours <sup>4</sup>					
Field	Materials Engineering				Total	L	T	LB	P	IS
Specialization	IPM				<b>56</b>	<b>28</b>	-	-	<b>28</b>	

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	-
	Recommended	-

General objective <sup>6</sup>	Thermal treatments using laser, plasma, electron beam or other unconventional methods used to process materials to obtain semi-finished products / finished parts with technological properties of chip machinability, cold plastic deformation and / or mechanical properties of hardness and strength, etc.
Specific objectives <sup>7</sup>	Knowledge, analysis, design and efficient and appropriate use of unconventional heat treatment technologies in the automotive industry.
Course description <sup>8</sup>	The opportunity of special methods of unconventional thermal treatments in machine building; Thermal treatments in the ultrasonic field; Thermal magnetic field treatments; Heat treatments with plasma heating; Influence of heating speed on structural transformations upon heating of metallic solids; Surface heating with concentrated external energy sources: laser heating; electron beam heating; Electrolyte heating.

Assessment		Schedule <sup>9</sup>		Percentage of the final grade (minimum grade) <sup>10</sup>
A. Final assessment form <sup>11</sup> colloquium	Class tests along the semester	%	week	60 % (minimum 5)
	Home works	%		
	Other activities	%	week	
	Examination procedures and conditions: 1. Subject with open questions, working conditions oral, percent 100 %; 2. -, working conditions -, percent %; 3. -, working conditions -, percent %	60 % (minimum 5)	week 14	
B. Seminar	Activity during seminar			% (minimum 5)
C. Laboratory	Activity during laboratory			% (minimum 5)
D. Project	Activity during project			40 % (minimum 5)
Course organizer	<b>Lecturer Ph.D. Eng. Manuela-Cristina PERJU</b>			
Teaching assistants	<b>Lecturer Ph.D. Eng. Manuela-Cristina PERJU</b>			

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

<sup>2</sup> DF – fundamental, DD – 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

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<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