

# COURSE GUIDE: MODELING AND OPTIMIZATION OF TECHNOLOGICAL PROCESSES (1) – short form

Academic year 2017-2018

Course name <sup>1</sup>	Modeling and optimization of technological processes (1)					Course code	3IPM10D S		
Course type <sup>2</sup>	DS	Category <sup>3</sup>	DI	Year of study	IV	Semester	VII	Number of credit points	4

Faculty	Of Materials Science and Engineering	Number of teaching and learning hours <sup>4</sup>					
Field	Materials Engineering	Total	L	T	LB	P	IS
Specialization	Materials Processing Engineering	96	28	-	28	-	40

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	
	Recommended	Computer programming and programming languages. Using of computer in statistical analysis. Mathematical analysis. Numerical analysis

General objective <sup>6</sup>	The association of knowledge, principles and methods from technical sciences domain with the principles and methods used in the analysis, modeling and optimization of metallurgical processes
Specific objectives <sup>7</sup>	<ul style="list-style-type: none"> <li>• The concept of a model and modeling methods.</li> <li>• Modeling the processes by material balance and energy balance.</li> <li>• Knowledge of statistical and mathematical methods for the obtaining of mathematical models that describe the functional links between input and output variables of metallurgical processes.</li> </ul>
Course description <sup>8</sup>	<p>Technological processes. The concept of model types and models. Applications of mathematical statistics to the processing and interpretation of experimental data. General considerations regarding the modeling and optimization of technological processes. Adaptive optimization. Optimization of dynamic processes. Optimization of technological processes by determining optimal conditions.</p>

Assessment		Schedule <sup>9</sup>	Percentage of the final grade (minimum grade) <sup>10</sup>
Continuous assessment	Class test along the semester , week 7		10%
	Activity during laboratory		30%( minimum 5)
	Assignments (It will be deliver a report in week 7 from topics of the course)		10%
Final assessment	Final assessment form <sup>11</sup>	Exam	50%( minimum 5)
	Examination procedures and conditions: oral exam 1. Subject 1 , 33%. percent 2. Subject 2 , 33%. percent 3. Subject 3 , 34%. percent		

Course organizer	Conf. dr. ing. Nicanor CIMPOEȘU	
Teaching assistants	Conf. dr. ing. Nicanor CIMPOEȘU	

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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