

# COURSE GUIDE – short form

Academic year 2024-2025

Course name <sup>1</sup>	<b>Modeling and Simulation in Materials Science 1</b>					Course code	4.SM.03.DS			
Course type <sup>2</sup>	DS	Category <sup>3</sup>	DI	Year of study	4	Semester	7	Number of credit points	3	

Faculty	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 Science					75	14	-	14	-	47

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

General objective <sup>6</sup>	Evaluation and technical problem-solving related materials processed by applying concepts, theories and experimental methods.
Specific objectives <sup>7</sup>	<ul style="list-style-type: none"> <li>Understanding the notion of model and methods of modeling metallurgical processes in terms of complexity and the multitude of variables and parameters that characterize them.</li> <li>Modeling metallurgical processes through the balance of materials and energy.</li> <li>Knowledge of statistical-mathematical methods for obtaining statistical-mathematical models that describe the functional links between the parameters of metallurgical processes and their performance.</li> </ul>
Course description <sup>8</sup>	Technological processes. The concept of model and types of models. Applications of mathematical statistics to the processing and interpretation of experimental data. Empirical mathematical models.

Assesment		Schedule <sup>9</sup>	Percentage in the final grade (minimum grade) <sup>10</sup>
A. Final assessment form <sup>11</sup> :	Class tests along the semester	-	70% (minimum 5)
	Homework	-	
	Other activities	-	
	Examination procedures and conditions: 1. Subject with open questions; tasks: answer to open questions; working conditions: oral; percent of the final grade 100 % Onsite evaluation	100 % (minimum 5)	
C. Laboratory	Activity during laboratory		30% (minimum 5)

Course organizer	Prof. dr. eng. Romeu CHELARIU	
Teaching assistants	Assistant dr. eng. Elena Ionela CHERECHEȘ	

<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