COURSE GUIDE – short form

Academic year 2024-2025

Course name	**Nanomaterials and Nanotechnologies**					Course code		4.SM.12.DS-2	
Course type	DS	Category	DO	Year of study	IV	Semester	7	Number of credit points	4

Faculty	Materials Science and Engineering	Number of teaching and learning hours					
Field	Materials Engineering	Total	L	T	LB	P	IS
Specialization	Materials Science	100	28	-	14	-	58

Pre-requisites from the curriculum		
	Compulsory	Chemistry; Physics
	Recommended	Physical Chemistry

General objective	Application of the criteria and methods of fundamental assessment to identify, to modeling, analysis and assessment of qualitative and quantitative phenomena, as well as characteristic processes and theories, and to process and interpret the results of specific nanomaterials processes.
Specific objectives	The discipline "Nanomaterials and Nanotechnologies" allows the student to develop skills on: - acquiring the most advanced knowledge concerning the phenomena and processes occurring in the manufacture of nanomaterials;
Course description	Course: Introduction Chapter I. General considerations on nanomaterials. Chapter II. Metallic nanomaterials Chapter III. Polymeric nanomaterials Chapter IV. Ceramic and carbonic nanomaterials Chapter V. Nanomaterial Processing Techniques Cap.VI. Techniques for characterizing nanomaterials Applications: 1. Occupational health and safety training specific to the NN laboratory. 2. Production of nanopowders by grinding in the planetary mill. 3 Techniques for the production of nanomaterials by thermal decomposition of precursors with electric arc in vacuum; 4. Characterization of thin layers (thickness, composition, mechanical and tribological characteristics). 5. Analysis of the shape, structure and properties of some nanopowders. 6. Presentation of papers on topics related to the processing and characterization of nanomaterials. 7. Completion of the works.

Assessment			Schedule	Percentage of the final grade (minimum grade)
Continuous assessment	Class tests along the semester		-	-
	Activity during tutorials/laboratory works/projects/practical work		Week 1 - 14	30%
Final assessment	Final assessment form	Examination	Exam period	70%
	Examination procedures and conditions: 1. exam tickets; task: subject 1; conditions: oral; weight in final grade: 50%; 2. exam tickets; task: subject 1; conditions: oral; weight in final grade: 50%;			

Course organizer	Lecturer dr. eng. Raluca-Maria Blanariu	
Teaching assistants	Lecturer dr. eng. Raluca-Maria Blanariu	