

COURSE GUIDE – short form

Academic year 2024-2025

Course name ¹	Research / Practical training (sem. 1)					Course code	MATAE PA 106			
Course type ²	DS	Category ³	DI	Year of study	1	Semester	1	Number of credit points	7	

Faculty	Materials Science and Engineering	Number of teaching and learning hours ⁴					
Field	Materials Engineering	Total	L	T	LB	P	IS
Specialization	Advanced Materials and Experimental Analysis Techniques	175	-	-	175	-	-

Pre-requisites from the curriculum ⁵	Compulsory	
	Recommended	

General objective ⁶	Training human resource such as to be able to contribute to the development of scientific knowledge, by cultivating theoretical, practical and managing capacities, necessary for the implementation of experimental analysis techniques in view of performing scientific research.
Specific objectives ⁷	Acquiring the operation mode of the research equipment of the laboratory (optical microscope, tensile testing machine, differential scanning calorimeter, mechanic dynamical analyzer, scanning electron microscope, atomic force microscope, heat treatment furnace with programmable cycles, wire discharge cutting machine)
Course description ⁸	<ul style="list-style-type: none"> • Consulting international scientific databases (Web of Science Clarivate Analytics, Scopus, EBSCO, Springerlink, Science Direct, etc.) in view of editing a documentary review within the thematic area of the dissertation thesis • Metallographic preparation of specimens for: (1) microscopic analysis (high speed saw Metkon METACUT-M 250 and low speed saw METKON MICRACUT 150); (2) high-temperature embedment (Metkon METAPRESS-M); (3) room temperature embedment (acrylic resin); (4) grinding-polishing (Metkon, FORCIPOL-FORCIMAT) and (5) etching (exhauster) • Cold and hot rolling (laboratory experimental roller) • Specimens sealing into quartz tubes, with Ar low-pressure controlled atmosphere, in view of heat treatments • Heat treatment (heat treatment furnace with programmable cycles NABERTHERM LT 9/13/) • Spark erosion cutting (DEM 320 A wire-cutting machine) • Electrolytic polishing

Assesment			Schedule ⁹	Percentage in the final grade (minimum grade) ¹⁰
A. Final assessment form ¹¹ :	Class tests along the semester	%		
	Home works	%		
	Other activities	%		
	Exam	Final evaluation	%	
B. Seminar	Activity during seminar: evidence of answers, paper portfolio (reports, scientific reviews)			

C. Laboratory	Activity during laboratory • Written test • Laboratory register (experimental files, reviews) • Practical demonstration	100 %
D. Project	Activity during project	%

Course organizer		
Teaching assistants	Prof.dr.ing. Leandru Gheorghe BUJOREANU	

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