C O U R S E G U I D E – s h o r t f o r m

Academic year 2024-2025

Course name[1]	Systems for non-conventional material processing technologies					Course code		SITM IA107	
Course type[2]	DS	Category[3]	DI	Year of study	I	Semester	2	Number of credit points	4

Faculty	Materials Science and Engineering	Number of teaching and learning hours[4]					
Field	(Mechanical Engineering;	Total	L	T	LB	P	IS
Specialization	Equipment for industrial processing	100	28	-	28	-	44

Pre-requisites from the curriculum[5]	Compulsory	- This is not the case
	Recommended	- This is not the case

General objective [6]	Assimilation of knowledge regarding the use of modern equipment in the field of material processing.
Specific objectives[7]	Knowledge of the equipment for obtaining metallic materials using special casting processes and the advantages they create. Understanding the mechanisms influencing the structure of metallic materials when using equipment that uses vibrations.
Course description[8]	Course: 1. Equipment using vibrations, used in foundries: - Mechanical, electric, hydraulic vibrators. -Transducers for the electrical measurement of vibrations. Parametric, resistive, capacitive, inductive, energetic, piezoelectric, electrodynamic transducers. - The influence of vibrations applied during casting on metal alloys. Physical processes that occur when cast alloys vibrate. Technological effects. - Casting technologies of alloys under the influence of vibrations 2. Centrifugal casting. The principle, advantages and disadvantages of the process, classification. - Hydraulics of centrifugal casting processes - Solidification of centrifugally cast parts - Technological factors in centrifugal casting and their influence on the quality of cast parts from non-ferrous alloys Laboratory 1. Safety rules at work and presentation of the laboratory 2. Centrifugal casting machines with vertical axis of rotation 3. Centrifugal casting machines with horizontal axis of rotation 4. Designing the forms used in centrifugal casting 5. Vibration measurement 6. Centrifugal casting of non-ferrous alloys 7. Casting under the influence of vibrations

Assesment			Sche-dule[9]	Percentage in the final grade (minimum grade)[10]
A. Final assessment form [11]:	Class tests along the semester	-	-	50%
	Home works	-	-	
	Other activities	-	-	

Exam	Examination procedures and conditions: 1. Exam ticket with two subjects from the course; Oral exam.	50%	Exams sesion	
B. Seminar	Activity during seminar			-
C. Laboratory	Activity during laboratory			50%
D. Project	Activity during project			

Course organizer	Axinte Mihai, Eng.,Ph.D., Associate professor	
Teaching assistants	Axinte Mihai, Eng.,Ph.D., Associate professor	

[1]Course 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