## **Course Description Form**

1. Course Name: **METALLURGY** 2. Course Code: **META 242** 3. Semester / Year: AUTUMN/2024-2025 4. Description Preparation Date: 1/2/2025 5. Available Attendance Forms: Attendance + Online 6. Number of Credit Hours (Total) / Number of Units (Total) 2Theory/3Practical=3.5 Unit 7. Course administrator's name (mention all, if more than one name) Name: Mohammed Hussin Ahmed Al-Mola Email: dr.mohammedalmola@uomosul.edu.iq 8. Course Objectives **Course Objectives** Student should be able to understand principles of metallurgy..... Student should be able to understand the mechanical properties of metals Student should be able to analyze thermal equilibrium diagrams and microstructure. Student should be able to understand relation between properties with the heat treatments and its applications. 9. Teaching and Learning Strategies Strategy 1. Introduction Engineering view on metals View on syllabus 4. Introduce the student on requirements of syllabus 5. Student should be writing reports related to syllabus 6. Discussion 7. Study the correlation between theory with the experimental work. 8. Motivation of experimental skills on study.

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111.	Course	Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluation
		Outcomes	name	method	method
1	2Theory 3exp.	a1: Learning properties of metals	Properties of metals	Attendance	Oral exam with lab. exam
2	2Theory 3exp.	a4: Learning about crystallization of metals.	crystallization of metals.	Attendance	Oral exam.
3	2Theory 3exp.	a2: Learning how to construct cooling curve	Cooling curves	Attendance	Homework with lab. exam
4	2Theory 3exp.	a1: Learning how to construct thermal equilibrium diagram	Thermal equilibrium diagrams	Attendance	Homework
5	2Theory 3exp.	b1: Learning solid solution system	Solid solution system	Attendance	Quiz
6	2Theory 3exp.	a4: Learning eutectic	Simple eutectic system	Attendance	Homework
7	2Theory 3exp.	a2: Learning combination system	Combination system	Attendance	Homework
8	2Theory	a2: Analysis of Cu-Ni	Copper nickel system	Attendance	Quiz
	3exp.	system	A Prop	Attendance	Term exam
9	2Theory 3exp	b1: Analysis of Pb-Sb system	Lead antimuon system	Attendance	Lab. exam
10	2Theory 3exp	b3: Analysis of Pb-Sn system	Lead –tin system	Attendance	Homework-Lab. exam
11	2Theory 3exp	b3: Analysis of Fe-c diagram with its applications	Iron-carbon system	Attendance	Quiz-lab. exam
12-	2Theory 3exp	a4: Analysis of steel potion, phases and microstructures.	Steel portion Attendar		Homework
13	2Theory 3exp	a1: Learning about mechanical properties of steels, microstructures and industrial applications.	Steel portion	Attendance	
14	2Theory 3exp	a5: Learning about types of cast irons	Cast iron Heat treatments Heat treatment of steel.	Attendance	Lab. exam
15	2Theory 3exp	a4: Learning about types of heat treatments	جامعة الموصل كلية المراعة والغابات المراعة والغابات	Attendance	Quiz-lab. exam

المكائن والالات الذراعة

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

No.	Evaluation method	Marks	% Grads	Evaluation week
1	Lab. Exam	15	%15	Weeks 3, 5, and 7
2	Quizzes	5	%5	All 1-10 weeks
3	Term Exam	10	%10	Week 10
4	Final Exam(experimental)	20	%20	Week 13
5	Final Exam (Theory)	40	%40	Week 14
	sum	100	%100	

12. Learning	and	Teaching	Resources
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Required textbooks		
Main references (sources)	Principles materials and metallurgy engineering.	
Wall Telefoliocs (Sources)	Dr. H. Baker	
Recommended books and references	Zainul Huda. Metallurgy for Physicists and Engineers-Fundamentals, Applications, and	
(scientific journals, reports)	Calculations. CRC Press, 2020.	
Electronic References, Websites	https://www.reed.co.uk/courses/metallurgy/online	

رئيس اللجنة العلمية

أ. د. عادل احمد عبد الله

مدرس المادة

د. محمد حسين احمد المولى

حامحة املوصل

رئيس قسم الهكائن وآلا<del>ف الزراعية</del> المكائن والالات الزراعية

أ. م. نوفل عيسي محيميد