

LESSON PLAN					
Discipline: Metallurgical Engineering			Semester: 5 th Semester	Name of the Teaching Faculty: Er Sitanjali Khuntia	
Subject: METALLOGRAPHY & CHARACTERIZATION LAB Sub code: (PR 1)M4			No of days /week class allotted:	Semester from Date: 01/07/2026 to 05/11/2026 No of weeks:	
Course Outcomes: After successful completion of this course, students will be able to: 1. Prepare metallographic samples of metals and alloys using standard procedures. 2. Identify different microstructural features using optical microscopy. 3. Analyze microstructures for phase composition, grain size, and defects. 4. Apply advanced characterization techniques (SEM/EDX, image analysis, etc.) to support industrial materials testing and research					
Month	week	No of periods available	Class Day	Theory topics	CO
July	1 st	4P	03-07-2026	Briefing about the Syllabus	CO1
	2 nd	4P	10-07-2026	Microstructure Study to identify graphite morphology of different Cast Iron using Metallurgical Microscope	CO2
	3 rd	4P	17-07-2026	Lab Record Write Lab Record Submission and Check	CO3
	4 th	4P	24-07-2026	Microstructure Study of alpha/beta phase of Non-Ferrous Alloys (Cu, Al, Zn Based) using Metallurgical Microscope	CO2
	5 th	4P	31-07-2026	Lab Record Write Lab Record Submission and Check	CO3
Aug	1 st	4P	07-08-2026	Microstructure Study of alpha/beta phase of Non-Ferrous Alloys (Cu, Al, Zn Based) using Metallurgical Microscope	CO2
	2 nd	4P	14-08-2026	Microstructure Study of alpha/beta phase of Non-Ferrous Alloys (Cu, Al, Zn Based) using Metallurgical Microscope	CO1,CO2
	3 rd	4P	21-08-2026	Quantitative Measurement of Grain Size using ASTM Chart / Intercept Method using Image Analyzer	CO3,CO4
	4 th	4P	28-08-2026	Lab Record Write Lab Record Submission and Check	CO3
Sept	2 nd	4P	11-09-2026	Digital imaging, contrast adjustment, and quantitative phase analysis using Image Analyzer software	CO4
	3 rd	4P	18-09-2026	Lab Record Write Lab Record Submission and Check	CO3
	4 th	4P	24-09-2026	Vickers/Knoop microhardness tests on multiphase regions and correlate with grain size and phases	CO3
Oct	1 st	4P	09-10-2026	Lab Record Write Lab Record Submission and Check	CO3
	2 nd	4P	16-10-2026	Fracture surface study using FESEM.	CO4
	3 rd	4P	23-10-2026	Viva	CO2,CO3
	4 th	4P	30-10-2026	viva	CO2,CO3, CO4

S. Khuntia
 PREPARED BY

SITANJALI KHUNTIA
 LECTURER (STAGE-I), METALLURGY
 OSME, KEONJHAR

T. Khuntia
 06/09/26
 HOD

METALLURGY ENGINEERING
 OSME, KEONJHAR

M. S. 26
 PRINCIPAL
 OSME, KEONJHAR