

GOVT POLYTECHNIC MAYURBHANJ, TIKARPADA
LESSON PLAN OF METALLOGRAPHY AND CHARACTERIZATION LAB ACADEMIC YEAR
(2026-2027) WINTER

DISCIPLINE: METALLURGY ENGINEERING		SEMESTER: 5TH	NAME OF THE TEACHING FACULTY: SUMITA RANI SARAP & SUBRAT KUMAR BEHERA
SUBJECT: METALLOGRAPHY AND CHARACTERIZATION LAB, COURSE CODE: MTPC305		NO OF CLASS/PER WEEK CLASS ALLOTTED:02	SEMESTER FROM DATE:01.07.2026, TO DATE:05.11.2026, NO OF WEEKS: 17
WEEK	CLASS NO	NO OF EXPERIMENT	LECTURE TOPICS
1.	1.	EXPERIMENT-1	Briefing about the syllabus
	2.		Briefing about the syllabus
2.	3.		Microstructure Study to observe grain size and phase boundaries. of mild steel, stainless steel & High-Speed Steel using Metallurgical Microscope.
	4.		Microstructure Study to observe grain size and phase boundaries. of mild steel, stainless steel & High-Speed Steel using Metallurgical Microscope.
3.	5.		Lab record writes
	6.		Lab record writes
4.	7.		Lab record submission and check
	8.		Lab record submission and check
5.	9.	EXPERIMENT-2	Microstructure Study to identify graphite morphology of different Cast Iron using Metallurgical Microscope.
	10.		Microstructure Study to identify graphite morphology of different Cast Iron using Metallurgical Microscope.
6.	11.		Lab record writes
	12.		Lab record writes
7.	13.		Lab record submission and check
	14.		Lab record submission and check
8.	15.	EXPERIMENT-3	Microstructure Study of alpha/beta phases, solid solution structure, and eutectic structures of Non-Ferrous Alloys (Cu, Al, Zn Based) using Metallurgical Microscope.
	16.		Microstructure Study of alpha/beta phases, solid solution structure, and eutectic structures of Non-Ferrous Alloys (Cu, Al, Zn Based) using Metallurgical Microscope.
9.	17.		Lab record writes
	18.		Lab record writes
10.	19.		Lab record submission and check
	20.		Lab record submission and check
11.	21.	EXPERIMENT-4	Quantitative Measurement of Grain Size using ASTM Chart / Intercept Method using Image Analyzer
	22.		Quantitative Measurement of Grain Size using ASTM Chart / Intercept Method using Image Analyzer
12.	23.		Lab record writes
	24.		Lab record writes
13.	25.		Lab record submission and check
	26.		Lab record submission and check
14.	27.	EXPERIMENT-5	Digital imaging, contrast adjustment, and quantitative phase analysis using Image Analyzer software
	28.		Digital imaging, contrast adjustment, and quantitative phase analysis using Image Analyzer software
15.	29.		Lab record writes
	30.		Lab record writes
16.	31.		Lab record submission and check
	32.	EXPERIMENT-6	Observe secondary electron imaging, high magnification structures using Scanning Electron Microscopy (FESEM)
17.	33.		Lab record writes
	34.		Lab record submission and check

