



SYNERGY SCHOOL OF ENGINEERING, DHENKANAL
DEPARTMENT OF MECHANICAL ENGINEERING

LESSION PLAN

SESSION- 2026-2027

Subject - Material Testing & Metallography Lab	Total Periods- 60
Branch- Mechanical Engg Semester- 3rd	Course Code- MEPC 213
Name - Somanath Sethy, Lecturer & Aswini Parida, Lab Asst.	Start Date- 01/07/2016 End Date- 05/11/2026

Sl No.	week	Day (2 period/ day)	Topic To be Covered
1	1ST	1st day	INTRODUCTION
		2nd day	INTRODUCTION
2	2ND	1st day	Prepare a specimen and examine the microstructure of the Ferrous and Non- ferrous metals using the Metallurgical Microscope.
		2nd day	Prepare a specimen and examine the microstructure of the Ferrous and Non- ferrous metals using the Metallurgical Microscope.
3	3RD	1st day	Detect the cracks in the specimen using Visual inspection and ring test
		2nd day	Detect the cracks in the specimen using Visual inspection and ring test
4	4TH	1st day	Detect the cracks in the specimen using Die penetration test
		2nd day	Detect the cracks in the specimen using Die penetration test
5	5TH	1st day	Detect the cracks in the specimen using Magnetic particle test.
		2nd day	Detect the cracks in the specimen using Magnetic particle test.
6	6TH	1st day	Determination of Rockwell's Hardness Number for various materials like mild steel, high carbon steel, brass, copper and aluminium.
		2nd day	Determination of Rockwell's Hardness Number for various materials like mild steel, high carbon steel, brass, copper and aluminium.
7	7TH	1st day	Finding the resistance of materials to impact loads by Izod test and Charpy test.
		2nd day	Finding the resistance of materials to impact loads by Izod test and Charpy test.
8	8TH	1st day	Torsion test on mild steel – relation between torque and angle of twist determination of shear modulus and shear stress.
		2nd day	Torsion test on mild steel – relation between torque and angle of twist determination of shear modulus and shear stress.
9	9TH	1st day	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentage reduction in area, stress strain diagram plotting, tests on mild steel.
		2nd day	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentage reduction in area, stress strain diagram plotting, tests on mild steel.
10	10TH	1st day	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open & Closed coil spring)
		2nd day	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open & Closed coil spring)
11	11TH	1st day	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open & Closed coil spring)
		2nd day	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open & Closed coil spring)
12	12TH	1st day	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.
		2nd day	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.
13	13TH	1st day	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.
		2nd day	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.
14	14TH	1st day	EVALUATION
		2nd day	EVALUATION
15	15TH	1st day	QUIZ TEST
		2nd day	EVALUATION

Aswini Parida
02/06/2026
Sign of Lab Asst.

Somanath Sethy
2/6/26
Sign of Faculty

HOD
2/6/26
H.O.D
MECHANICAL ENGG. DEPT.
SSE, Dhenkanal