

ORISSA SCHOOL OF MINING ENGINEERING, KEONJHAR
DEPARTMENT OF AUTOMOBILE ENGINEERING



LESSON PLAN

SUBJECT: STRENGTH OF MATERIALS
FACULTY: KULADEEP MOHAPATRA

ACCADEMIC SESSION: 2026-27
SEMESTER: 3RD


SD/-
HOD (Automobile Engg.)

Discipline:- Automobile Engineering	Semester :- 3rd	Name of the teaching faculty :- KULADEEP MOHAPATRA
Subject Name :- STRENGTH OF MATERIALS (TH-2)	No. Of Days/Week Class Allotted :- 03 Periods/Week (Tuesday, Saturday – 2 periods Each)	Semester from Date - 01/07/2026 To Date - 05/11/2026 No. of Weeks: 17
Week	Class Day	Theory topics
1st	04.07.2026	1. Simple Stresses and Strains: Types of forces, Stress, Strain and their nature.
	04.07.2026	1.1 Mechanical properties of common engineering materials.
	07.07.2026	1.2 Significance of various points on stress – strain diagram for M.S.
2nd	07.07.2026	1.3 Significance of various points on stress – strain diagram for C.I. specimens.
	14.07.2026	1.4 Significance of factor of safety;
	14.07.2026	1.5 Relation between elastic constants.
3rd	18.07.2026	1.6 Stress and strain values in bodies of uniform section and under the influence of normal forces.
	18.07.2026	1.6 Stress and strain values in bodies of composite section under the influence of normal forces
	21.07.2026	1.7 Thermal stresses in bodies of uniform section and composite sections.
4th	21.07.2026	1.8 Related numerical problems on the above topics.
	28.07.2026	1.9 Strain Energy: Strain energy or resilience, proof resilience and modulus of resilience.
	28.07.2026	1.10 Derivation of strain energy for the following cases: i) Gradually applied load,
5th	01.08.2026	1.10 Derivation of strain energy for the ii) Suddenly applied load.
	01.08.2026	1.11 Derivation of strain energy for Impact/ shock load.
	04.08.2026	1.12 Related numerical problems on the above topics.
6th	04.08.2026	2. Shear Force & Bending Moment Diagrams: 2.1 types with examples a) Cantilever beam, b) Simply supported beam, c) Over hanging beam,

		d) Continuous beam, (e) Fixed beam
	11.08.2026	2.2 Types of Loads – Point load, UDL and UVL. Definition and Explanation of shear force and bending moment. Shear Force Diagrams of cantilever with point Load.
7 th	11.08.2026	2.3 Bending Moment Diagrams of cantilever with point Load.
	18.08.2026	2.4 Shear Force & Bending Moment Diagrams of cantilever with UDL.
8 th	18.08.2026	2.5 Shear Force Diagrams of Simply supported beam with point load.
	25.08.2026	2.6 Bending Moment Diagrams of Simply supported beam with point load
	25.08.2026	2.7 Shear Force Diagrams of Simply supported beam with UDL.
9 th	29.08.2026	2.8 Bending Moment Diagrams of Simply supported beam with UDL
	29.08.2026	2.9 Shear Force Diagrams of Overhanging beam with point load at the Center and at the free end.
	01.09.2026	2.10 Bending Moment Diagrams of Overhanging beam with point load at the center and at the free end
10 th	01.09.2026	2.11 Shear Force & Bending Moment Diagrams of Overhanging beam With UDL throughout.
	05.09.2026	2.12 Shear Force & Bending Moment Diagrams of cantilever with Combination of point load and UDL.
	05.09.2026	2.13 Shear Force & Bending Moment Diagrams of Simply supported Beam with combination of point load and UDL.
11 th	08.09.2026	2.14 Shear Force & Bending Moment Diagrams of Continuous beam With combination of point load and UDL.
	08.09.2026	3. Theory of simple Bending and Deflection of beams
	19.09.2026	3.1 Explanation of term Neutral layer, Neutral axis, Modulus of section, Moment of resistance, Bending stress, Radius of curvature.
	19.09.2026	3.2 Assumptions in theory of simple bending & Bending Equation $M/I = \sigma/Y = E/R$ (with derivation).
12 th	19.09.2026	3.3 Problems involving calculations of bending stress modulus of Section And moment of resistance.
		3.4 Calculation of safe loads and safe span and dimensions of cross-Section.
13 th	22.09.2026	3.5 Definition and explanation of deflection as applied to Beams.