

Lesson Plan

Name of the Faculty : Sh. Amit

Discipline : Mechanical Engg.

Semester : 5th

Subject : MD

Lesson plan duration : 15 weeks (from September, 2023 to December, 2023)

Week	Theory	
	Lecture Day	Topic (including assignments /tests)
Week 1	1 st	Design – Definition, Type of design, necessity of design
	2 nd	Comparison of designed and undesigned work
	3 rd	, Design procedure
	4 th	Characteristics of a good designer
Week 2	1 st	stress, strain, factor of safety,
	2 nd	factors affecting factor of safety,
	3 rd	stress concentration,
	4 th	methods to reduce stress concentration,
Week 3	1 st	fatigue, endurance limit.
	2 nd	Engineering materials and their mechanical properties
	3 rd	Selection of materials, criteria of material selection
	4 th	Design Failure
Week 4	1 st	Various design failures- maximum stress theory,
	2 nd	Classification of loads
	3 rd	Design under tensile, compressive and torsional loads.
	4 th	Design of Shaft
	1 st	

Week 5		
	2 nd	Type of shaft, shaft materials,
	3 rd	Type of loading on shaft,
	4 th	standard sizes of shaft available
Week 6	1 st	Shaft subjected to torsion only
	2 nd	determination of shaft diameter
	3 rd	Strength criterion
	4 th	Rigidity criterion
Week 7	1 st	Determination of shaft diameter
	2 nd	Determination of shaft diameter (hollow and solid shaft) subjected to combined torsion and bending .
	3 rd	Design of Key
	4 th	Types of key, materials of key, functions of key
Week 8	1 st	Failure of key (by Shearing and Crushing).
	2 nd	Design of key (Determination of key dimension)
	3 rd	Effect of keyway on shaft strength. (Figures and problems).
	4 th	Temporary Joint:
Week 9	1 st	Design of key
	2 nd	Temporary and permanent joints,
	3 rd	Design of Joints

	4 th	Knuckle Joints
Week 10	1 st	Different parts of the joint,
	2 nd	material used for the joint,
	3 rd	type of knuckle
	4 th	Joint, design of the knuckle joint.
Week 11	1 st	Cotter Joint
	2 nd	Different parts of the spigot and socket joints,
	3 rd	Design of spigot and socket joint.
	4 th	Permanent Joint:
Week 12	1 st	Welded Joint - Welding symbols. Type of welded joint,
	2 nd	Strength of combined parallel and transverse weld.
	3 rd	Different modes of rivet joint failure.
	4 th	Design of riveted joint
Week 13	1 st	Lap and butt, single and multi riveted joint.
	2 nd	Design of Flange Coupling
	3 rd	Necessity of a coupling, advantages of a coupling,

	4 th	types of couplings,
Week 14	1 st	design of flange coupling.
	2 nd	Design of Screwed Joints
	3 rd	Introduction, Advantages and Disadvantages of screw joints,
	4 th	Important terms used in screw threads,
Week 15	1 st	Initial stresses due to screw up forces,
	2 nd	Design of power screws
	3 rd	Assignment & Revision
	4 th	Revision