Name of Faculty : Mr. Rohtash
Discipline : Mechanical Engineering
Semester : IV
Subject : MACHINE DESIGN AND DRAWING (Theory & Practical)
Lesson Plan Duration : 15 Weeks (9 January onwards)

Week	Theory		Practical	
	Lecture Day	Topic (Including assignment/test)	Practical Day	Topic
I	1	Introduction to Design Design Defination-Types of Design Nesseacity of Design	1	Design terminology: stress, strain, factor of safety, factors affecting factor of safety
	2	Comparison of designed and undesigned work General Design Prodecure	2	Some Numerical Problems on Stress, Starin and F.O.S.
II	3	General Design Consideration	3	Stress Concentration, Methods to Reduce Stress Concentration,
	4	Codes and Standards (BIS Standards)	4	Fatigue and Endurance limit.
III	5	Engineering materials and their Mechanical properties:	5	Some Numerical Problems on Stress concentration
	6	Selection of Materials	6	Properties of engineering materials: elasticity, plasticity, malleability, ductility, toughness, hardness and resilience. Fatigue, creep, tenacity, strength
IV	7	Criterion of Material Selection	7	Some case Studies on Selection of Material
	8	Design Failure Theories, Introduction & Importance	8	Maximum stress theory With simple Numericals
V	9	Maximum strain theory	9	Simple Numerical Problems on Maximum Strain Theory
	10	Maximum Strain Energy Theory	10	Simple Numerical Problems on Maximum Strain Energy Theory
VI	11	Classification of Loads	11	Simple Numerical Problems for tensile and Compressive loads
	12	Design under Tensile, Compressive and Torsional loads.	12	Simple Numerical Problems for Torisinal loads

VII	13	Introduction to Shafts, Types of Shafts and Materials of Shafts	13	Eleboration on Types of loading with Numericals
	14	Type of loading on shaft, standard sizes of shaft available	14	Class Work And Assignment Checking
VIII	15	Shaft subjected to torsion only determination of shaft diameter (hollow and solid shaft) on the basis of : Strength and Rigidity	15	Design of Shafts Subjected to Torsion only(Numericals)
	16	Determination of shaft dia (hollow and solid shaft) subjected to bending	16	Design of Shafts Subjected to Bending Moment only(Numericals)
IX	17	Determination of shaft dia (hollow and solid shaft) subjected to combined torsion and bending	17	Design of Shafts Subjected to Torsion and Bendining moments Both(Numericals)
	18	Review of Design of Shaft and Address Students Queries related to Chapter 1 to 3.	18	Design of Shafts Subjected to Torsion and Bendining moments Both(Numericals)
X	19	Types of key, materials of key, functions of key	19	Failure of key (by Shearing and Crushing) with Numerical Problems
	20	Design of key (Determination of key dimension)	20	Design of Key Numerical Problems
XI	21	Introduction to Screw Joints, Advantages and Disadvantages of screw joints, location of screw joints.	21	Effect of keyway on shaft strength. (Numerical problems).
	22	Important terms used in screw threads, designation of screw threads	22	Design of power screws (screw jack)
XII	23	Initial stresses due to screw up forces, stresses due to combined forces	23	Design of power screws (screw clamp)
	24	Problems and Queries Related to Screw Joints.	24	Draw Profile of cams for Uniform motion with knife edge and roller followers
XIII	25	Indtroduction to Cams and Follower,Types of cams and followers and their Applications	25	Draw Profile of cams for SHM with knife edge and roller followers (Offset)
	26	Procedure to Draw the Cam Profile (Revision)	26	Draw Profile of cams for Uniformly Accelerated & retarded motion with knife edge and roller followers

XIV	27	Introduction to Gears , Type of Gears, Nomenclature of gears, Advantages of gears Drive	27	Drawprofile of involute teeth gear by approximate method
	28	Conventional Representation of Gears Drawing procedure of Gear tooth profile	28	Drawprofile of involute teeth gear by Tracing/exact method
XV	29	Address Students Queries related to Chapter 4 to 6.	29	Viva- Voce
	30	Checking of Assignment-II and Drawing Sheets	30	