

INSTITUTE OF ENGINEERING AND MANAGEMENT

GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: Design of machine elements

Name of the Faculty: Rashmi ranjan mishra

Semester: Fifth Semester

Branch: mechanical

Semester From: July to December

No. of Weeks: 15 Weeks

Week	Day	Theory/ Practical Topics	Classes
		Introduction:	12
1	1	Introduction to Machine Design and Classify it	1
	2	Different mechanical engineering materials used in design	1
	3	Different mechanical engineering materials used in design & uses	1
	4	properties of material	1
2	5	Define working stress, yield stress, ultimate stress	1
	6	factor of safety	1
	7	stress –strain curve for M.S	1
	8	stress –strain curve for C.I	1
3	9	Modes of Failure (By elastic deflection, general yielding & fracture)	1
	10	State the factors governing the design of machine elements	1
	11	Describe design procedure	1
	12	Revision	1
		Design of fastening elements	12
4	13	Joints and their classification	1
	14	State types of welded joints	1
	15	State advantages of welded joints over other joints	1
	16	Design of welded joints for eccentric loads	1
5	17	State types of riveted joints and types of rivets	1
	18	Describe failure of riveted joints.	1
	19	Determine strength of riveted joints	1
	20	Design riveted joints for pressure vessel	1
6	21	Solve numerical on Welded Joint and Riveted Joints	1
	22	Determine efficiency of riveted joint	1
	23	Solve numerical	1
	24	Revision	1
7		Design of shafts and Keys:	12
	25	State function of shafts	1

	26	State materials for shafts	1
	27	Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension;	1
	28	Design solid & hollow shafts to transmit a given power at given rpm based on b) Rigidity; (1) angle of twist (2) Deflection (3) modulus of rigidity	1
8	29	State standard size of shaft as per I.S	1
	30	State function of keys, types of keys & material of keys.	1
	31	Describe failure of key, effect of key way	1
	32	Design rectangular sunk key considering its failure against shear & crushing.	1
9	33	Design rectangular sunk key by using empirical relation for given diameter of shaft.	1
	34	State specification of parallel key, gib-head key, taper key as per I.S.	1
	35	Solve numerical on Design of Shaft and keys.	1
	36	Revision	1
10		Design of Coupling:	12
	37	Design of Shaft Coupling	1
	38	Design of Shaft Coupling materials	1
	39	Requirements of a good shaft coupling	1
	40	Types of Coupling	1
11	41	Design of Sleeve or Muff-Coupling.	1
	42	Design of Clamp or Compression Coupling	1
	43	Solve simple numerical on above.	1
	44	Solve previous yr questions	1
12	45	Solve previous yr questions	1
	46	Solve previous yr questions	1
	47	Solve previous yr questions	1
	48	Solve previous yr questions	1
13		Design a closed coil helical spring:	12
	49	Materials used for helical spring	1
	50	Standard size spring wire. (SWG).	1
	51	Terms used in compression spring.	1
	52	Stress in helical spring of a circular wire	1
14	53	Deflection of helical spring of circular wire	1
	54	Surge in spring.	1
	55	Solve numerical on design of closed coil helical compression spring	1
	56	Solve previous yr questions	1
15	57	Solve previous yr questions	1
	58	Solve previous yr questions	1

	59	Solve previous yr questions	1
	60	Solve previous yr questions	1

LEARNING RESOURCES :

01. PANDYA AND SHAH MACHINE DESIGN CHAROTAR PUBLICATION

02. R.S.KHURMI &J.K.GUPTA A TEXT BOOK OF MACHINE DESIGN S.CHAND

03. P.C.SHARMA &D.K AGRAWAL A TEXT BOOK OF MACHINE DESIGN S.K.KATARIY A

04. V.B.BHANDARI DESIGN OF MACHINE ELEMENTS TMH

05. S.MD.JALAUDEEN DESIGN DATA BOOK ANURADHA PUBLICATION