


SYNERGY SCHOOL OF ENGINEERING, DHENKANAL

LESSON PLAN Session (2024-2025)

Discipline : Mechanical Engineering	Semester: 5 th (Winter 2022)	Name of the Teaching Faculty: Mr Somanath Sethy Lecturer. Email:
Subject: Design of Machine Elements	No. Of Days/ Week: 4	Start Date: 01/ 07/ 2024 End Date: 08/ 11/ 2024
Week	Class Day	Theory Topics
1 st	1 st	Introduction about Machine Design and classification, types of load
	2 nd	Factors governing the design of machine elements. Design procedure
	3 rd	Mechanical properties of the material of the product.
	4 th	Types of loads. Working stress, Yield stress, Ultimate Stress & Factor of safety. Fatigue & Creep.
2 nd	1 st	Review Class
	2 nd	Assignment Evaluation & Class Test
	3 rd	Method of riveting, Types of riveted joints
	4 th	Failures of riveted joints, Strength & efficiency of riveted joints.
3 rd	1 st	Classroom Problem
	2 nd	Classroom Problem
	3 rd	Classroom Problem
	4 th	Review Class
4 th	1 st	Types of welded joints. Advantages of welded joints over other joints.
	2 nd	Strength of welded joints for eccentric loads.
	3 rd	Classroom Problem
	4 th	Classroom Problem
5 th	1 st	Classroom Problem
	2 nd	Review Class
	3 rd	Nomenclatures, form of threads & specifications.
	4 th	Design of screw thread (nut and bolt).
6 th	1 st	Classroom Problem
	2 nd	Classroom Problem
	3 rd	Review Class
	4 th	Assignment Evaluation & Class Test

7 th	1 st	Function of shafts. Materials for shafts. Standard size of shaft as per I.S.
	2 nd	Design solid & hollow shafts to transmit a given power at given rpm based on (a) Strength (Shear stress, Combined bending & tension)
	3 rd	Classroom Problem
	4 th	Classroom Problem
8 th	1 st	Design solid & hollow shafts to transmit a given power at given rpm based on (b) Rigidity (Angle of twist, Deflection, modulus of rigidity)
	2 nd	Classroom Problem
	3 rd	Classroom Problem
	4 th	Review Class
9 th	1 st	Assignment Evaluation & Class Test
	2 nd	Function of keys, types of keys & material of keys. Failure of key, effect of key way.
	3 rd	Design rectangular sunk key considering its failure against shear & crushing. Design rectangular sunk key by using empirical relation for given diameter of shaft.
	4 th	Specification of parallel key, Gib-head key, taper key as per I.S.
10 th	1 st	Classroom Problem
	2 nd	Classroom Problem
	3 rd	Classroom Problem
	4 th	Review Class
11 th	1 st	Quiz Test
	2 nd	Design of Shaft Coupling
	3 rd	Requirements of a good shaft coupling, Types of Coupling
	4 th	Design of Sleeve or Muff-Coupling.
12 th	1 st	Classroom Problem
	2 nd	Classroom Problem
	3 rd	Design of Clamp or Compression Coupling.
	4 th	Classroom Problem
13 th	1 st	Classroom Problem
	2 nd	Review class
	3 rd	Assignment Evaluation & Class Test
	4 th	Materials used for helical spring. Standard size spring wire. (SWG), Terms used in compression spring.

14th	1st	Stress in helical spring of a circular wire. End connection for helical tension spring.
	2nd	End connection for helical tension spring. Deflection of helical spring of circular wire. Surge in spring
	3rd	Classroom Problem
	4th	Classroom Problem
15th	1st	Review class
	2nd	Assignment Evaluation & Class Test
	3rd	Discussion of previous year Questions
	4th	Discussion of previous year Questions


 Mr Somanath Sethy
 ,Lecturer