

PSIET, KARANDA, DHENKANAL


LESSON PLAN Session (2022-2023)

Discipline : Mechanical Engineering	Semester: 5 th (Winter 2022)	Name of the Teaching Faculty: Arun Kumar Bisoi, Lecturer.
Subject: Design of Machine Elements Theory -02	No. Of Days/Week: 4	Start Date: 15/09/2022 End Date: 21/01/2023
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.
14 th	1 st	Stress in helical spring of a circular wire. End connection for helical tension spring.
	2 nd	End connection for helical tension spring. Deflection of helical spring of circular wire. Surge in spring
	3 rd	Classroom Problem
	4 th	Classroom Problem
15 th	1 st	Review class
	2 nd	Assignment Evaluation & Class Test
	3 rd	Discussion of previous year Questions
	4 th	Discussion of previous year Questions

Atun Kumar Bisoi
Signature of the faculty


Signature of the Principal