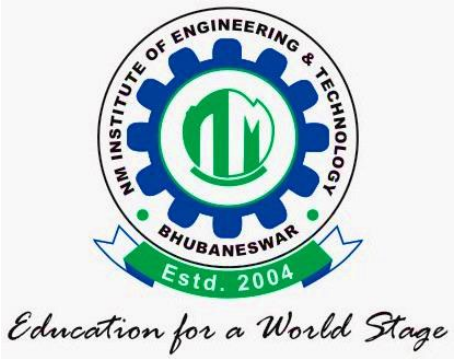
NM INSTITUTE OF ENGINEERING & TECHNOLOGY

BHUBANESWAR

Mechanical Engineering Department



LESSON PLAN

Session 2023-2024

Semester: 5th

Subject : DESIGN OF MACHINE ELEMENTS

Faculty Name: SANGRAM BEHERA

Subject: DME No of Days/per week class allotted: _____

Semester from date : _____to date: _____ No. of Weeks:_____

Week	Class Day	Theory topics
1	1	Introduction to Machine Design
	2	Classify it.
	3	Different mechanical engineering materials used in design with their uses
	4	mechanical engineering materials used in design with their mechanical and physical properties.
2	1	Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S
	2	Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for C.I.
	3	Modes of Failure By elastic deflection, general yielding & fracture)
	4	Modes of Failure (By general yielding & fracture)
3	1	State the factors governing the design of machine elements.
	2	Describe design procedure.
	3	Introduction to Joints
	4	Classification of joints
4	1	State types of welded joints
	2	State advantages of welded joints over other joints.
	3	Design of welded joints for eccentric loads.
	4	State types of riveted joints
5	1	types of rivets.
	2	Introduction to failure
	3	Describe failure of riveted joints.
	4	Determine strength of riveted joints.
6	1	Determine efficiency of riveted joints.
	2	Design riveted joints for pressure vessel.
	3	Solve numerical on Welded Joint and Riveted Joints.
	4	State function of shafts
7	1	State materials for shafts.
	2	Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension;
	3	Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity
	4	State standard size of shaft as per I.S.

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Week	Class Day	Theory topics
8	1	State function of keys
	2	types of keys & material of keys
	3	Describe failure of key
	4	effect of key way
9	1	Design rectangular sunk key considering its failure against shear & crushing.
	2	Design rectangular sunk key by using empirical relation for given diameter of shaft.
	3	State specification of parallel key, gib-head key, taper key as per I.S
	4	Solve numerical on Design of Shaft and keys
10	1	Introduction to Coupling
	2	Discuss various types of coupling
	3	Requirements of a good shaft coupling
	4	Advantages of Coupling
11	1	Design of Sleeve or Muff-Coupling.
	2	Design of Clamp or Compression Coupling.
	3	Solve simple numerical
	4	Solve numericals
12	1	Introduction to spring
	2	Various types of spring
	3	Advantages of spring
	4	Uses of spring
13	1	Explain helical spring
	2	Materials used for helical spring.
	3	Explain spring wire
	4	Types of spring wire
14	1	Standard size spring wire. (SWG).
	2	Discuss Compression Spring
	3	Terms used in compression spring
	4	Stress in helical spring of a circular wire.
15	1	Deflection of helical spring of circular wire
	2	Explain Surge
	3	Surge in spring.
	4	Solve numerical on design of closed coil helical compression spring.

Signature of Faculty