RAJA KISHORE CHANDRA ACADEMY OF TECHNOLOGY NILGIRI,BALASORE

DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

SUBJECT- - DESIGN OF MACHINE ELEMENTS **BRANCH-MECHANICAL**

NAME OF THE FACULTY-ER.SANJAY KUMAR BEHERA **SEMESTER-5TH**
SESSION-

UNIT	DATE	LECTURE NO	TOPIC TO BE COVERED
1		1	Introduction to machine design and its classification.
		2	Different mechanical engineering materials used in design with their uses
		3	Physical and mechanical properties of engineering materials
		4	Working stress, yield stress, ultimate stress &factor of safety
		5	Numericals on working ,yield and ultimate stress.
		6	Stress –strain curve for m.s & c.i and salient points
		7	Modes of failure by elastic deflection
		8	Modes of failure by general yielding
		9	Modes of failure by fracture
		10	Failure of machine elements due to fatigue and Creep.
		11	Factors governing the design of machine Elements.
		12	Design procedure
2		13	Joints and their classification & types of welded Joints .
		14	Advantages of welded joints over other joints
		15	Design of welded joints for normal loads.
		16	Numericals on design of welded joints
		17	Design of welded joints for eccentric loads.
		18	Numericals on design of welded joints
		19	Types of riveted joints and types of rivets.
		20	Failure of riveted joints
		21	Strength & efficiency of riveted joints.
		22	Numericals on design of riveted joints
		23	Design of riveted joints for pressure vessel.
		24	Numericals on design of pressure vessel
3		25	Function of shafts.
		26	Materials of shafts
		27	Design solid & hollow shafts to transmit a givenpower at given rpm based on strength
		28	Numericals on design of solid shafts and hollow Shafts based on strength
		29	Design solid & hollow shafts to transmit a givenpower at given rpm based on rigidity

		30	Numericals on design of solid shafts and hollow shafts based on rigidity, standard size of shaft asper i.s.
		31	Function of keys, types of keys & material of key & Failure of key, effect of key way
		32	Design of rectangular sunk key considering its Failure against shear & crushing and numericals
		33	Design rectangular sunk key by using empirical Relation for given diameter of shaft and numericals
		34	Specification of parallel key, gib-head key, taper Key as per i.s.
		35	Discussion of important questions
		36	Class test
4		37	Shaft coupling, difference between clutch and Coupling
		38	Requirements of a good shaft coupling
		39	Advantages of using shaft couplings
		40	Types of coupling.
		41	Design of sleeve or muff-coupling.
		42	Numericals on design of sleeve coupling
		43	Design of clamp or compression coupling
		44	Numericals on clamp coupling
		45	Discussion of important questions
		46	Discussion of important questions
		47	Previous semester question discussion
5		48	Materials used for helical spring.
		49	Standard size spring wire. (swg).
		50	Terms used in compression spring
		51	Stress in helical spring of a circular wire.
		52	Numericals of stress on helical springs of Circular wire.
		53	Deflection of helical spring of circular wire.
		54	Numericals on deflection of springs & surge inspring.
		55	Numerical on design of helical spring
		56	Class test
		57	Discussion of important questions
		58	Discussion of important questions
		59	Previous semester question discussion
		60	Previous semester question discussion

SIGNATURE OF FACULTY MEMBER **COUNTER SIGNATURE OF H.O.D**