LESSON PLAN

NAME OF FACULTY: GUEST FACULTY

DISCIPLINE: MECHANICAL ENGINEERING

SEMESTER: V

SUBJECT: THEORY OF MACHINES

LESSON PLAN DURATION: 15 WEEKS

WORK LOAD (LECTURE/PRACTICAL) PER WEEK: (3 Lectures & 2 Practical's)

WEEK	THEORY		PRACTICALS
	LECTURE NOS.	TOPIC	TOPIC
1st	1	**Unit -1**. Simple Mechanisms- Kinematics of Machines: - Definition of Kinematics, Dynamics, Statics, Kinetics, Kinematic link.	Practical-1: To study inversion of Four Bar Mechanism, Single Slider Crank Chain Mechanism and Double Slider Crank Chain Mechanism with the help of working models.
	2	Kinematic Pair and its types, constrained motion.	
	3	Constrained motion and its types, Kinematic chain & its types, Mechanism, inversion	
2nd	4	Machine and structure, Inversions of Kinematic Chain: Inversion of four bar chain, coupled wheels of Locomotive & Pantograph	Practical-2 : To study various kinds of belts drives and gear trains with the help of working models
	5	Inversion of Single Slider Crank chain- Rotary I.C. Engines mechanism, Crank and Slotted lever quick return mechanism.	
	6	Inversion of Double Slider Crank Chain- Scotch Yoke Mechanism & Oldham's Coupling.	
3rd	7	**Unit-2** Power Transmission- Introduction to Belt and Rope drives, types of belt drives .	Practical-3: To find the moment of inertia of a flywheel. .
	8	Concept of velocity ratio, slip and creep; crowning of pulleys (simple numerical)	
	9	Flat and V belt drive: Ratio of driving tensions, power transmitted	
4th	10	Centrifugal tension, and condition for maximum horse power	Practical-4: To Study the different types of centrifugal governors & to plot graph between R.P.M & Displacement
	11	Simple Numerical	
	12	Different types of chains and their terminology	
5th	13	**SESSIONAL TEST -I**	Repeat Practical 1 to 4
	14	Gear Drive - Simple, compound, reverted and epicyclic gear trains	
	15	Simple numerical	

6th	**16**	UNIT 3: Flywheel, Principle and applications of flywheel	Repeat Practical 1 to 4
	17	Turning - moment diagram of flywheel for different engines	
	18	Fluctuation of speed and fluctuation of energy - Concept only	
7th	**19**	Coefficient of fluctuation of speed and coefficient of fluctuation of energy.	Repeat Practical 1 to 4
	20	Simple numerical on above topics	
	21	**Unit-4-** Governor Function of a governor, comparison of flywheel and governor	
8th	**22**	Simple description and working of Watt, Porter	Practical-5: To construct cam profile for uniform velocity, SHM and uniform acceleration and retardation on drawing sheet.
	23	Hartnel governor (simple numerical based on watt and porter governor)	
	24	Terminology used in governors: Height, equilibrium speed, Hunting, isochronisms, stability, sensitiveness of a governor	
9th	**25**	**SESSIONAL TEST -II**	Practical-**6.**: To perform the experiment of Balancing of rotating parts and find the unbalanced couple and forces.
	26	**Unit-5-** Definition and function of cam. Description of different types of cams and followers with simple line diagram	
	27	Terminology of cam profile, Displacement diagram for uniform velocity	
10th	**28**	S.H.M. and uniform acceleration and deceleration.	Repeat Practical 5 to 6
	29	S.H.M. and uniform acceleration and deceleration	
	30	**Unit-6-** Balancing, need of balancing, concept of static and dynamic balancing	
11th	**31**	Introduction to balancing of rotating masses in the same plane	Repeat Practical 5 to 6
	32	Balancing of rotating masses in the different Plane	
	33	Simple Numerical	
12th	**34**	Simple Numerical	Repeat Practical 1 to 6
	35	UNIT7: Vibrations, Causes of vibrations in machines, their harmful effects and remedies.	

	36	Types-longitudinal, transverse and torsional vibrations. Damping of vibrations	
13th	**37**	**SESSIONAL TEST –III**	----
	38	**Revised Sessional Test -1**	
	39	**Revised Sessional Test -2**	
14th	**40**	**Revised Sessional Test -3**	----
	41	Seminar	
	42	Seminar	
15th	**43**	Any Other Query	Repeat Practical