



Lesson Plan

Name of the Faculty: **SOMANATH SETHY**

Discipline : **Mechanical Engineering**

Semester : **4th**

Subject : **Theory of Machines (TOM)**

Week	Theory	
	Lecture Day	Topic (Including assessment/test)
1 st	1 st	Subject introduction and overview
	2 nd	1 Simple Mechanisms: 1.1 Kinematics of Machines: - Definition of Kinematics, Dynamics, Statics, Kinetics, Kinematic link, Kinematic Pair and its types
	3 rd	1.1 Constrained motion and its types, Kinematic chain and its types
2 nd	4 th	1.1 Mechanism, inversion, machine and structure.
	5 th	1.2 Inversion of Kinematic Chain: Inversion of four bar chain, coupled wheels of Locomotive & Pantograph.
	6 th	1.2 Inversion of Single Slider Crank chain - Rotary I.C. Engines mechanism, Crank and Slotted lever quick return mechanism.
3 rd	7 th	1.2 Inversion of Double Slider Crank Chain - Scotch Yoke Mechanism & Oldham's Coupling.
	8 th	2 Power Transmission: 2.1 Introduction to Belt and Rope drives. 2.2 Types of belt drives.
	9 th	2.3 Concept of velocity ratio, slip and creep; crowning of pulleys (simple numericals)
4 th	10 th	2.4 Flat and V belt drive: Ratio of driving tensions, power transmitted, centrifugal tension, and condition for maximum horsepower (simple numericals)
	11 th	2.5 Different types of chains and their terminology
	12 th	2.6 Gear Drive - Simple, compound, reverted and epicyclic gear trains (simple numericals)
5 th	13 th	2.7 Relative advantages and disadvantages of various drives

	14 th	Simplenumericals
	15 th	Simplenumericals
6 th	16 th	3. Flywheel:
		3.1 Principleandapplicationsofflywheel
	17 th	3.2Turning-momentdiagramofflywheelfordifferent engines.
	18 th	3.3Fluctuationofspeedandfluctuationofenergy- Concept only.
7 th	19 th	1stsessionaltest(Tentative)
	20 th	Assessment
	21 st	3.4Coefficientoffluctuationofspeedandcoefficientoffluctuationofenergy.
8 th	22 nd	Simplenumericals
	23 rd	Simplenumericals
	24 th	4. Governor:
9 th		4.1 Functionofagovernor,comparisonofflywheeland governor.
	25 th	4.2SimplesdescriptionandworkingofWattandPortergovernor
	26 th	4.2SimplesdescriptionandworkingofHartnelgovernor
	27 th	4.2Simplenumericalbasedonwattandporter governor
10 th	28 th	4.2Simplenumericalbasedonwattandportergovernor
	29 th	4.3Terminologyusedingovernors:Height,equilibriumspeed,Hunting,isochronism s
	30 th	Stability,sensitivenessofa governor.
11 th	31 st	2ndsessionaltest(Tentative)
	32 nd	Assessment
	33 rd	5. Cams:
12 th		5.1 Definitionandfunctionof cam
	34 th	5.1 Descriptionofdifferenttypesofcamsandfollowerswithsimpleline diagram.
	35 th	5.2Terminologyofcamprofile.
	36 th	5.3Displacementdiagramforuniformvelocity.
13 th	37 th	5.3DisplacementdiagramforS.H.M.
	38 th	5.3Displacementdiagramforuniformaccelerationanddeceleration.

	39 th	6. Balancing:
14 th	40 th	6.1 Need of balancing, Concept of static and dynamic balancing.
		6.2 Introduction to balancing of rotating masses in the same plane and different Planes (simple numericals)
	41 st	6.2 Introduction to balancing of rotating masses in the same plane and different Planes (simple numericals)
	42 nd	7. Vibrations:
15 th		7.1 Causes of vibrations in machines, Their harmful effects and remedies
	43 rd	7.2 Types - longitudinal, transverse and torsional vibrations.
		7.3 Damping of vibrations
	44 th	3rd sessional test (Tentative)
	45 th	Assessment
16 th	46 th	Revision
	47 th	Revision
	48 th	Revision
17 th	49 th	Revision
	50 th	Revision
	51 st	Revision

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Lect. In Mechanical Engg.

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29/1/2025
(HOD, ME)