



CDL State Institute of Engineering and Technology Panniwala Mota(Sirsa) Mechanical Engineering Department

KINEMATICS OF MACHINES (LAB)

General Course Information

Course Code: PCC-ME301-P Course Category: Professional Core Course Course Credits: 1.0 Mode: Practical Contact Hours: 02 hours per week	Course Assessment Methods (internal: 30; external: 70): Internal practical evaluation is to be done by the course coordinator. The end semester practical examination will be conducted jointly by external and internal examiners.
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Course Outcomes

Sr. No.	Course Outcome	RBT Level
CO1	Students will be able to name various terms related to kinematics of machines like link, kinematic pair, kinematic chain, mechanism and machine.	L1
CO2	Students will be able to describe link, kinematic pair, kinematic chain, mechanism and machine through models.	L2
CO3	Students will be able to solve different kind of problems related to links, mechanisms and machines experimentally.	L3
CO4	Students will be able to analyse different links, kinematic pairs, kinematic chains, mechanisms through models and experimentally.	L4
CO5	Students will be able to select and design appropriate element, pair, mechanism and machine required for a particular application.	L5

Experiments in KOM Lab

1. To Study Various Types of Kinematic Links, Pairs, Chains and Mechanisms.
2. To Study Inversions of Four Bar, Single Slider and Double Slider Crank Chains.
3. To Study various joints like revolute, planes, spherical, cam follower and study the degree of freedom.
4. To study Universal Hook Joint and find out angle of adjustment on experimental set up.
5. To study oscillating cylinder mechanism on the working model .
6. To Find Coefficient of Friction Between Belt and Pulley, and Rope and Pulley.
7. To Study Various Types of Cam and Follower Arrangements.
8. To Plot Follower Displacement Vs Cam Rotation for Various Cam Follower Systems.
9. To Study Various Types of Gears: Spur, Helical, Double Helical, Worm, Spiral and Bevel Gears.
10. To Study Various Types of Gear Trains: Simple, Compound, Reverted and Epicyclic Gear Trains.
11. To study working of Differential Gear Train on the working Model.
12. To establish graphically the relationship between stress and strain of helical spring under compression and extension.

Course Articulation Matrix (CO to PO/PSO Mapping)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	1	--	--	--	--	--	--	--	3	3	--	--
CO2	3	2	1	1	--	--	--	--	--	2	--	3	3	--	--
CO3	3	3	2	1	1	--	--	--	1	2	--	3	3	--	--
CO4	3	3	2	2	1	--	--	1	2	2	--	3	3	1	1
CO5	3	2	3	2	2	--	--	1	2	2	--	3	3	2	3

1 : (Slight/Low), 2:(Moderate/Medium), 3 :(Substantial/High)



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KOM Lab

Sr. No.	Name of equipment	Qty	Date of Purchase
1.	Combined compressor & Extension of spring apparatus	01	07.02.2007
2.	Combined plane & Friction slide apparatus	01	07.02.2007
3.	Rigidity of wires (Searle's Pattern)	01	07.02.2007
4.	Crank & slotted lever Mechanism	01	07.02.2007
5.	Screw jack apparatus	01	07.02.2007
6.	Combined coil & belt friction Apparatus	01	07.02.2007
7.	Hook joined apparatus	01	07.02.2007
8.	Slider crank mechanism Apparatus	01	07.02.2007
9.	Oscillating cylinder mechanism	01	07.02.2007
10.	Withworth quick system mechanism	01	07.02.2007
11.	Cam analysis apparatus	01	07.02.2007
12.	Model of Oldham coupling	01	Built In house
13.	Inclined plane apparatus	01	Built In house
14.	Compound screw jack apparatus	01	Built In house
15.	Differential Gear Train	01	Built In house



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KOM Lab

Dr. Vikas Gupta



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Cut Out working model of Differential





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Belt/Rope Friction Apparatus



Crank & Slotted Mechanism Apparatus





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Inclined Plane Apparatus



Cam Analysis Apparatus

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Compound Screw Jack Apparatus

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Oscillating Cylinder Working Model



Working Model of Slider Crank Mechanism



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Working Model of Hook Joint Apparatus



Mechanism



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Mechanism

Dr. Vikas Gupta, CDLSEET, Panniwala Mota



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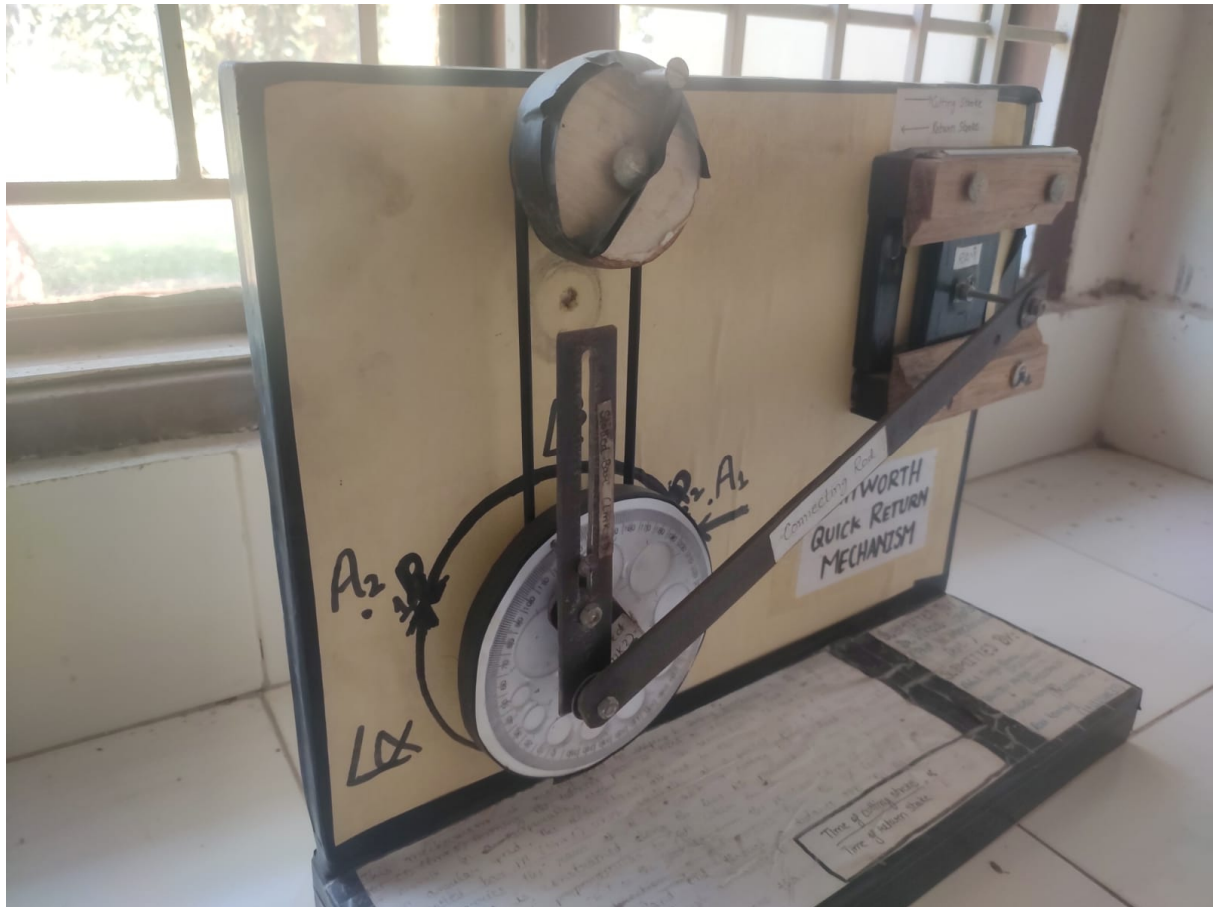
Automatic board cleaning mechanism

Dr. Vikas Gupta

Mota



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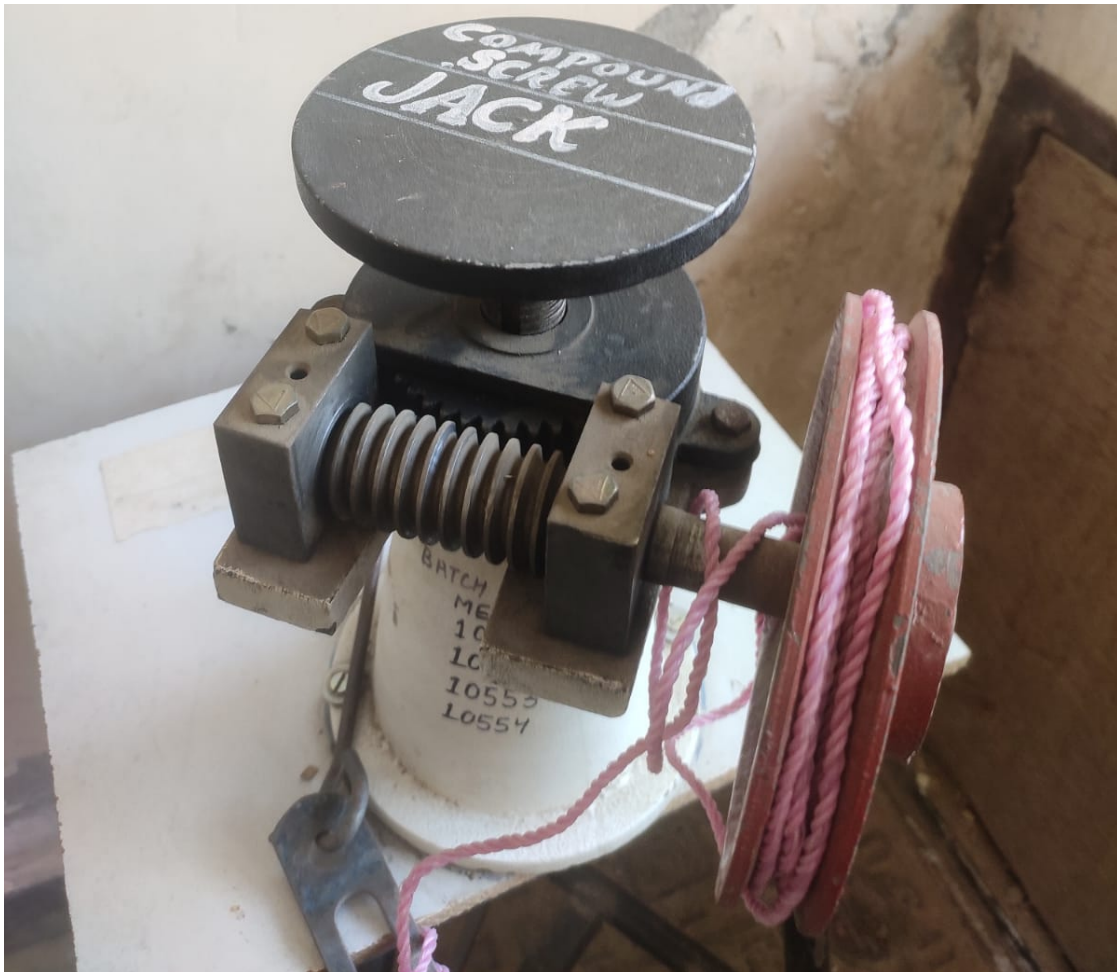


Whitworth Quick Return Mechanism

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Compound Screw Jack

Dr. Vikas