Lesson Plan

Name of the Institute:	**C. V. Raman Polytechnic**
Department:	**Mechanical Engineering**
Semester/Division/Branch:	**2nd Sem/ME**
Subject Name with code:	**Engineering Mechanics**
Total No. of Class (Required):	**60**
Faculty Name:	**Mrs. Sutapa Sarkar**

Class No.	Brief Description of the Topic/Chapter to be taught	Remarks
1	Definitions of Mechanics, Statics	
2	Dynamics, Rigid Bodies	
3	Force System, Definition, Classification of force system according to plane & line of action	
4	Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition	
5	Action & Reaction Forces & concept of Free Body Diagram	
6	Resolution of a Force. Definition, Method of Resolution, Types of Component forces	
7	Perpendicular components & non-perpendicular components	
8	Composition of Forces. Definition, Resultant Force, Method of composition of forces	
9	Analytical Method such as Law of Parallelogram of forces & method of resolution	
10	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces	
11	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces	
12	Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.	
13	Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.	
14	Moment of Force. Definition, Geometrical meaning of moment of a force	
15	measurement of moment of a force & its S.I units	
16	Classification of moments according to direction of rotation, sign convention	
17	Law of moments, Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple, properties of couple	

18	Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple	
19	Varignon's Theorem, properties of couple	
20	Definition, condition of equilibrium,	
21	Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent & Free Body Diagram	
22	Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent & Free Body Diagram	
23	Lamia's Theorem – Statement, Application for solving various engineering problems	
24	Lamia's Theorem – Statement, Application for solving various engineering problems	
25	Definition of friction, Frictional forces	
26	Limiting frictional force, Coefficient of Friction	
27	Angle of Friction & Repose, Laws of Friction, Advantages & Disadvantages of Friction	
28	Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down)	
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30	Ladder, Wedge Friction	
31	Centroid – Definition, Moment of an area about an axis	
32	centroid of geometrical figures such as squares	
33	rectangles, triangles, circles, semicircles & quarter circles, centroid of composite figures	
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35	Moment of Inertia – Definition, Parallel axis & Perpendicular axis Theorems. M.I. of plane lamina & different engineering sections	
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37	Moment of Inertia – Definition, Parallel axis & Perpendicular axis Theorems. M.I. of plane lamina & different engineering sections	
38	Definition of simple machine, velocity ratio of simple and compound gear train	
39	Definition of simple machine, velocity ratio of simple and compound gear train	
40	explain simple & compound lifting machine	
41	define M.A, V.R. & Efficiency & State the relation between them, State Law of Machine, Reversibility of Machine	
42	define M.A, V.R. & Efficiency & State the relation between them, State Law of Machine, Reversibility of Machine	
43	Self-Locking Machine	
44	Study of simple machines – simple axle & wheel	
45	single purchase crab winch & double purchase crab winch, Worm & Worm Wheel, Screw Jack	

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47	Types of hoisting machine like derricks etc., their use and working principle. No problems	
48	Types of hoisting machine like derricks etc., their use and working principle. No problems	
49	Kinematics & Kinetics, Principles of Dynamics	
50	Newton's Laws of Motion	
51	Motion of Particle acted upon by a constant force	
52	Equations of motion, D'Alembert's Principle	
53	Work, Power, Energy & its Engineering Applications	
54	Kinetic & Potential energy & its application	
55	Kinetic & Potential energy & its application	
56	Momentum & impulse, conservation of energy & linear momentum	
57	collision of elastic bodies	
58	Coefficient of Restitution	
59	Momentum & impulse, conservation of energy & linear momentum	
60	Collision of elastic bodies, and Coefficient of Restitution (Revision)	

Signature of the Faculty

Signature of the H.O.D