Lesson Plan

Name of the Institute:	C. V. Raman Polytechnic
Department:	Mechanical Engineering
Semester/Division/Branch:	1st & 2nd
Subject Name with code:	Engineering Mechanics
Total No. of Class (Required):	60
Faculty Name:	MS SUTAPA SARKAR

Class No.	Brief Description of the Topic/Chapter to be taught	Remarks
1	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies	1st week
2	Basic concepts of Time, Space, Mass, Flexible body, rigid body, scalar quantity, vector quantity, Units of measurement (Fundamental units, Derived units, SI units)	
3	Force:- Introduction, units, characteristics of force, effect of force.	
4	Force system & classification(collinear, coplanar, parallel, concurrent, non-concurrent and non-parallel force system)	
5	Principles of Static force (Equilibrium law of force, principle of superposition of forces, principle of transmissibility)	2nd Week
6	Resolution of force (orthogonal components, non-orthogonal components	
7	Composition of force (Resultant force), Analytical methods of concurrent force system (a) Law of parallelogram of force (b) law of triangle of force (c) Methods of resolution.	
8	Composition of force (Resultant force), Analytical methods of concurrent force system (a) Law of parallelogram of force (b) law of triangle of force (c) Methods of resolution	
9	Solving various engineering problems related to composition of forces.	3rd Week

10	Solving various engineering problems related to composition of forces.	3rd Week
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	Moment of Force .Definition & its S.I units. Classification of moments according to direction of rotation, sign convention, Law of moments.	4th week
14	Varignon's Theorem, Couple–Definition, S.I. units ,measurement of couple, properties of couple.	
15	Equilibrium& Equilibrant, condition of equilibrium,freebody diagram.	
16	Lamia's theorm statement & prove.	
17	Lamia's theorem ,Application for solving various engineering problems.	5th week
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19	Types of supports , types of loading, Types of Beams	
20	Types of supports , types of loading, Types of Beams	
21	Beam reactions (cantilever beam, simply supported, overhang beam)	6th week
22	Solving various engineering problems related to beam reactions.	
23	Solving various engineering problems related to beam reactions.	
24	Friction and its types , Laws of friction, Advantages & Disadvantages of Friction.	
25	Laws of friction, Advantages & Disadvantages of Friction.	7th week
26	Limiting friction, Normal reaction.	
27	Co-efficient of friction, Angle of friction, Angle of repose.	
28	Equilibrium of a bodies on level surface subjected to force parallel to plane.	
29	Equilibrium of a bodies on level surface subjected to force inclined to	

	plane.	
30	Solving numericals.	8th week
31	Solving numericals.	
32	Revision.	
33	Center of gravity & Centroid (Definition & comparison), axes of reference.	
34	Centroid of standard shapes.	
35	Centroid of composite figures.	9th week
36	Centroid of geometrical figures such as squares, rectangles, triangles.	
37	Centroid of geometrical figures such as circles, semicircles & quarter circles.	
38	Center of gravity of simple solids (cylinder)	
39	Center of gravity of simple solids (cone)	10th week
40	Center of gravity of composite solids(sphere)	
41	Center of gravity of composite solids(hemisphere)	
42	Center of gravity of composite solids	
43	Center of gravity of composite solids	11th week
44	Revision.	
45	Definition of simple lifting machine, compound machine, load, effort .	
46	Define Mechanical advantages, Velocity ratio & Efficiency State the relation between them.	12th week
47	State Ideal machine, Friction in machine.	
48	State Maximum mechanical advantages and efficiency.	
49	Define Reversible machine & Non Reversible machine, conditions for reversibility	

50	Define Reversible machine & Non Reversible machine, conditions for reversibility.	13th week
51	Study of simple machines – Velocity ratio of simple axle & wheel & solving to numerical.	
52	Study of simple machines – Velocity ratio of Differential axle & wheel& solving numerical	
53	Study of simple machines – Velocity ratio of single purchase crab winch & solving numerical.	14th week
54	Study of simple machines – Velocity ratio of Worm & Worm wheel & solving numerical.	
55	Study of simple machines –Velocity ratio of Simple Screw Jack & solving numerical.	
56	Study of simple machines –Velocity ratio of Weston's differential pulley block	
57	Study of simple machines –Velocity ratio of Geared pulley block.	15th week
58	Revision.	
59	Doubt clearing.	
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Signature of the Faculty

Signature of the H.O.D