

# Lesson Plan

<b>Name of the Institute:</b>		<b>C. V. Raman Polytechnic</b>
<b>Department:</b>		<b>Mechanical Engineering</b>
<b>Semester/Division/Branch:</b>		<b>1<sup>st</sup> &amp; 2<sup>nd</sup></b>
<b>Subject Name with code:</b>		<b>Engineering Mechanics</b>
<b>Total No. of Class (Required):</b>		<b>60</b>
<b>Faculty Name:</b>		<b>MS SUTAPA SARKAR</b>
<b>Class No.</b>	<b>Brief Description of the Topic/Chapter to be taught</b>	<b>Remarks</b>
1	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies	1 <sup>st</sup> 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)	2 <sup>nd</sup> 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.	3 <sup>rd</sup> Week

10	Solving various engineering problems related to composition of forces.	3 <sup>rd</sup> 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.	4 <sup>th</sup> 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.	5 <sup>th</sup> 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)	6 <sup>th</sup> 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.	7 <sup>th</sup> 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.	8 <sup>th</sup> week
30	Solving numericals.	
31	Solving numericals.	
32	Revision.	
33	Center of gravity & Centroid (Definition & comparison), axes of reference.	9 <sup>th</sup> week
34	Centroid of standard shapes.	
35	Centroid of composite figures.	
36	Centroid of geometrical figures such as squares, rectangles, triangles.	
37	Centroid of geometrical figures such as circles, semicircles & quarter circles.	10 <sup>th</sup> week
38	Center of gravity of simple solids ( cylinder)	
39	Center of gravity of simple solids ( cone)	
40	Center of gravity of composite solids(sphere)	
41	Center of gravity of composite solids(hemisphere)	11 <sup>th</sup> week
42	Center of gravity of composite solids	
43	Center of gravity of composite solids	
44	Revision.	
45	Definition of simple lifting machine, compound machine, load, effort .	12 <sup>th</sup> week
46	Define Mechanical advantages, Velocity ratio & Efficiency State the relation between them.	
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.	13 <sup>th</sup> 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.	14 <sup>th</sup> 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.	15 <sup>th</sup> week
58	Revision.	
59	Doubt clearing.	
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**Signature of the Faculty**

**Signature of the H.O.D**

