DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

LESSON PLAN

Discipline: Civil engineering	Semester : 3rd	No. of periods available: 51	Name of Teaching Faculty:
Subject: Engineering Mechanics	No. of Days/ per week class allotted : 4 periods per week		No. of weeks : 13
Week	Class Day		Topics to be covered
1st	1st	1	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies
	2nd	1	Force System. Definition, Classification of force system according to plane & line of action.
	3rd	1	Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition. Action & Reaction Forces & concept of Free Body Diagram
	4th	1	Definition, Method of Resolution, Types of Component forces, Perpendicular components & non-perpendicular components.
2nd	5th	1	Definition, Resultant Force, Method of composition of forces, such as analytical Method such as Law of Parallelogram of forces & method of resolution.
	6th	1	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces. Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.
	7th	1	Revision and Doubt Discussion
	8th	1	Class Test-1

3rd	9th	1	Definition, Geometrical meaning of moment of a force, measurement of moment of a force & its S.I units. Classification of moments according to direction of rotation, sign convention,
	10th	1	Law of moments, Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple, properties of couple.
	11th	1	Definition, condition of equilibrium, Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent & Free Body Diagram.
	12th	1	Lamia's Theorem – Statement, Application for solving various engineering problems
4th	13th	1	Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction
	14th	1	Angle of Friction & Repose, Laws of Friction, Advantages & Disadvantages of Friction.
	15th	1	Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down).
	16th	1	Ladder, Wedge Friction.
5th	17th	1	Centroid – Definition, Moment of an area about an axis, centroid of geometrical figures such as squares, rectangles
	18th	1	centroid of geometrical figures such as triangles, circles, semicircles & quarter circles

	19th	1	Centroid of composite figures.
	20th	1	Moment of Inertia – Definition, Parallel axis
6th	21st	1	Revision and Doubt Discussion
	22nd	1	Quiz
	23rd	1	Perpendicular axis Theorems.
	24th	1	M.I. of plane lamina & different engineering sections.
7th	25th	1	Definition of simple machine, velocity ratio of simple and compound gear train
	26th	1	explain simple & compound lifting machine, define M.A, V.R. & Efficiency
	27th	1	State the relation between them, State Law of Machine, Reversibility of Machine, Self-Locking Machine
	28th	1	Study of simple machines – simple axle & wheel, single purchase crab winch
8th	29th	1	Double purchase crab winch, Worm & Worm Wheel, Screw Jack.
	30th	1	Types of hoisting machine like derricks etc, Their use and working principle. No problems
	31st	1	Kinematics & Kinetics, Principles of Dynamics, Newton's Laws of Motion
	32nd	1	Motion of Particle acted upon by a constant force, Equations of motion, De-Alembert's Principle.
9th	33rd	1	Revision and Doubt Discussion
	34th	1	Quiz
	35th	1	Work, Power, Energy & its Engineering Applications
	36th	1	Kinetic & Potential energy & its application
10th	37th	1	Momentum & impulse, conservation of energy

	38th	1	Linear momentum, collision of elastic bodies, and Coefficient of Restitution.
	39th	1	Class Test- 2
	40	1	Previous Year Question Disscussion
11th	41st	1	Previous Year Question Disscussion
	42nd	1	Previous Year Question Disscussion
	43rd	1	Previous Year Question Disscussion
	44th	1	Previous Year Question Disscussion