

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2023-2024

Discipline: Civil/Electrical/Mechanical/Comp. Sc./Metallurgy Engg.

Semester: 2nd


Subject: Engineering Mechanics

Name of the Teaching Faculty: Mr. Dillip Kumar Meher

Subject: EM No. of Days/per week class allotted : 04

Semester From Date : 01-02-2024 To Date : 14-05-2024 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
01	1	Def ⁿ of mechanics, Dynamics, statics, Rigid bodies
	2	Def ⁿ of force system, characteristics & effects of force
	3	Transmissibility Principle, super position
	4	Action & reaction force FBD concept
02	5	Resolution of force, method of resolution
	6	Types of Component forces (Perpendicular & non perpendicular)
	7	Composition of force, Method of composition (Analytical method)
	8	Law of Parallelogram of force Resolution method
03	9	Space diagram, Polygon law of forces
	10	Resultant of concurrent forces (Analytical method)
	11	Resultant of non concurrent forces (Analytical method)
	12	Moment of force, its unit, classification


Signature of the Faculty

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Week	Class Day	Theory /Practical Topics
04	13	Law of moments, Varignon's theorem
	14	Couple, its unit, measurement & properties
	15	conditions of equilibrium
	16	Equilibrium conditions (Concurrent force)
05	17	Equilibrium conditions (Non concurrent force)
	18	FBD
	19	Lami's theorem (Definition)
	20	Lami's theorem (Derivation)
06	21	Problems on above
	22	Problems on above
	23	Def ⁿ of friction, Limiting frictional force
	24	C.O.F., Angle of friction, Laws of friction


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EM

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Week	Class Day	Theory / Practical Topics
07	25	Friction (Advantages, disadvantages)
	26	Equilibrium of bodies on level plane (Horizontal & inclined)
	27	Force applied on horizontal plane (up & down)
	28	Force applied on inclined plane (up & down)
08	29	Problems on above
	30	Ladder friction
	31	Wedge friction
	32	Problems on above
09	33	Centroid, Moment of an area about an axis
	34	Centroid of figures (Triangle, Rectangle, Circle etc.)
	35	Centroid of figures (Semicircle, Square)
	36	Centroid of figures (Quarter Circle etc.)

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Week	Class Day	Theory / Practical Topics
10	37	Centroid of Composite Sections
	38	Problems on above
	39	Def ⁿ of M.I.
	40	Parallel axis theorem
11	41	Perpendicular axis theorem
	42	M.I. of square, triangle etc.
	43	M.I. of T-section, I-section etc.
	44	M.I. of L-section, C-section etc.
12	45	Problems on above
	46	Def ⁿ of simple & compound machine
	47	Compound gear train
	48	Simple & compound lifting machine


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Week	Class Day	Theory /Practical Topics
13	49	Define MA, VR & efficiency and relation between them
	50	Law of machine, self-locking m/c
	51	study of wheel & axle, crab winch etc.
	52	Study of screw Jack
14	53	Problems on above
	54	Kinetics, Kinematics, Newton's law of motion
	55	Equation of motion, De-Almeida principle.
	56	Work, Power, Energy with applications
15	57	KE, PE with applications
	58	Momentum, Impulse, Conservation of Energy
	59	Problems on above if any
	60	Collision of elastic body Coefficient of restitution.


Signature of the Faculty