

**SYNERGY SCHOOL OF ENGINEERING, DHENKANAL**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**LESSONPLAN**  
**Session(2023-2024)**

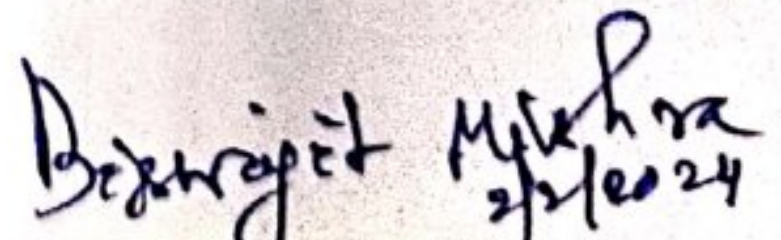
<b>Discipline:</b> Electrical (Sec- B)	<b>Semester:</b> 2 <sup>nd</sup> , Summer, 2023-24	<b>Name of the Teaching Faculty:</b> Biswajit Mishra
<b>Subject:</b> Engineering Mechanics, Theory-4(b)	<b>No. of Days/Week : 04</b>	

Week	Class Day	Theory Topics	I d
1st	1st	Significance and relevance of Mechanics, Applied mechanics, Statics, Dynamics. Space, time, mass, particle, flexible body and rigid body	
	2nd	Scalar and vector quantity, Units of measurement (SI units) – Fundamental units and derived units.	
	3rd	Force – unit, representation as a vector and by Bow's notation, characteristics and effects of a force, Principle of transmissibility of force, Force system and its classification.	
	4th	Composition of forces – Resultant, analytical method for determination of resultant for concurrent, Coplanar force system by parallelogram laws	
2nd	1st	Solve numericals	
	2nd	Resolution of a force - Orthogonal components of a force, solve the numericals	
	3rd	Numericals on resolution	
	4th	Define moment of a force & Varignon's Theorem	
3rd	1st	Finding resultant of non-concurrent co-planar forces systems & solve numericals	
	2nd	Finding resultant of parallel coplanar forces & solve numericals.	
	3rd	Solve numericals based on unit-1	
	4th	Equilibrium and Equilibrant, Free body and Free body diagram, Analytical and graphical methods of analysing equilibrium	
4th	1st	Lami's Theorem – statement and explanation. & solve numericals	
	2nd	Friction and its relevance in engineering, types and laws of friction, limiting equilibrium, limiting friction, co-efficient of friction	
	3rd	Angle of friction, angle of repose, relation between co-efficient of friction and angle of friction & Solve numericals	
	4th	Equilibrium of bodies on level surface subjected to force parallel to plane.	
5th	1st	Solve Numericals	
	2nd	Equilibrium of bodies on level surface subjected to inclined to plane.	
	3rd	Solve Numericals	
	4th	Equilibrium of bodies on inclined plane subjected to force parallel to the plane only	
6th	1st	Solve Numericals	
	2nd	Quiz test	
	3rd	Centroid Definition, Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle)	
	4th	Centroid of composite figures composed of not more than three geometrical figures	





7th	1st	Centroid of composite figures composed of not more than three geometrical figures
	2nd	Numericals
	3rd	Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere).
	4th	Centre of Gravity of composite solids composed of not more than two simple solids
8th	1st	Centre of Gravity of composite solids composed of not more than two simple solids
	2nd	Numericals
	3rd	Doubt Clearing Class
	4th	Moment of Inertia: Introduction
9th	1st	MI of plane geometries about an axis, Parallel axis theorem, Perpendicular axis theorem
	2nd	MI of symmetrical figures
	3rd	Numericals
	4th	Numericals
10th	1st	Simple lifting machine, load, effort, mechanical advantage, applications and advantages.
	2nd	Velocity ratio, efficiency of machines, law of machine & Solve numericals
	3rd	Solve Numericals
	4th	Ideal machine, friction in machine, maximum Mechanical advantage and efficiency & solve numericals
11th	1st	Reversible and self-locking machines, conditions for reversibility, solve numericals
	2nd	Doubt Clearing class
	3rd	Velocity ratio of simple & differential axle & wheel
	4th	Solve numericals
12th	1st	Worm & worm wheel, single purchase crab winch
	2nd	Solve numericals
	3rd	Double purchase crab winch, simple screw jack
	4th	Solve numericals
13th	1st	Weston's differential pulley block, geared pulley block
	2nd	Solve numericals
	3rd	Numericals
	4th	Semester Question Discussion
14th	1st	Semester Question Discussion
	2nd	Semester Question Discussion
	3rd	Semester Question Discussion
	4th	Semester Question Discussion
15th	1st	Semester Question Discussion
	2nd	Semester Question Discussion
	3rd	Semester Question Discussion
	4th	Semester Question Discussion

  
 Signature of Faculty & Head