

<b>Samrat Ashok Technological Institute, Vidisha</b>			
<b><u>Department of Mechanical Engineering</u></b>			
<b>Lecture Plan</b>			
<b>Course Code:</b>	AG-1854	<b>Year/Semester :</b>	B.Tech 3 <sup>rd</sup> Year/ 5 <sup>th</sup> Semester
<b>Course Name:</b>	Theory of Machine	<b>Academic Year :</b>	2023-24/ ODD
<b>L – T:</b>	3 – 1	<b>Credit :</b>	4
<b>Course Detail :</b>	Theory and Tutorial	<b>Term Start Date :</b>	24/07/2023
<b>Course Coordinator:</b>	Prof. Pankaj Sonkusare	<b>Term End Date :</b>	

<b>Academic Year: 2023-24</b>
<b>Name of Teacher: Prof. Pankaj Sonkusare</b>
<b>Subject: Theory of Machine(AG-1854)</b>
<b>Theory/Tutorial: Theory/Tutorial</b>

Sr. No.	Name Of Unit/Topics	Hrs. Allotted	Actual Date	Teaching Aid Code	Remarks
<b>01</b>	<b>UNIT:1 BASICS OF MECHANISMS</b>				
	Classification of mechanisms — Basic kinematic concepts	1		1	
	Definitions - Degree of freedom, Mobility — Kutzbach criterion	1		1	
	Gruebler's criterion & Grashof's Law	1		1	
	Kinematic inversions of four-bar chain and slider crank chains	1		1	
	Limit positions, Mechanical advantage, Transmission Angle	1		1	
	Description of some common mechanisms	1		1	
	Quick return mechanisms	1		1	
	Straight line generators	1		1	
	Universal Joint — rocker mechanisms.	1		1	
<b>ASSIGNMENT NO.1</b>					
<b>02</b>	<b>UNIT: 2 KINEMATICS OF LINKAGE MECHANISMS</b>				
	Displacement, velocity and acceleration analysis of simple mechanisms	2		1	
	Graphical method— Velocity and acceleration polygons	2		1	
	Velocity analysis using instantaneous centers	2		1	
	kinematic analysis of simple mechanisms — Coincident points	1		1	
	Coriolis component of Acceleration.	1		1	

ASSIGNMENT NO. 2				
03	<b>UNIT: 3 GEARS</b>			
	Law of toothed gearing	2		1
	Involutes and cycloidal tooth profiles	2		1/2
	Spur Gear terminology and definitions	1		1/2
	Gear tooth action — contact ratio — Interference and undercutting	1		1/2
	Helical, Bevel, Worm,	1		1/2
	Rack and Pinion gears	1		1/2
ASSIGNMENT NO.3				
04	<b>UNIT-4 GEAR TRAINS &amp; GYROSCOPE</b>			
	Speed ratio, train value	1		1/2
	Parallel axis gear trains, Epicyclic GearTrains.	2		1/2
	Gyroscopic Action in Machines: angular velocity and acceleration	1		1/2
	gyroscopic torque/ couple; gyroscopic effect on naval ships	2		1/2
	stability of two and four wheel vehicles	1		1/2
	rigid disc at an angle fixed to a rotating shaft	1		1/2
ASSIGNMENT NO. 4				
05	<b>UNIT-5 KINEMATICS OF CAM MECHANISMS</b>			
	Cams - Classification of followers and cams, radial cam nomenclature	1		1
	analysis of follower motion (uniform, modified uniform, simple harmonic, parabolic, cycloidal)	2		1
	pressure angle, radius of curvature, synthesis of cam profile by graphical approach	2		1
	cams with specified contours.	1		1
	Numericals and cam profile practices work	2		1
ASSIGNMENT NO. 5				
<b>Teaching Aid Code:</b>		Sign of Teacher: Prof. Pankaj Sonkusare		
1	White board			
2	L.C.D/overhead PROJECTOR			
3	MODEL & CHART			
4	PPT & VIDEO			
LESSON PLANNING, Rev. no. :00				

**Reference Books:**

1. Rattan SS; Theory of machines; TMH
2. Ambekar AG; Mechanism and Machine Theory; PHI.
3. Sharma CS; Purohit K; Theory of Mechanism and Machines; PHI.
4. Thomas Bevan; Theory of Machines; Pearson/ CBS PUB Delhi.
5. Ghosh,A.,Mallik,AK; Theory of Mechanisms & Machines.
6. Rao JS and Dukkipati; Mechanism and Machine Theory; NewAge Delhi