

# Ch. Ranbir Singh State Institute of Engg. & Technology

## LESSON PLAN

Semester	5th	Year	2020	Contact Hours per week =3
Sub: KOM		Branch Mechanical Engineering		Total Credit 3
TEACHER		Sh. Manjeet Kumar		
Period		July 2020-Dec. 2020		
Recommended books		Text book: 1. Theory of Machines : R S Khurmi		
Sl. No.	Lecture No.	Topics to be covered		No. of Classes
		<b>MODULE-1</b>		<b>10</b>
1	Lecture-01	Introduction: mechanism and machines, kinematics links, kinematics pairs		
2	Lecture-02	kinematics chains, degree of freedom, Grubler's rule		
3	Lecture-03	equilibrium of concurrent forces, kinematics inversion, equivalent linkages, four link planar mechanisms,		
4	Lecture-04	straight line mechanisms, steering mechanisms, pantograph, problems.		
5	Lecture-05	displacement analysis, velocity diagram, velocity determination, relative velocity method,		
6	Lecture-06	instantaneous center of velocity, Kennedy's theorem,		
7	Lecture-07	graphical and analytical methods of velocity and acceleration analysis, problems.		
8	Lecture-08	UNIT-II Cams: Classification of cams and followers, disc cam nomenclature		
9	Lecture-09	, construction of displacement, velocity and acceleration diagrams for different types of follower motions,		
10	Lecture-10	analysis of follower motions, determination of basic dimension,		
		<b>MODULE-2</b>		

11	Lecture-12	synthesis of cam profile by graphical methods,	7
12	Lecture-13	cams with specified contours, problems	
13	Lecture-14	Gears: fundamental law of gearing, involute spur gears,	
14	Lecture-15	characteristics of involute and cycloidal action, Interference and undercutting	
15	Lecture-15	center distance variation, path of contact, arc of contact, non standard gear teeth.	
15	Lecture-16	helical, spiral bevel and worm gears, problems	
16	Lecture-17	<b>Class Test on Module-2</b>	
<b>MODULE-3</b>			
17	Lecture-18	UNIT-III Gear Trains: synthesis of simple,	11
18	Lecture-19	compound and reverted gear trains,	
19	Lecture-20	analysis of epicyclic gear trains, problems.	
20	Lecture-21	To understand the kinematics and rigid- body Kinematics synthesis of Mechanisms: function generation, path generation,	
21	Lecture-22	Freudenstein's equation,	
22	Lecture-23	two and three position synthesis of four bar and slider crank mechanisms by graphical and analytical methods.	
23	Lecture-24	precision positions, structural error; Chebychev spacing, transmission angle,	
24	Lecture-25	problems	
25	Lecture 27	UNIT-IV Friction : Types of friction, laws of friction,	
26	Lecture 28	motion along inclined plane, screw threads,	
27	Lecture 29	efficiency on inclined plane, friction in journal bearing,	
<b>MODULE-4</b>			
28	Lecture 28	friction circle and friction axis, pivots and collar friction, uniform pressure and uniform wear	12
29	Lecture 29	. Belts and pulleys: Open and cross belt drive,	
30	Lecture 30	velocity ratio, slip, material for belts,	
31	Lecture 31	crowning of pulleys, law of belting,	
32	Lecture-32	types of pulleys, length of belts,	
33	Lecture-33	ratio of tension, centrifugal tension	
34	Lecture-34	, power transmitted by belts and ropes, initial tension,	
35	Lecture 35	creep, chain drives, chain length, classification of chains.	
36	Lecture-36	D Alembert's principle of curvilinear motion.	
37	Lecture-37	Kinematics Analysis of Plane Mechanisms:	
38	Lecture-38	<b>Kinematics</b> of rotation of rigid body	
39	Lecture-39	<b>Class Test on Module-4</b>	
40	<b>Tips for final exams</b>		

