Department of _____Mechanical Engineering _____
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

LESSON PLAN

Faculty Name	**Suryakanta Parida**			Name of the Program	**Diploma in Mechanical Engineering**
Subject Name	THEORY OF MACHINES			Subject Code	TH 1 - (C209)
Course Year	**2nd year**	Semester	**4th**	Academic Period	**2023-24**
No. of Classes allotted per Week	**4**	Planned Classes Required to Complete the Course			**60**

Sl. No.	Topics to be covered	chapters	No. of hours Required	Mode of Teaching	CO	BOOK	CHAPTER (PAGES)	OTHER SOURCE(IM)
1	Mechanism: Basic Kinematic concepts and definitions	I	1	LM/ IM	CO1	T1	4 :94	https://youtu.be/7WppBa-cLuk?list=PLhSp9OSVmeyJSYB4gKPL8UrmB_a3kfHYI
2	Mechanism, link, kinematic pair, classification of kinematic pairs, degree of freedom, kinematic chain	I	1	LM/ IM	CO1	T1	4: 96-100	https://youtu.be/NNXba5Ys8Y4
3	Lower pair and Higher pair. Calculation based link, mechanism.	I	1	LM/ IM	CO1	T1	4:100-105	https://youtu.be/oh3Z8CXjLms
4	Inversion of four bar link mechanism and its inversion	I	1	LM/ IM	CO1	T1	4: 105-110	https://youtu.be/TFVlGfyMEiI
5	Introduction to Nomenclature of Cam Profile, types of cams.	I	1	LM/ IM	CO1	T1	20: 774-778	https://youtu.be/-ld6DWnSpiQ
6	Followers ,Types of Followers	I	1	LM/ IM	CO1	T1	20: 774-778	https://youtu.be/u5nwkm5IbqY

7	Unit Discussion/Assignment		1					
8	Unit Test		1					
9	Introduction to Friction, Friction between nut and screw for square thread, Screw jack	2	1	LM/ IM	CO2	T1	10:258-272	https://youtu.be/tKv-Ilr3AhE
10	Calculation base on friction, friction in screw thread, screw jack	2	1	LM/ IM	CO2	T1	10:278-285	https://youtu.be/oVaEe-L4QGA
11	Bearings and its classification.	2	1	LM/ IM	CO2	T1	10:285-290	https://youtu.be/Uazv8Fde108
12	Description of roller, needle roller and ball bearings.	2	1	LM/ IM	CO2	T1	10:258-324	https://youtu.be/8q25EUszBSI
13	Torque transmission in flat pivot bearings & conical pivot bearing	2	1	LM	CO2	T1	10:290-292	https://youtu.be/5FkpJ-TNP9w
14	Calculation based on flat pivot & conical pivot bearings	2	1	LM	CO2	T1	10:292-297	https://youtu.be/UlbtU_W1CuE
15	Torque transmission for single plate clutch & multiple types	2	1	LM	CO2	T1	10:297-302	https://youtu.be/ZzzsOE5fJ9U
16	Calculation based on torque transmission clutch and bearing	2	1	LM	CO2	T1	10:302-309	https://youtu.be/mGe8GAr2uWE

17	Working of simple frictional brakes & Calculation based on brakes	2	1	LM	CO2	T1	19:732-753	https://youtu.be/MoRrFK6Zzq8
18	Working of absorption type of dynamometer	2	1	LM	CO2	T1	19:762-766	https://youtu.be/50SUtuwfCrI
19	Unit Discussion/Assignment-I	2	1					
20	Quiz Test -I	2	1					
20	Power transmission: Introduction to power transmission, types of belt &rope drives and chain drive	3	1	LM	CO3	T1	11:325-330,365-371,	https://youtu.be/c2b160dGpXs?list=PLWM0wjHbgpgVJhZiQTdBOWjysOFDsnz-9
21	Computation of velocity ratio of simple and compound belt drive	3	1	LM	CO3	T1	11:330-333	https://youtu.be/lkWAx39v3S8
22	Derivation of Length of belts (open and cross) with and without slip	3	1	LM/IM	CO3	T1	11:334-337	https://youtu.be/lMJjGYECc3U
23	Ratio of belt tension, centrifugal tension and initial tension, Power transmitted by the belt	3	1	LM/IM	CO3	T1	11:340-341	https://youtu.be/8tekqukjxyI
24	Calculation based on power transmission, belt drive	3	1	LM/IM	CO3	T1	11:345-347	https://youtu.be/cfAK1bbdtp8

25	Derivation of Belt thickness and width for given permissible stress for open and crossed belt , V-belts and v-belts pulley	3	1	LM/IM	CO3	T1	11:346-350	https://youtu.be/8T4DuaxJjAc
26	Concept of crowning of pulleys & Calculation based on different pulley	3	1	LM/IM	CO3	T1 T3	11:330-381 10:530	https://youtu.be/rp1ftWzWlGw
27	Gear drives & gear train its terminology, working principle of simple and compound gear train	3	1	LM/IM	CO3	T1	12:382-388 13:428-431	https://youtu.be/HlHLdvBw7VU. https://youtu.be/6XyVDp5--Rs
28	Working principle of reverted gear train & epicyclic gear train	3	1	LM/IM	CO3	T1	13:434-436	https://youtu.be/IQeyPlg3h2k https://youtu.be/UqQ-AMKmgiI
29	Calculation based on gear and gear trains	3	1	LM/IM	CO3	T1	12:390-427 13:438-450	https://youtu.be/kYgrTkVlp4A https://youtu.be/LmSYPhfhH7Q
30	Unit discussion / Surprise test-I		1					
31	Quiz test -II		1					
32	Introduction to governor, types of Classification of governor	4	1	LM/IM	CO4	T1	18:653-655	https://youtu.be/ANl8Sai7Lqg
33	Working of watt governor & porter governor	4	1	LM/IM	CO4	T1	18:656-659	https://youtu.be/xSII-cTgkMM https://youtu.be/eoJV-PPeogE

34	Working of Proell governor	4	1	LM/IM	CO4	T1	18:653-679	https://youtu.be/V07SpHuIYjU
35	Working of Hartnell governor	4	1	LM/IM	CO4	T1	18:678-690	https://youtu.be/G3sPwD9K46g
36	Calculation based on different governor	4	1	LM/IM	CO4	T1	18:653-731	https://youtu.be/BByA-K_P_b4
37	Concept of sensitivity, stability, and isochronisms	4	1	LM/IM	CO4	T1	18:700-701	https://youtu.be/fusLZ9S8O18
38	Function of flywheel, Comparison between flywheel and governor	4	1	LM/IM	CO4	T1	16:570-571	https://youtu.be/__RDfu3aPYI
39	Fluctuation of energy and coefficient of fluctuation of speed	4	1	LM/IM	CO4	T1	16:571-572	https://youtu.be/NZwlGnTQggM
40	Calculations based on Fluctuation of energy	4	1	LM/IM	CO4	T1	16:570-575	https://youtu.be/Gi2Y_YIvHgQ
41	Calculations related to coefficient of fluctuation of speed	4	1	LM/IM	CO4	T1	16:565-591	https://youtu.be/e0tZ6iV_wfA
42	Surprise test-II		1					

43	Unit Discussion / Assignment		1					
44	Balancing of machine: Concept of static and dynamic balancing	5	1	LM /IM	CO5	T1	21:833-835	https://youtu.be/58eU83u7e84
45	Static balancing of rotating parts	5	1	LM /IM	CO5	T1	21:835-837	https://youtu.be/dsY-jyja4no
46	Calculations related to static balancing of rotating parts	5	1	LM /IM	CO5	T1	21:837-839	https://youtu.be/0MeAZFFqmek?list=PLdLe0dTcWW-u_dCcNGoAK8fx2PiS5gkVu
47	Principles of balancing of reciprocating parts	5	1	LM /IM	CO5	T1	22:858-861	https://youtu.be/EOdU5SkIbxo
48	Causes and effect of unbalance	5	1	LM /IM	CO5	T1	22:858-908	https://youtu.be/IBSVTn47cPw
49	Difference between static and dynamic balancing	5	1	LM /IM	CO5	T1	22:858-908	https://youtu.be/58eU83u7e84
50	Unit Discussion / Assignment	5	1	LM /IM		T1		
51	Vibration of machine parts: Introduction to vibration and related terms(amplitude, time period and frequency, cycle)	5	1			T1	23:909	https://youtu.be/OWPJoQ2y94w

52	Classification of vibration	6	1	LM/IM	CO6	T1	23:909-910	https://youtu.be/IuKaM9cexVc
53	Basic concept of natural, forced and damped vibration	6	1	LM/IM	CO6	T1	23:910	https://youtu.be/4dL9kFjfizY
54	Calculation based on natural, forced and damped vibration	6	1	LM/IM	CO6	T1	23:916-960	https://youtu.be/LbVL5O_bG9w
55	Torsional & longitudinal vibration	6	1	LM/IM	CO6	T1	24:910-911	https://youtu.be/ER5nVy4-q6s
56	Causes and remedies of vibration	6	1	LM/IM	CO6	T1	24:910	https://youtu.be/J5QXar7Ec4s
57	Calculation based on Torsional & longitudinal vibration	6	1	LM/IM	CO6	T1	24:972-1001 25:973-983	https://youtu.be/Ygih8CX7n4s
58	Unit Discussion /Assignment	6	1	LM/IM	CO6			
59	Discussion of previous year Question papers		1	LM/IM	CO6			
60	Discussion of Possible Questions		1	LM/IM				

LM: Learner Mode: Chalk & Talk, Lecture **IM: Interactive Mode:** PPT, VIDEO and Animation

T1: Text Book of Theory of Machine by R.S Khurmi, S.Chand publisher
T2: Text Book of Theory of Machine by R.K. Rajput ,S.Chand publisher
T3: Text Book of Theory of Machine by P.L.Ballany, Dhanpat Rai publisher.
R1: Text Book of Theory of Machine by R.K. Bansal ,Laxmi publisher

Signature of the Faculty **Signature of the HOD**