

TCET/FRM/IP-02/10

Semester Plan

Revision: A

Semester: V

Course: MECH

Subject: Theory of Machines - II

Class: TE MECH -B

Sr. No	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	Prerequisite Course: Theory of Machines - I, Engineering Mechanics, Applied physics	4 hours	Self Learning/ Revision	1.Textbooks: 1.1. S. S. Rattan, TMH Pvt. Ltd. 1.2 P. L. Ballaney, Khanna Publications.

Class Room Teaching

Sr. No	Module No.	Lesson No.	Topics Planned	Teaching Aid required	Planned Date/Completion Date	Resource Book Reference	Remarks
			SOP- TOM-2 Theory	Laptop , Projector	07-10-2017	--	
			SOP- TOM-2 Practicals	Laptop , Projector,	07-11-2017	--	
			Prerequisite Basics Revision	chalk , Board	14/07/2017	--	
1	1	L 1.1	Introduction to Clutches: Requirements of Clutches, Types of Clutches and Clutch materials	Laptop , Projector, chalk , Board	17/07/2017	3.2, 3.3	
2	1	L 1.2	Positive clutches, friction clutches	Laptop , Projector, chalk , Board	18/07/2017	3.2, 3.3	
3	1	L 1.3	Friction Clutches - Analysis of frictional torque, power	Laptop , Projector, chalk , Board	19/07/2017	3.2, 3.3	
4	1	L 1.4	Friction Clutches - Analysis of frictional torque, power transmission	Laptop , Projector, chalk , Board	20/07/2017	3.2, 3.3	
5	1	L 1.5	Power loss in Friction in single plate clutch	Laptop , Projector, chalk , Board	21/07/2017	3.2, 3.3	
6	1	L 1.6	Power loss in Friction in multi-plate clutch	Laptop , Projector, chalk , Board	24/07/2017	3.2, 3.3	

Sr. No	Module No.	Lesson No.	Topics Planned	Teaching Aid required	Planned Date	Completion Date	Remarks
7	1	L 1.7	Power loss in Friction in cone clutch	Laptop , Projector, chalk , Board	25/07/2017	3.2, 3.3	
8	1	L 1.8	Centrifugal Clutches - construction, working	Laptop , Projector, chalk , Board	27/07/2017	3.2, 3.3	
9	3	L 3.1	Governors: Comparison between governors and	Laptop , Projector, chalk , Board	28/07/2017	3.1, 3.2, 3.3	
10	3	L 3.2	Force analysis of gravity loaded governors - Watt, Porter, Proell	Laptop , Projector, chalk , Board	29/07/2017	3.1, 3.2, 3.3	
11	3	L 3.3	Force analysis of spring loaded governors - Hartnell, hartung, Wilson Hartnell	Laptop , Projector, chalk , Board	31/07/2017	3.1, 3.2, 3.3	
12	3	L 3.4	Force analysis of spring and gravity loaded governor	Laptop , Projector, chalk , Board	01/08/2017	3.1, 3.2, 3.3	
13	3	L 3.5	Performance characteristics of governors- stability, sensibility	Laptop , Projector, chalk , Board	03/08/2017	3.1, 3.2, 3.3	
14	3	L 3.6	Performance characteristics of governors- isochronisms, Hunting	Laptop , Projector, chalk , Board	04/08/2017	3.1, 3.2, 3.3	
15	3	L 3.7	Performance characteristics of governors- governor effort and governor	Laptop , Projector, chalk , Board	08-05-2017	3.1, 3.2, 3.3	
16	3	L 3.8	Coefficient of insensitiveness in governors	Laptop , Projector, chalk , Board	07/08/2017	3.1, 3.2, 3.3	
17	2	L 2.1	Brakes: Requirement of brake, Types of Brakes	Laptop , Projector, chalk , Board	08/08/2017	3.2, 3.3	
18	2	L 2.2	Analysis of Block brakes	Laptop , Projector, chalk , Board	10/08/2017	3.2, 3.3	
19	2	L 2.3	Band brake-simple and differential, Band and block brake	Laptop , Projector, chalk , Board	11/08/2017	3.2, 3.3	
20	2	L 2.4	Braking of vehicles - front wheels, rear wheels, all wheels on level and inclined roads	Laptop , Projector, chalk , Board	14/08/2017	3.2, 3.3	

Sr. No	Module No.	Lesson No.	Topics Planned	Teaching Aid required	Planned Date	Completion Date	Remarks
21	2	L 2.5	Dynamometers - Absorption and transmission dynamometers	Laptop , Projector, chalk , Board	18/08/2017	3.2, 3.3	
22	2	L 2.6	Study and analysis of absorption type dynamometer - Proney brake, Rope brake, dynamometers	Laptop , Projector, chalk , Board	18/08/2017	3.2, 3.3	
23	2	L 2.7	Study and analysis of transmission type dynamometers - Belt transmission, epicyclical	Laptop , Projector, chalk , Board	19/08/2017	3.2, 3.3	
24	2	L 2.8	Torsion dynamometers, Froude hydraulic	Laptop , Projector, chalk , Board	19/08/2017	3.2, 3.3	
25	4	L 4.1	Introduction to gyroscope	Laptop , Projector, chalk , Board	24/08/2017	3.2, 3.3	
26	4	L 4.2	Gyroscopic couple and its effect on spinning bodies	Laptop , Projector, chalk , Board	31/08/2017	3.2, 3.3	
27	4	L 4.3	Gyroscopic effect on naval ships during steering	Laptop , Projector, chalk , Board	09-01-2017	3.2, 3.3	
28	4	L 4.4	Gyroscopic effect on naval ships during	Laptop , Projector, chalk , Board	09-02-2017	3.2, 3.3	
29	4	L 4.5	Ship stabilization with gyroscopic effect	Laptop , Projector, chalk , Board	09-04-2017	3.2, 3.3	
30	4	L 4.6	effect of gyroscopic and centrifugal couples on	Laptop , Projector, chalk , Board	09-07-2017	3.2, 3.3	
31	4	L 4.7	maximum permissible speeds on curve paths	Laptop , Projector, chalk , Board	09-08-2017	3.2, 3.3	

Sr. No	Module No.	Lesson No.	Topics Planned	Teaching Aid required	Planned Date	Completion Date	Remarks
32	4	L 4.8	Gyroscopic effect due to lateral misalignment of rigid disc mounted on	Laptop , Projector, chalk , Board	09-11-2017	3.2, 3.3	
33	5	L 5.1	Gear Trains - Introduction	Laptop , Projector, chalk , Board	09-12-2017	3.2, 3.3	
34	5	L 5.2	Kinematics and dynamic analysis of - simple gear trains, compound gear trains	Laptop , Projector, chalk , Board	14/9/2017	3.2, 3.3	
35	5	L 5.3	Kinematics and dynamic analysis of – reverted gear trains	Laptop , Projector, chalk , Board	16/09/2017	3.2, 3.3	
36	5	L 5.4	epi-cyclic gear trains with spur gears and bevel gears combinations	Laptop , Projector, chalk , Board	18/09/2017	3.2, 3.3	
37	5	L 5.5	Gear Transmission: Necessity of gear box	Laptop , Projector, chalk , Board	19/09/2017	3.2, 3.3	
38	5	L 5.6	Sliding mesh gear box	Laptop , Projector, chalk , Board	21/09/2017	3.2, 3.3	
39	5	L 5.7	Constant mesh gear box	Laptop , Projector, chalk , Board	22/09/2017	3.2, 3.3	
40	5	L 5.8	Synchromesh and epicyclic gear box	Laptop , Projector, chalk , Board	25/09/2017	3.2, 3.3	
41	6	L 6.1	Static and Dynamic force analysis in slider crank mechanism	Laptop , Projector, chalk , Board	26/09/2017	3.2, 3.3, 3.4	
42	6	L 6.2	Engine force analysis	Laptop , Projector, chalk , Board	10-03-2017	3.2, 3.3, 3.4	
43	6	L 6.3	Turning moment on crank shaft	Laptop , Projector, chalk , Board	10-05-2017	3.2, 3.3, 3.4	

Sr. No	Module No.	Lesson No.	Topics Planned	Teaching Aid required	Planned Date	Completion Date	Remarks
44	6	L 6.4	Dynamically equivalent systems to convert rigid body to two mass with correction couple	Laptop , Projector, chalk , Board	10-06-2017	3.2, 3.3, 3.4	
45	6	L 6.5	Dynamically equivalent systems to convert rigid body to two mass without correction couple	Laptop , Projector, chalk , Board	10-06-2017		
46	6	L 6.6	Introduction to flywheel & its applications, fluctuation of energy in flywheel	Laptop , Projector, chalk , Board	10-07-2017	3.2, 3.3, 3.4	
47	6	L 6.7	function of flywheel	Laptop , Projector, chalk , Board	10-07-2017		
48	6	L 6.8	estimating inertia of flywheel for	Laptop , Projector, chalk , Board	10-07-2017	3.2, 3.3, 3.4	
49			REVISION	Laptop , Projector, chalk , Board	16/10/2017		
50			Problem Solving	Laptop , Projector, chalk , Board	16/10/2017	--	
Remark:			Practice Session: 2			Content Beyond Syllabus:	
Course:							
No. of (lectures planned)/(lecture taken): 50/							
Advanced course: Automobile Engineering				12 weeks	Online NPTELcourse videos with Hands on Training	2.Web sources: 2.1. NPTEL- https://onlinecourses.nptel.ac.in	
3.Text Books: 3.1 Theory of Machines - Thomas Bevan - C. B. S. Publishers 3.2 Theory of Machines - S. S. Ratan - Tata McGraw Hill 3.3 Theory of Machines - P. L. Ballaney, Khanna Publishers, Delhi 3.4 Dynamics of Machines – Norton, McGraw Hill Publication 3.5 Theory of Mechanisms and Machines - A. Ghosh and A. Malik - Affiliated East – West Press Pvt. Ltd., New Delhi 3.6 Theory of Machines - W. G. Green – Bluckie & Sons Ltd. 3.7 Mechanics & Dynamics of Machinery - J. Srinivas, Scitech 3.8 Kinematics, Dynamics and Design of Machinery, 2nd ed., Kenneth Waldron, Gary Kinzel, Wiley India Edition 3.9 Essential MATLAB for Engineers and Scientist - Brian D. Hanhn, Daniel Valentine							
Digital Reference:							
4.1 www.nptel.ac.in							

Rajeshwar Deshmukh

Dr.Siddesh S.

Dr.R. R. Sedamkar

Name & Signature of Faculty

Name & Signature of HOD

Signature of Dean (Academics)

Date:

Date:

Date:

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be SOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.

