Lesson Plan Course: ETAT202

Theory of Machines

S.No.	Topic (from syllabus)	Lecture/Tute No.	Lecture Plan Date	Sub-Topics (& References from Text-books)	Assignment / Quize	Exam	Target Outcome
1	General concepts, Velocity and Acceleration Analysis	L1		Introduction to links, kinematic pairs, kinematic chain, T2 P1-6	Assignment I	First Term Examination	CO-ETAT202.1
				Grublers rule for degree of freedom, Grashof's Criterion for mobility			
		L2		determination. Numericals/ T2 P7-10			
		L3		Inversions of 4R, 3R-P, 2R-2P chains/ T2 P18-31			
		T1		Numericals			
		L4		T2 P38-45			
		L5		Numericals on velocity analysis/ T2 P45-60			
		L6		Velocity analysis by IC method for four bar and slider crank mechanism/			
		T2		12 P04-08 Numericals			
		L7		Numericals on velocity analysis by IC method/ T2 P69-74			
		L8		Acceleration analysis for four bar and slider crank mechanism/ T2 P79-			
		1.9		86 Numericals on acceleration analysis/ T2 P153-171			
		T3		Numericals			
2	Cams	L 10		Cams, Types of cams and followers/ T2 P209-212	Assignment 2		CO-ETAT202.2
		E10		Cam terminology / T2 P213-214			
		L11		Follower displacement under SHM, uniform velocity, uniform acc and			
				Cam profile for radial and offset knife edge, roller and mushroom			
		L12		follwers/ T2 P223-225, 227-230			
		14 1.12		Cam profile for oscillating follower, Numerical/T2 P231-232			
		L15		Angular velocity and acceleration, gyroscopic couple/ T2 P597-599			
3	Gyroscopes	L14		a	Assignment 3		
		L15		Gyroscopic effect on bearing and aeroplane , Numericals/ T2 P600-602			
		T5		Numericals			
-		L16		Gyroscopic effect on Naval ships, Numericals/ T2 P602-604			
		L17		Gyroscopic effect on Automobile, Numericals/ 12 P605-610 Stability of Two wheeled vahicle. Numericals/ T2 P610 612			
		T6		Numericals			
				Slider-crank mechanism, analytical method, Numericals/T2 P437-440			
4	Dynamic Analysis	L19					
		L20		Klein's construction, Numericals/T2 P449-458			
		L21 77		Turning moment computation/T2 P458-460			
				Gear, classification, terminology, law of gearing,/ T2 P333-342			1
5	Gears	L22			Assignment 4	Second Term Examination	CO-ETAT202.3
		L 23		velocity of sliding, forms of teeth, cycloidal and involute profile/12 P345- 345			
				Path of contact, Arc of contact, Contact ratio, Numericals/T2 P349-354			
		L24		xy · · y			
		T8		Numericals			
		L25		Interference, Minimum number of teeth, Numericais/ 12 P354-356			
		1.26		Concept of gear train, simple, compound, reverted and epicyclic gear			
		1.20		trains/T2 P378-382			
		L27		Analysis of epicyclic gear train, fixing torque, sun and planet gear trains, Numericals/ T2 P382 390 394			
		T9		Numericals			
	Governors & Flywheel	L28		Working of governer, classification, Analysis of Watt Governer/ T2 P559-			
6				561			
		L 29		566			
				Hartnel governor - construction, working and analysis, Numericals/T2 P569-			
		L30		574			
		<i>T10</i>		Numericals			
		L31 L32		Numericals on flywheel/T2 P461-468			
7	Balancing	1.22		Static and dynamic balancing, balacing of rotating masses/ T2 P477-480	Assignment 5		
		L33					
		111		Numericals Relancing of cavaral massas in different planas, Numericals/T2 P481			
		L34		487			
		L35		Balancing of reciprocating masses,/ T2 P490			
		L36		Balancing of locomotives, secondary balancing, Numericals/ T2 P492-			
		T12		Numericals			СО
8	Vibration	_		Vibration, types, degree of freedom, free longitudinal vibration,	Assignment 6		-ETAT202.4
		L37		Numericals / T2 P615-624			
		L38		Numericals/ T2 P624-636			
		L39		Forced vibration, magnification factor, Numericals/T2 P636-643			
		T13		Numericals			
		1.40		vibration isolation and transmissibility, Numericals/ 12 P644-646			
		L40 [A1		Whirling of shafts, Numericals/ T2 P657-659			
		L42		Free torsional vibration, Numericals/ T1 P659-660			
		T14		Numericals			

 Image: Interpretation
 Interpretation

 Text Books:
 [T1] Ghosh A & Malik A K "Theory of Mechanisms and Machines" Affiliated East West Press

 [T2] S.S. Rattan, "Theory of Machines", Tata McGraw Hill, Third Ed., Delhi
 [T2] S.S. Rattan, "Theory of Machines", Tata McGraw Hill, Third Ed., Delhi

[12] S.S. Kattan, "Theory of Machines", Fata McGraw Film, Film Ed., Lean Reference Books:
[R1] Shigley J E "Theory of Machines", Pearson
[R2] Thomas Beven, "The Theory of Machines", DBanpat Rai & Co.(P)Ltd
[R4] P.L. Ballaney, "Theory of Machines & Mechanism", Khanna Publishers.