EXTENDED LECTURE OUTLINES

FPM6 311 **Theory Of Machines** **(2+0)**

Sl No	DESIRIPTION	LECTURE NO
1	Links, types of links .Rigid links. Flexible links. Fluid link. Structure &Machine, Kinematic pair. Types of kinematic pair, Sliding pair. Turning pair. Rolling pair. Screw pair. Spherical pair,	1-3
2	Lower pair, Higher pair. Self closed pair. Forced closed pair. Mechanism. Inversion of mechanism. Types of Kinematic chains.4 bar chain single slider crank chain. Double slider crank chain. Inversions of 4-bar chain. Beam engine Coupling rod of Locomotive watts Indicator Mechanism. Single slider crank chain. Inversion of Single slider crank chain, Pendulum pump .oscillating cylinder engine. Rotary I C engine. Inversions of double slider crank chain. Elliptic trammel. Old hams coupling. scotch yoke mechanism,	4-8
	Belt drive, types of belt drives, Belt materials, Power transmitted by a belt, Length of belt, velocity ratio. Ratio of tensions, Centrifugal tensions, Maximum tension in the belt, creep and Sleep on Power transmission, Condition for Maximum power,	9-12
	Chain drive, Classification of chain drive, terms used in chain drive,	13-14
	Types of friction. Laws of dry friction, laws of static friction, coefficient of friction, Friction of pivots &collars. Flat collars bearing. Friction clutches. Single plate clutch. Multiple disk clutches. &cone clutches, Rolling friction	15-20
	Governors, Types of Governors, constructional details and analysis of Watt, s, Porter, proel governors. Loaded types Governors. Effect of friction, Equilibrium speed, Lift sensitiveness. Stability. Hunting. Isochronisms. power & Effort of a governor,	21-25
	Gears, Types of gears. Law of gearing. Velocity of sliding between two teeth in a mesh. Involutes& Cycloidal profile for gear teeth. Spur gear. Nomenclature. Introduction to helical gears. Bevel &worm gears,	26-30
	Gear Trains. Types of gear trains. Simple gear train. Compound gear trains. Reverted gear trains. Epicycle gear trains. Determining velocity ratio by tabular method,	31-34
	Turning moment Diagrams. coefficient of fluctuations of speed and energy. Flywheel energy, weight of flywheel, energy stored in a flywheel. Applications of flywheel.	35-37
	Velocity in mechanism. Instantaneous centers. Space cent rode. Body centrode, Types of Instantaneous centre's. Kennedy Theorem. Method of Locating instantaneous centre's in a mechanism. Determination of velocity and acceleration by relative velocity method.	38-41
	Revision classes	42

Reference Books

1) Theory of machine by R. S.Kurmi and Gupta
2) Theory of machine by Abdulla sheriff
3) Theory of machine by Bellaney
4) Theory of Machines by Bansal