

4th Semester	RPR4C002	Theory of Machine	L-T-P 3-0-0	3 CREDITS
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Module-I: (10 hrs)

Mechanism: Basic Kinematic concepts and definitions, mechanism, link, kinematic pair, classification of kinematic pairs, degree of freedom, kinematic chain, binary ternary and quaternary joints and links, degrees of freedom for plane mechanism, grubler's equation, inversion of mechanism, four bar chains and their inversions, single slider crank chain, double slider crank chain and their inversion.

Module-II: (10 hrs)

Friction of a screw and nut, square threaded crew, V-threaded screw, pivot and collar, friction circle, friction axis, friction clutches, transmission of power by single plate, multiplate and cone clutches.

Module-III: (09 hrs)

Toothed gears: Theory of shape and action of tooth properties methods of generation of standard Tooth profiles, Standard proportions, Interference and Under-cutting, methods of Eliminating Interference, Minimum numbers of teeth to avoid interference.

Module-IV: (08 hrs)

Gear trains: simple train, compound train, reverted train, epicyclic train and their application.

Module-V: (08hrs)

Governors: Centrifugal Governors- Watt and Porter Governors, Spring loaded Governor-Hartnell Governor, sensitiveness, stability, Isochronisms, Hunting, Governor effort and power, curves of controlling force.

Books:

- Theory of machines – S.S Ratan, Tata McGraw Hill.
- A Textbook of theory of machines (in SI units) – R.K.Bansal, Laxmi Publication.
- Mechanism and machine Theory- Rao and Dukkanpati, Wiley Eastern Ltd.
- Theory of Machines –Thomas Beven.