## ME 224 Kinematics of Machinery (2-1-0-6)

Elements of kinematic chain, mechanisms, their inversions, mobility (Kutzhbach criteria) and range of movements (Grashof's law); Miscellaneous mechanisms: straight line generating mechanism, intermittent motion mechanism; Displacement, velocity and acceleration analysis of planar mechanisms by graphical, analytical and computer aided methods; Dimensional synthesis for motion; function and path generation; Cam profile synthesis and determination of equivalent mechanisms; Gears (spur, helical, bevel and worm); gear trains: simple, compound and epicyclic gearing.

## Texts:

- [1] K. J, Waldron and G. L Kinzel, Kinematics, Dynamics and Design of Machinery, 2nd Ed., Wiley Student Edition, 2004.
- [2] A. Ghosh and A. K. Mallik, Theory of Mechanisms, and Machines, 3rd Ed., East West Press Pvt Ltd, 2009

## References:

- [1] J. J Uicker (Jr), G. R Pennock and J. E Shigley, Theory of Machines and Mechanisms, 3rd ed., Oxford International Student Edition.
- [2] S. S. Rattan, Theory of Machines, 3rd Ed., Tata McGraw Hill, 2009.
- [3] R. L. Norton, Kinematics and Dynamics of Machinery, Tata Mcgraw Hill, 2009.
- [4] J. S. Rao, R. V. Dukkipati, Mechanism and Machine Theory, 2nd Ed., New Age International, 2008.
- [5] A. G. Erdman and G. N. Sandor, Mechanism Design, Analysis and Synthesis Volume 1, PHI, Inc., 1997.
- [6] T. Bevan, Theory of Machines, CBS Publishers and Distributors, 1984