Vasavi College of Engineering (Autonomous) Hyderabad
Department of Mechanical Engineering

Innovative Teaching

Course: Kinematics of Machines

Class: BE-IV Semester

Unit No: I

Name of the topic: Kinematic Inversions

Inversion is the process of obtaining different mechanisms by fixing different links, each time one link of a kinematic chain. This concept for the inversions of Four bar chain , Slider crank chain and Double slider crank chain are modelled using CAD software and motion simulations are presented so that the student will be able to realize the concepts involved.
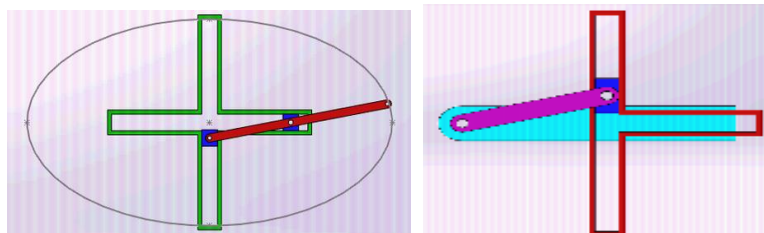
I. Four bar chain Inversions:

    1.Crank-Lever Mechanism

    2.Double crank mechanism

    3.Double lever mechanism

II. Slider-Crank chain Inversions:

1. Slider crank mechanism
2. Whitworth quick return mechanism
3. Crank and slotted lever quick return mechanism
4. Hand pump mechanism

III. Double slider crank chain Inversions:

1. Elliptical Trammel mechanism,
2. Scotch-Yoke mechanism
3. Oldham coupling

Simulation

Various Industrial manipulators are modeled and simulated for best understanding of DOF of industrial manipulators.