# SNS COLLEGE OF TECHNOLOGY

**Coimbatore-35**
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## DEPARTMENT OF AUTOMOBILE ENGINEERING

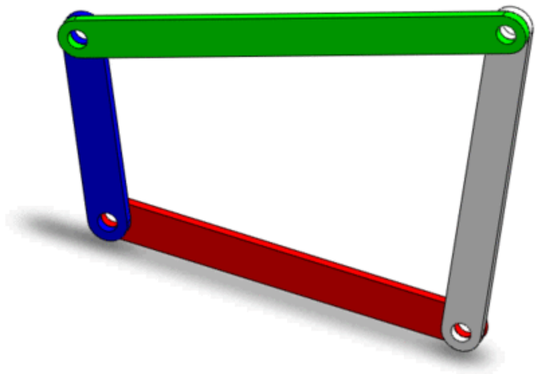
### 19AUT203 – Mechanics of Automobile Systems

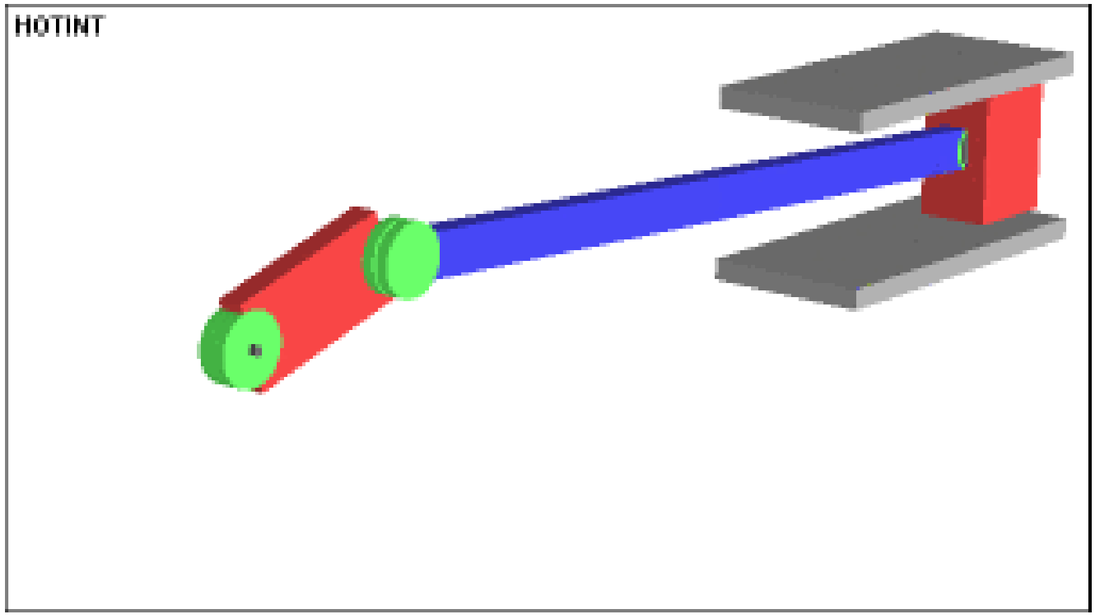
II YEAR / IV SEM

UNIT – 1 Basic Mechanism and Kinematics

# Mechanism - Definition

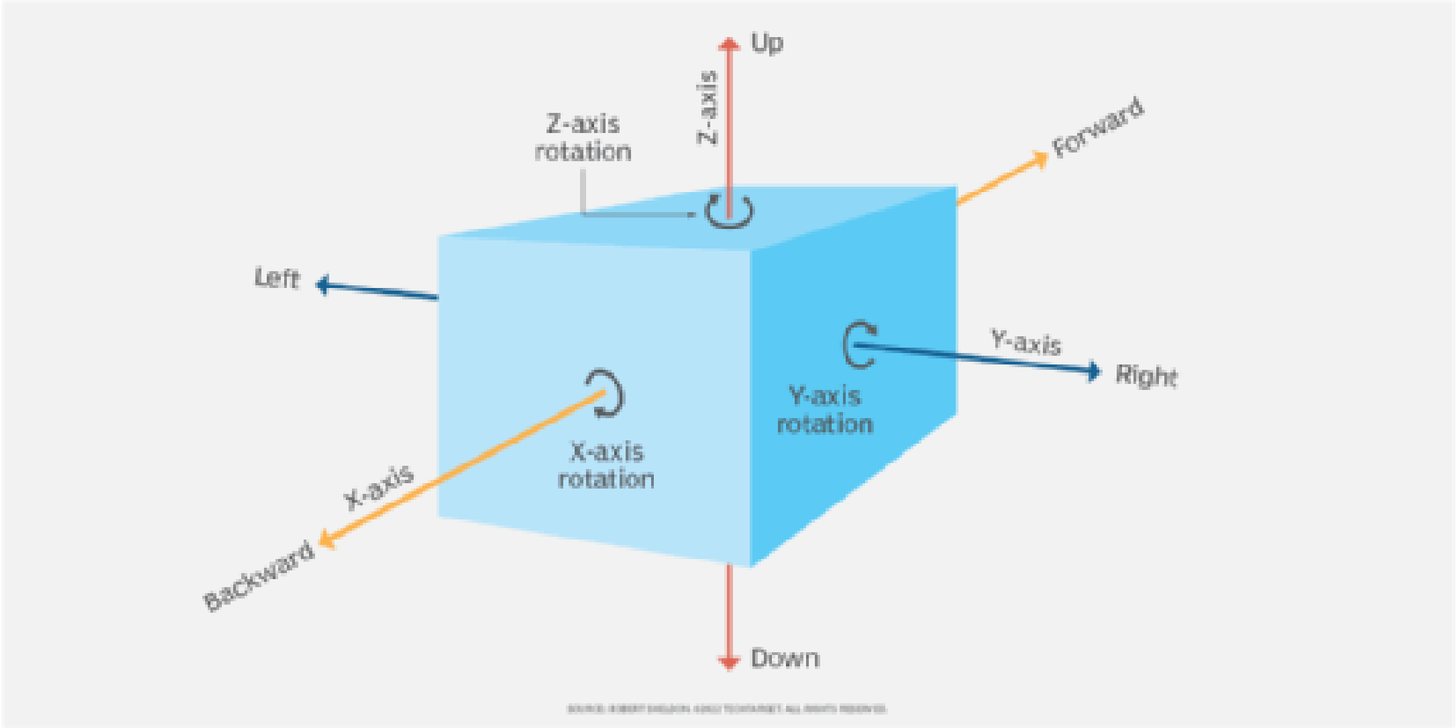
**A mechanism is a device that transforms input forces and movement into a desired set of output forces and movement**





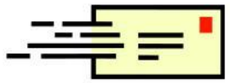
# Degrees of Freedom

**In mechanics, degrees of freedom (DOF) is the number of independent variables that define the possible positions or motions of a mechanical system in space.**



# Kinematics

**Kinematics is the study of the motion of mechanical points, bodies and systems without consideration of their associated physical properties and the forces acting on them**



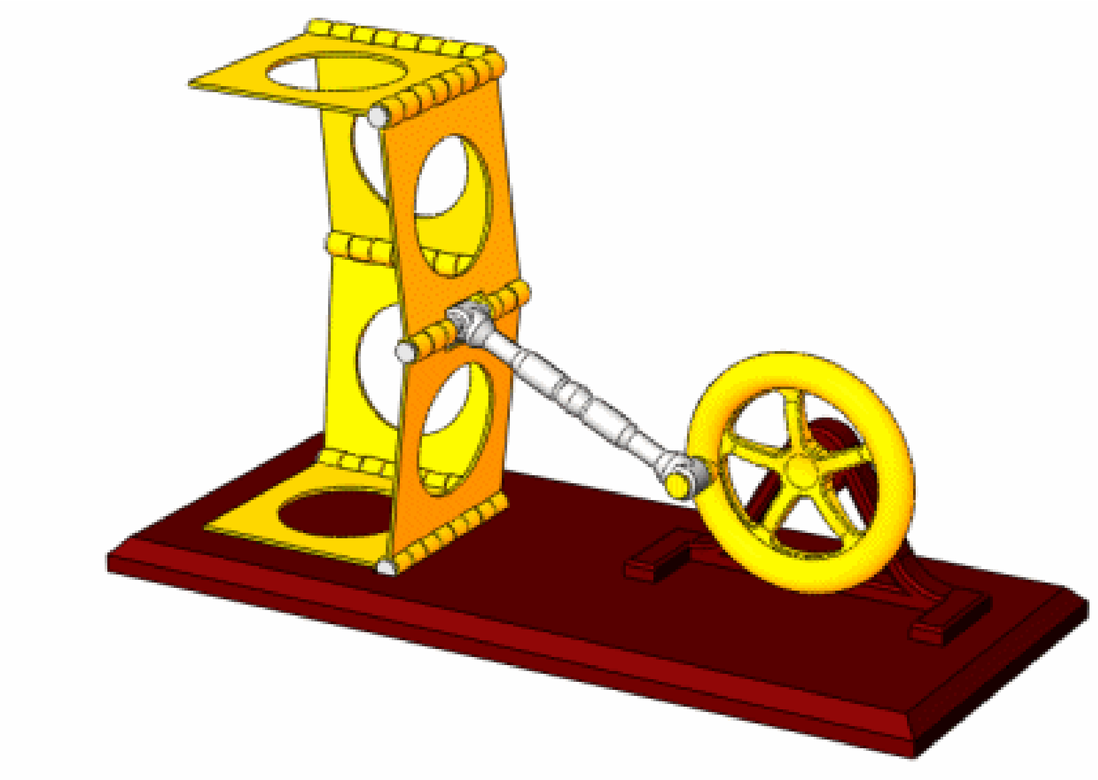
Mechanics (Kinematics)

Constant Velocity

Zero acceleration

# Dynamics

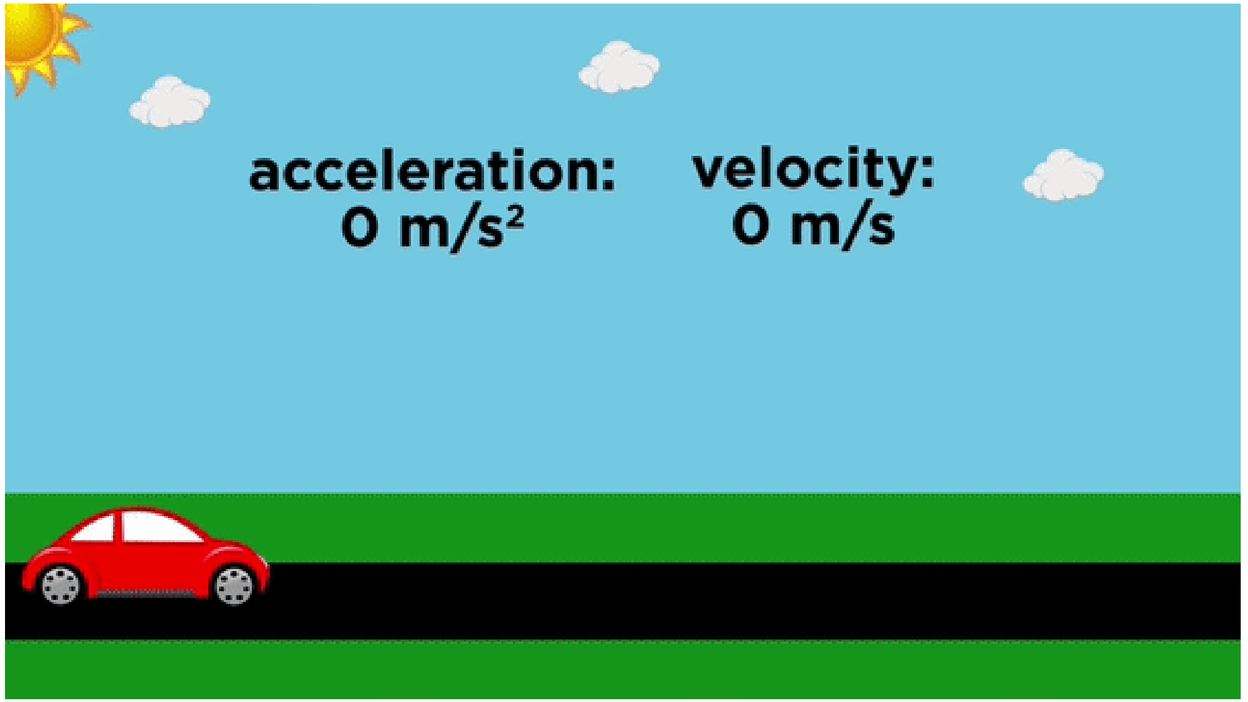
**Dynamics is the branch of classical mechanics that is concerned with the study of forces and their effects on motion**



# Velocity

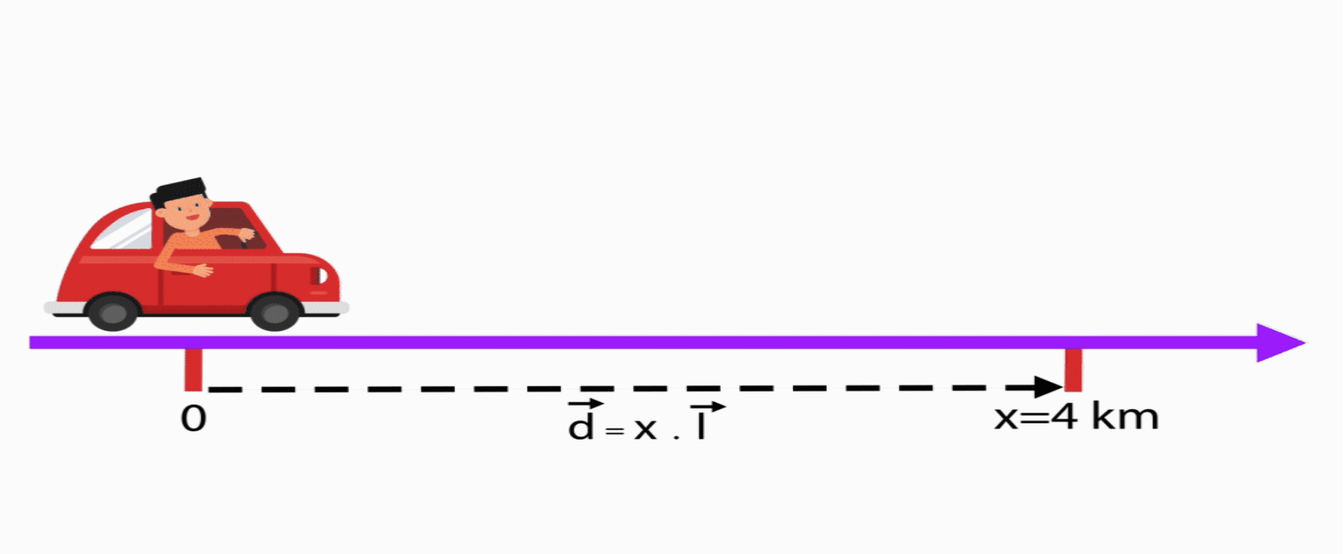
**Velocity defines the direction of the movement of the body or the object.**

**Speed is primarily a scalar quantity. Velocity is essentially a vector quantity. It is the rate of change of distance. It is the rate of change of displacement.**



# Acceleration

**Acceleration is the rate of change of velocity. Usually, acceleration means the speed is changing, but not always. When an object moves in a circular path at a constant speed, it is still accelerating, because the direction of its velocity is changing**



*Thank You*