



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 MECHATRONICS ENGINEERING

UNIT II – STRUCTURE OF CNC MACHINE TOOLS



ROTARY MOTION TO LINEAR MOTION



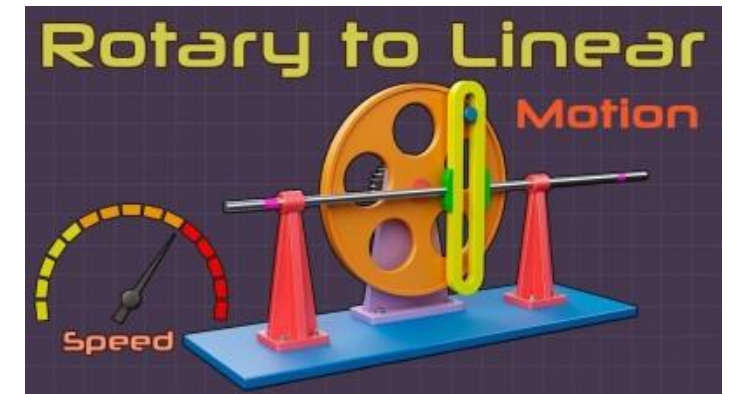
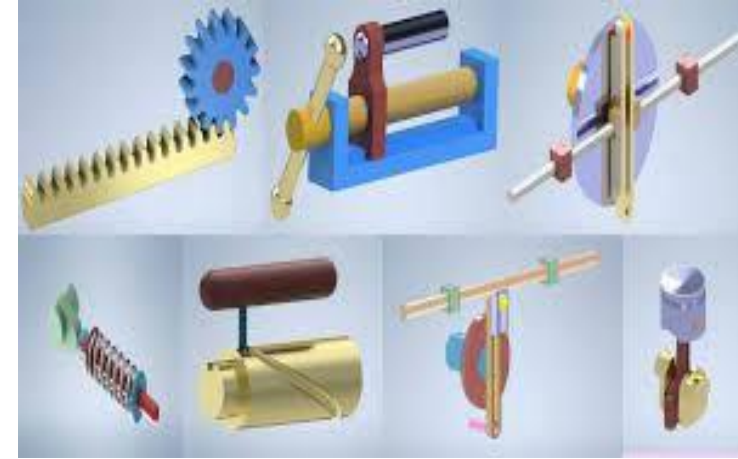
- The choice of mechanism depends on factors such as the desired speed, precision, load capacity, and specific application requirements.
- Designing and implementing the conversion of rotary to linear motion can be a complex engineering task, so it's important to carefully consider your project's needs and consult relevant mechanical engineering principles and resources during the design and construction phases.
- A lead screw is a long threaded rod that, when rotated, moves a nut along its length, translating the rotary motion into linear motion.
- Lead screws are often used in applications requiring precise linear positioning, such as CNC machines, 3D printers, and industrial machinery.
- The linear distance traveled for each rotation is determined by the screw's lead, which is the distance the nut moves along the screw in one complete rotation.



ROTARY MOTION TO LINEAR MOTION



- Screw Mechanism
- Cam & Follower
- Crank & Slider Mechanism
- Rack & Pinion
- Cam & Follower
- Belt & Pulley





SCREW AND NUT



- Screw and nut mechanisms offer a versatile way to achieve linear motion in a wide range of applications.
- The choice of screw type and nut design depends on the specific requirements of your application, including load capacity, precision, and efficiency Proper maintenance, including regular lubrication and periodic inspection, is essential to ensure the long-term performance of a screw and nut system.
- The screw is a long, cylindrical rod with a helical thread wrapped around it.
- The thread can have various profiles, such as square, Acme, or ball screws, depending on the application.
- As the screw rotates, it engages with the nut, causing the nut to move along the screw's axis.
- The nut is a block or housing that contains a complementary threaded hole that matches the screw's thread.
- The nut moves along the screw when the screw is rotated.
- It can be attached to the object you want to move linearly.



SCREW AND NUT

