SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
Re-accredited by NAAC with 'A+' Grade
Approved by AICTE, New Delhi, Recognized by UGC & Affiliated by Anna University, Chennai
Coimbatore-641035

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

19EET301 / POWER ELECTRONICS AND DRIVES

III YEAR / V SEMESTER

UNIT – V : AC MOTOR DRIVES

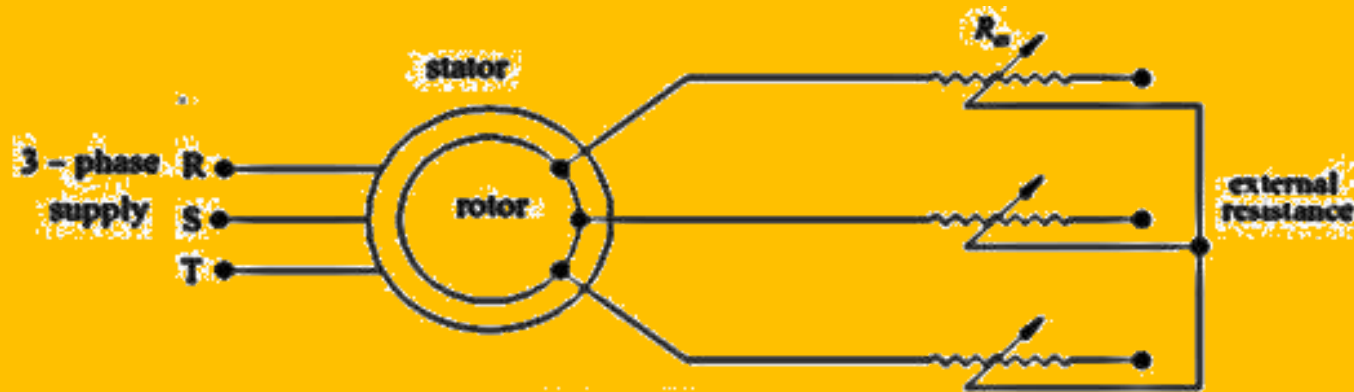# ROTOR RESISTANCE CONTROL AND SLIP POWER RECOVER SCHEME

TOPIC OUTLINE

What we'll discuss?

Conventional Rotor Resistance Control

Static Rotor Resistance Control

N-T Characteristics

Slip Power Recovery Scheme

Evaluation

ROTOR RESISTANCE CONTROL
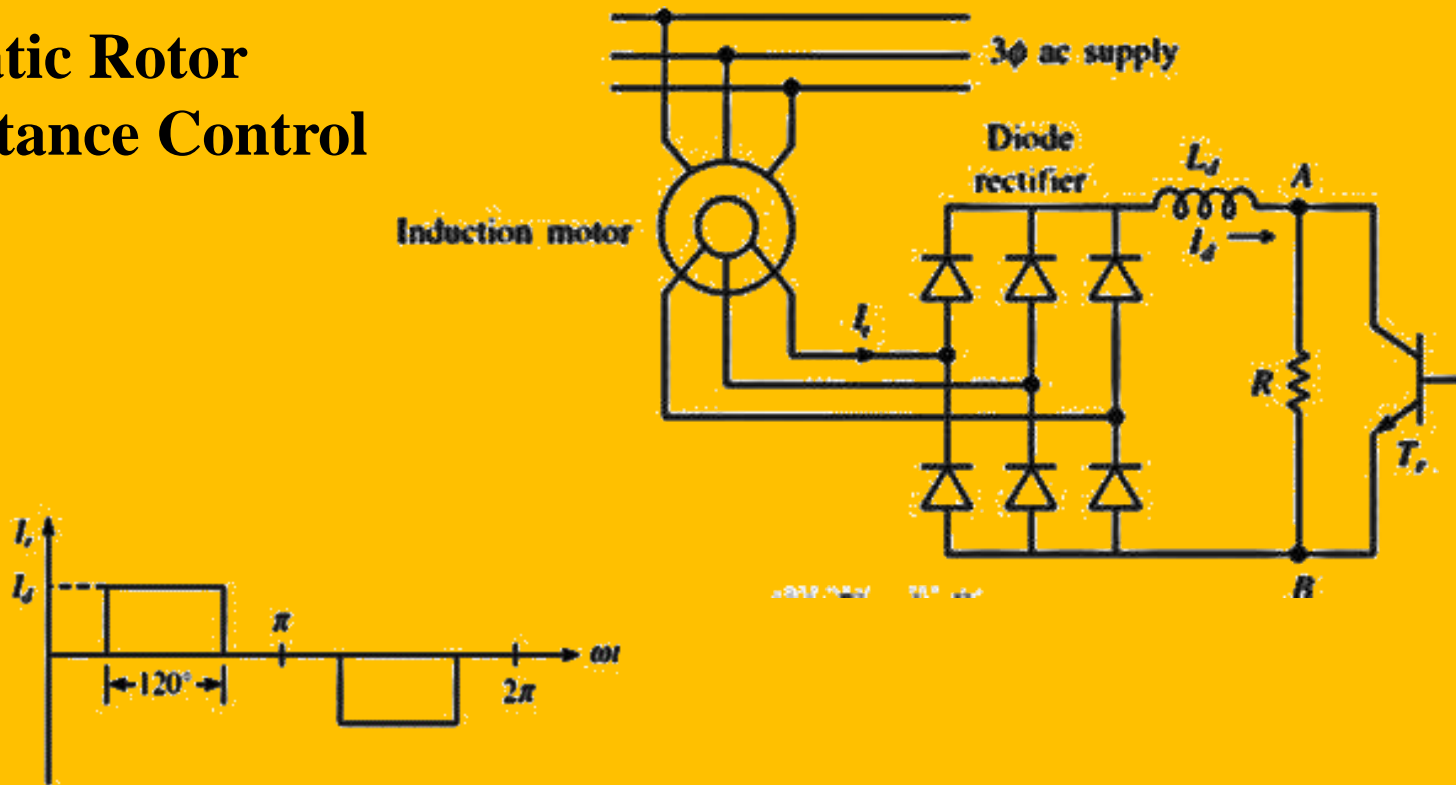
1. Conventional Rotor Resistance Control

Circuit Diagram

- **Slip ring Induction Motor**

- **Rotor resistance starter**

- **R2 is adjusted for various speed**
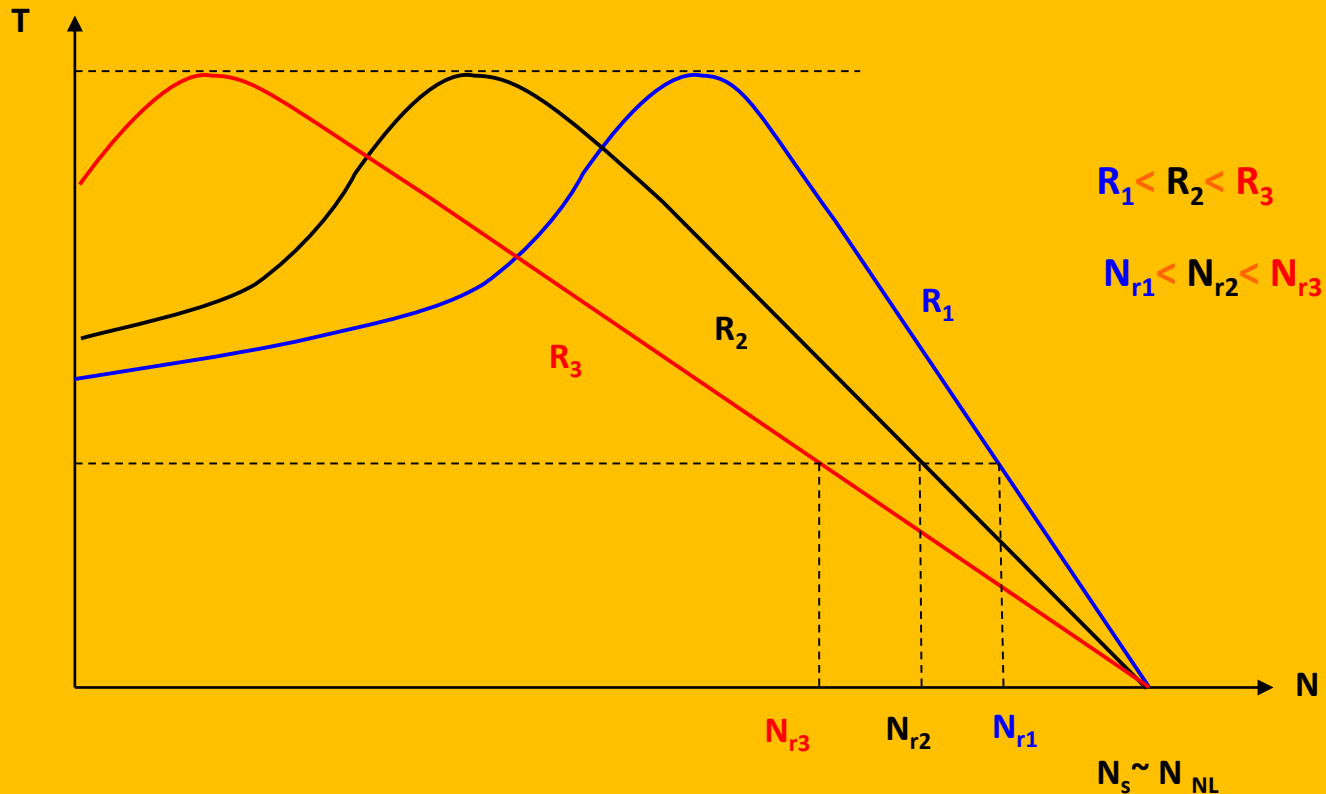
ROTOR RESISTANCE CONTROL

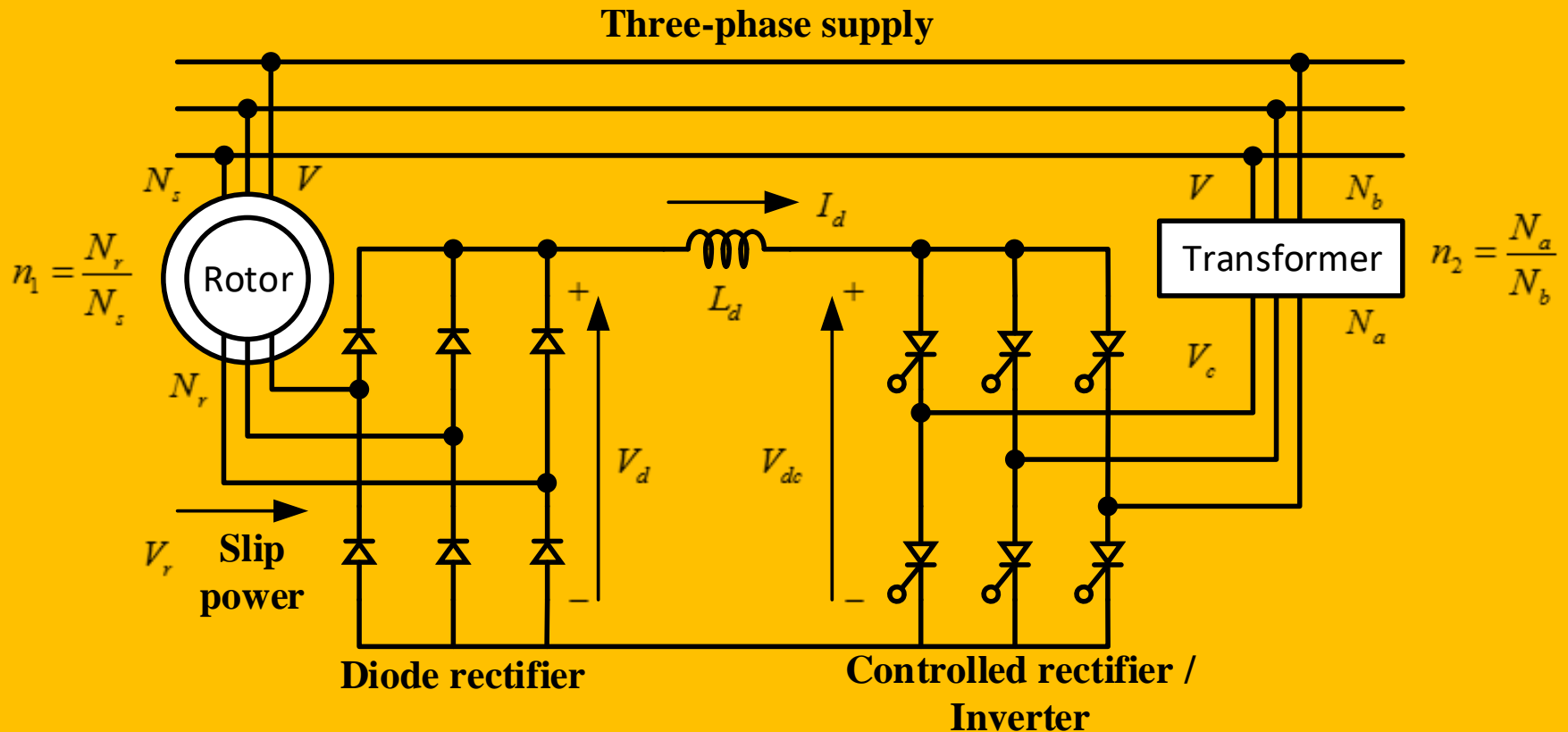**2. Static Rotor Resistance Control**

Circuit Diagram and Current Waveform

ROTOR RESISTANCE CONTROL
Speed Torque Characteristics

SLIP POWER RECOVERY SCHEME

SLIP POWER RECOVERY SCHEME

❖ Three phase supply is given to stator of Slip ring Induction Motor

❖ Wound rotor output is connected to a 3-phase rectifier bridge

❖ The output of the bridge is connected to a fixed-frequency inverter through smoothing inductor

❖ Inverter's output is given to the primary of a step- up transformer, which matches the bus bar voltage

❖ Slip power is recovered and send back to the bus bar

SLIP POWER RECOVERY SCHEME

- Static Kramer Drive - Operating principle
  - The voltage at the slip rings is forced to be in phase with the rotor currents by the diode rectifier.
  - The magnitude of the slip ring voltage is set by the DC link voltage
  - DC link voltage is set by the inverter connected back to the AC supply
  - the inverter can be a thyristor based or PWM inverter.

EVALUATION

Recap…

Thanking You.