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 MECHANICAL ENGINEERING

19MEE402 – HYBRID TECHNOLOGY

IV YEAR VII SEM

UNIT 4 – ELECTRIC VEHICLE MOTORS

Motors (DC) – Types, Principle, Construction, Control

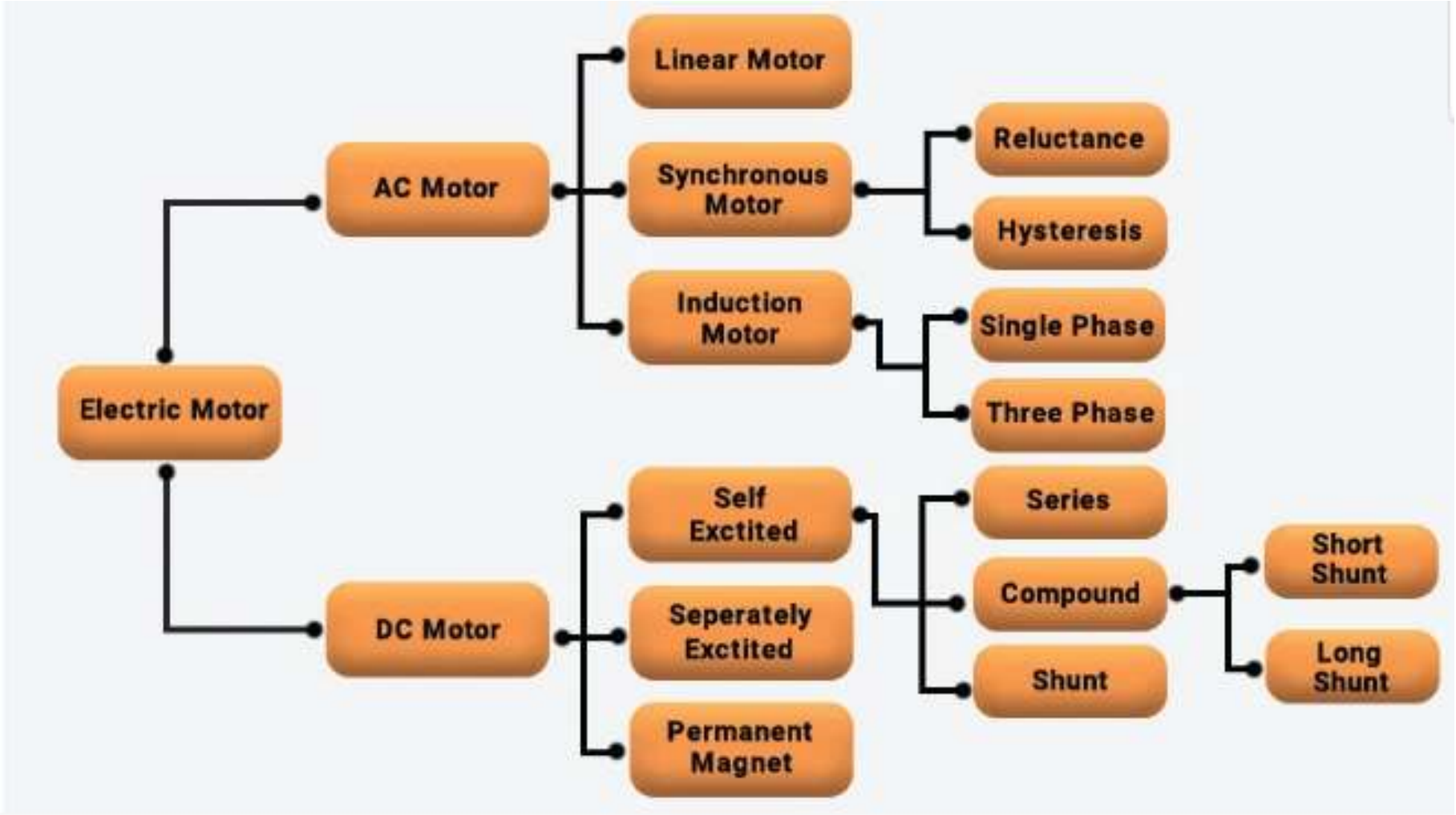
- Ceiling fans
- Lights
- Computers
- Communication devices

Electric motor

- Electro-mechanical machine that converts electrical energy into mechanical energy
- Motor produces the rotational force
- All-electric motor depends on the interaction between the magnetic and electric fields.

Electric motor

Electric motor-Types



AC Motors

❖The AC motor requires an alternating current to rotate.

❖This motor converts the alternating current into mechanical power using electromagnetic induction

❖ Stator -stationary part, and the rotor - rotating part of the motor.

❖Most AC motors are single-phase or three-phase.

DC Motors

- ❖DC power into mechanical power-DC motor.
- ❖It is operated by a DC current.
- ❖Current-carrying conductor is placed in a magnetic field,
- ❖Force exerted on it develops torque

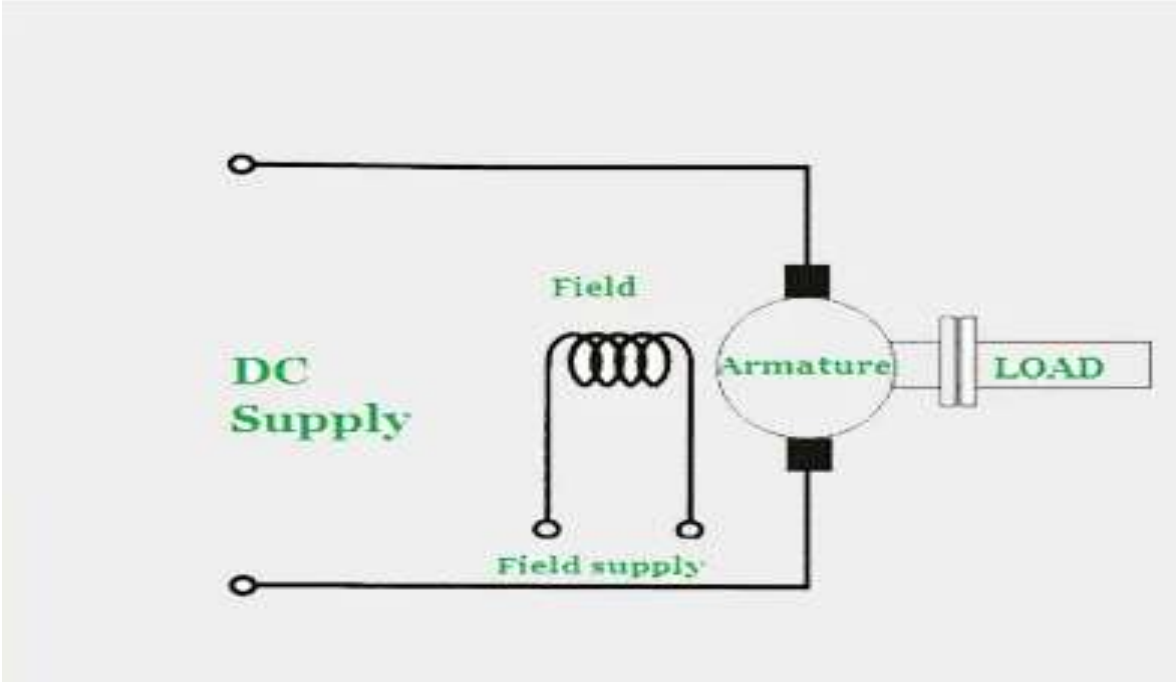
Main Parts

Armature- rotating part

Stator- stationary part

DC Motors-Types

Separately Excited DC Motor



The DC windings are excited by a separate DC source. The separate DC source energizes the armature windings of the motor; due to this, it produces the flux.

DC Motor -Types

Permanent Magnet DC Motor

- Permanent magnet to create field flux is a permanent magnet DC motor (PMDC).
- The PMDC motor provides more starting torque and has very good speed regulation.
- low-power applications such as automobile starters, wipers, air conditioners

DC Motor-Types

Self-Excited DC Motor

The field winding is connected either in series or parallel to the armature winding is known as self-excited DC motors.

(i) Series Wound DC motor-the field winding connects in series with the armature of the motor.

(ii) Shunt Wound DC motor-the field winding connects in parallel with the armature of the motor.

(iii) Compound Wound DC motor-Has both parallel and series connections to the field winding.

Thank You