



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)



COIMBATORE-35

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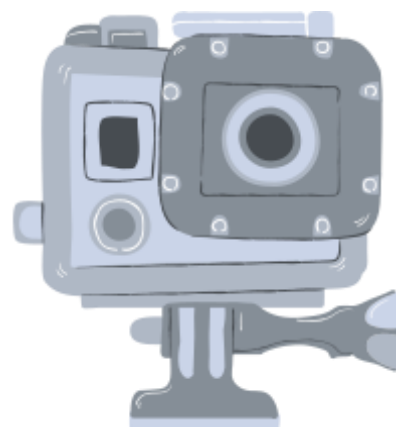
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**COURSE NAME: 19EET207/ SYNCHRONOUS AND INDUCTION
MACHINES**

II YEAR / IV SEMESTER

Unit 5 – SPECIAL MACHINES

Topic 5: Synchronous induction motor





GUESS THE TOPIC NAME...





Synchronous Induction Motor

- In the applications where high starting torque and constant speed are desired then synchronous induction motor can be used.
- It has the advantages of both synchronous motor and induction motor.
- The synchronous motor gives constant speed whereas induction motors can be started against full load torque.



Synchronous Induction Motor



- Consider a normal slip ring induction motor having three phase winding on the rotor.
- The motor is connected to the exciter which gives D.C. supply to the rotor through slip rings.
- One phase carries full D.C. current while the other two carries half the full D.C. current as they are connected in parallel.
- Due to this D.C. excitation, permanent poles (N and S) formed on the rotor.



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Principle of operation



- As the motor is running as induction motor initially high starting torque (up to twice full load value) can be developed. When the D.C. excitation is provided it is pulled into synchronism and starts running at constant speed. Thus synchronous induction motor provides constant speed, large starting torque, low starting current and power factor correction



Stator Frame

The stator frame is the outer part of the machine and is made up of cast iron. It protects the entire inner parts of the machine

Stator Core

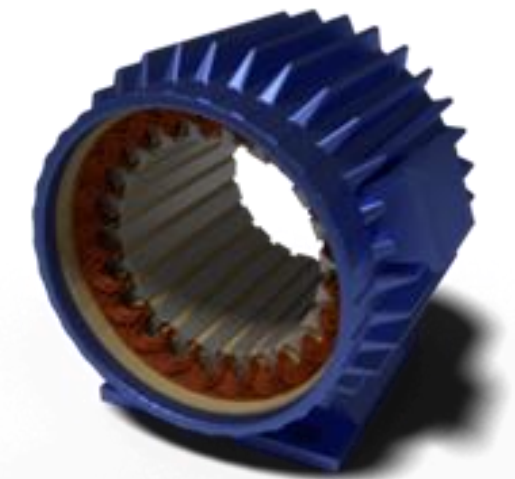
The stator core is made up of thin silicon laminations. It is insulated by a surface coating to minimize hysteresis and eddy current losses. Its main purpose is to provide a path of low reluctance for the magnetic lines of force and accommodate the stator windings



Stator Winding

The stator core has cuts on the inner periphery to accommodate the stator windings. The stator windings could be either three-phase windings or single phase windings.

Enamelled copper is used as the winding material. In the case of 3 phase windings, the windings are distributed over several slots. This is done to produce a sinusoidal distribution of EMF.





SUMMARY

- Linear Induction Motor





KEEP
LEARNING..
Thank u

SEE YOU IN NEXT CLASS