Course Type	Course Code	Name of Course	L	T	P	Credit
DE	EED406	Special Purpose Electric Machines and Drives	3	0	0	9

Course Objective

The objective of this course is to provide knowledge in the emerging field of special electrical machines. It discusses the stepper motor, switched reluctance motor, permanent magnet dc and ac motors, brushless dc motors, single phase special electric motors, universal motor, AC series motor, repulsion motor, linear induction motor, linear synchronous motor.

Learning Outcomes

Upon successful completion of this course, students will:

- have fundamental overview on special electric machines;
- be able select electrical machines for specific application.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Fundamentals of Single-Phase Commutator Motors: Torque equation, Equation for induced emf; Universal motor, AC series motor, Repulsion motor.	7	Understanding of the basic concepts of single-phase AC machines.
2	Variable reluctance type, Permanent magnet type, Hybrid type Stepper motors: Operating principle and application.	12	Understanding of the fundamentals of variable reluctant type motors.
3	Switched Reluctance motor: Operation, Control requirements and application.	12	Understanding of the fundamentals of switched reluctant type motors.
4	Special Synchronous Motors: Synchronous Induction Motor, Reluctance motor, Hysteresis Motor, Commutator less dc motor, Sinusoidal permanent magnet AC motor, Brushless DC motor.	6	An in-depth knowledge of all the special synchronous motors and permanent magnet motors.
5	Linear induction motor, Linear synchronous motor: Principle of operation and application in transportation, Magnetic levitation vehicles.	5	Understanding of different types of linear induction motor and its applications.

Text Books

1. Fundamentals of Electrical Drives - Gopal. K. Dubey.
2. Special Electrical Machines – E.G. Janardanan

Reference Books:

1. Modern Power Electronics and AC Drives by B. K. Bose.