SPECIAL ELECTRICAL MACHINES
(Elective – II)

Unit I:

Switched Reluctance Motor

Principle of operation, design of stator and rotor pole arc, Power Converter for switched reluctance motor.

Unit II:

Stepper Motors

Construction, principle of operation, theory of torque production, hybrid stepping motor, variable reluctance stepping motor.

Unit III:

Brushless DC Motor

Construction, principle of operation, theory of brushless DC Motor as variable speed synchronous motor.

Unit IV:

Linear Induction Motor

Construction, principle of operation, application of linear induction drive for electric traction.

Unit V:

Permanent Magnet Motors

Hysteresis loop, Permanent Magnet DC Motors, equivalent circuit, electrically commutated DC Motor.

Unit VI:

Control of special Machines – I

Stepper motors (open loop control, closed loop control). Characteristics of stepper motor in open-loop drive. Comparison of open loop and closed loop systems.

Unit VII:

Control of special Machines – II

Control of switched reluctance motor for fraction type load. Control of brushless dc motor, rotor position sensing and switching logic for brushless dc motor.

Unit VIII:

Electric Motors for traction drives

AC motors, DC motors, single sided linear induction motor for traction drives, Comparison of AC and DC traction.