

**RCETEEAC02– ELECTRIC VEHICLE****Course outcomes:**

The students will be able to:

- get exposed to the concepts & need of Electric vehicles
- implement the power semiconductor devices in a switching converter
- demonstrate the basic dc-dc converter and dc-ac inverter circuits
- implement transformer isolation in a dc-dc converter, including the popular forward and flyback converter topologies
- specify the proper AC or DC motor for a machine design
- compute stored energy in a battery pack

Syllabus:

UNIT I Future of Mobility - Electrification: The Basic Technologies - Electric Vehicles, batteries, EVs Made up of –Charging & Charging Infrastructure - EV & the power systems - Industry Perspective on Applications of Electrification - Electrification Impacts - Vehicle Automation – Automation – The Impacts.

UNIT II Power semiconductor switches - Introduction to DCM and Mode Boundary - Converter Topologies - AC motor Designs - AC motor Control - DC motors - DC motor control and stepper motors.

UNIT III How does lithium-ion cell health degrade? - Total-least-squares battery-cell capacity estimates - How to write code for the different total-capacity estimators SOC estimator - Linear Kalman filter as a state estimator