B.Tech in Electrical Engineering with specialization in Electric Mobility and Smart Systems

I & II Semester (Common to all the branches)

Physics Cycle

- Engineering Mathematics –I
- Physics
- Communicative English
- Problem Solving Through Programming
- Engineering Graphics
- Physics Lab
- Problem Solving Through Programming Lab
- Communicative English Lab

Chemistry Cycle

- Engineering Mathematics – II
- Chemistry
- Basics of Electrical Engineering
- Workshop Practice
- Sociology and Elements of Indian History for Engineers
- Chemistry Lab
- Electrical Engineering Lab

III Semester

- Applied Mathematics
- Electrical Circuit Analysis
- Electronic Devices and Circuits
- Electrical Machines I
- Electromagnetic Fields
- Economics for Engineers
- Electronic Devices and Circuits Laboratory
- Electrical Machines I Laboratory
- Diploma Mathematics I
- Energy studies (Mandatory Course)

IV Semester

- Signals and Systems
- Microprocessors and Microcontrollers
- Electrical Machines II
- Digital System Design using Verilog
- Measurements and Instrumentation
- Electrical Machines II Laboratory
- Digital System Design using Verilog Laboratory
- Diploma Mathematics II

V Semester

- Power Systems I
- Control Systems
- Power Electronics and Drives
- Elective I
- Control Systems Laboratory
- Power Electronics Laboratory
- Introduction to Electric and Hybrid Vehicles
- EV Batteries and Charging System

Elective I

- Non-Conventional Energy Sources
- Distributed Generation

VI Semester

- Power Systems II
- Professional ethics and Human Values
- Elective II
- Elective III
- Protection and Switchgear
- Power System Simulation Laboratory
- Power System Protection Laboratory
- Power Electronic Converters and Controllers
- Electric Drive Trains and Control

Elective II

- Solar and Wind Energy
- Energy Storage Systems

Elective III

- Power Electronics Applications in Renewable Energy
- Microgrid

VII Semester

- Power System Operation and Control
- Special Electrical Machines
- Electives IV
- Electives V
- Open Elective - I
- Open Elective - II
- Project Work – I
- Modeling and Simulation of Electric Vehicles

Elective IV

- Integration and Control of Renewable Energy Sources
- EHVAC and HVDC Transmission system

Elective V

- Smart grid
- Energy Auditing & Management

VIII Semester

- Elective VI
- Open Elective-III
- Open Elective-IV
- Internship/ Project work –II
- Testing and Certification of Electric and Hybrid Vehicle

Elective VI

- Power Quality
- Energy Economics