M .Tech. in Electric Vehicle Technology

Significance of the Program

Electric Vehicle Technology is a rapidly evolving field, driven by advancements in technology, environmental concerns, and the desire to reduce dependence on fossil fuels. As technology continues to improve and infrastructure develops, e-mobility is likely to play an increasingly prominent role in the transportation sector. This program provides insights of the use of electric vehicles (EVs) and associated technologies and also gives knowledge on Modeling, Dynamics, Control of Electric Vehicles, Energy Storage and Conversion.

Program Objectives

- Understand basic concepts of electric vehicle components.
- Gain knowledge in designing efficient and high-performance Electric Vehicle systems and integration of various components.
- Explore the design of power electronic converters, electric drives, energy storage technologies and charging infrastructure.
- Understand the regulatory standards and policies governing electric mobility.

Major Course Outline

- Design and Control of Automotive Power Converters and Electric Motor Drives
- Charging Infrastructure for Electric Vehicles
- Automotive Embedded Systems and V2X Technologies
- Batteries for Electric Vehicles
- AI & Machine Learning for Autonomous Vehicles
- Techno-Socio-Economical aspects of Electric Vehicles

Outcomes of the Program

- Summarize the various concepts of Electric Vehicle Technologies.
- Demonstrate in-depth knowledge of different battery chemistries, energy storage technologies and their applications in electric mobility.
- Develop innovative solutions in the e-mobility domain.
- Apply knowledge on regulatory standards and policies governing electric mobility.

Career Options

Students can have the following opportunities

- Design Engineer in automotive companies developing electric vehicles and integration of Electric Vehicle components.
- Testing and improvement of energy storage systems for electric vehicles manufacturing industries.
- R&D organizations working on Battery Management System (BMS).
- Charging Infrastructure companies and smart grids as Power Electronics Engineer.
- Policy and Regulation planning in Government organizations.
- Education, Training and as an Entrepreneur.

Opportunities

Job Profile

Battery Design Engineer
Power Electronics Engineer
Motor Design Engineer (BLDC, PMSM, Induction)
Embedded Systems Engineer
Charging Systems Engineer

Research and Development (R&D)

EV Technology Researcher
Battery Management System (BMS) Developer
Energy Storage Systems Analyst