



SKILL LAB

ON

INTRODUCTION TO ELECTRIC VEHICLE TECHNOLOGY

For 5th Semester Students



KLS GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI
Department of ELECTRICAL & ELECTRONICS ENGINEERING

Overview:

This course covers essential fundamentals of EV design and battery technology. Students will learn about EV architecture, powertrain systems, battery technology, motor design and other aspects of EV technology. The course includes hands-on training to design, simulate and hardware implementation. It is career-focused, preparing students to work in the future automotive industry. This course equips students with the skills to innovate in the evolving electric vehicle sector.



Mode of Conduction of each Module:

Theory: 06 Hours,
 Demo: 00 Hours,
 Lab Sessions: 03 Hours
 Total duration: 09 Hour
 Certification exam: 03Hours

Module 1: Introduction to Electric Vehicles & subsystems

Study and demonstration of EV subsystems and key components-electric motor, battery, power electronic converters, types of EV chargers



Module 3: EV Battery System

Study of Battery parameters and connections, Series and parallel connection of cells.

Design of Battery Pack using manual spot welding machine

Module 2: EV Power train

EV Power train demonstration & working at various test conditions

Module 4: Cell testing

Testing of different cells and understanding the characteristics.

Terms and Conditions

Students who have paid a skill lab fee to the institution are eligible for training. The students must maintain 90% attendance for obtaining the skill lab certificate.

Students must attend training as per scheduled time.

Acceptance

In order to accept and start the training program, students are required to register with the respective department. Details to be provided by the student to the department include:

Name, USN, UID, Mobile No, Email id

Coordinators:

Name: Rahul G. Suryavanshi
 Dept: E&E
 Phone: 7411439644
 E-mail- rahulsuryavanshi@git.edu

Name: Avinash V. Deshpande
 Dept: E&E
 Phone: 9663356371
 Email- avdeshpande@git.edu

Outcomes

Upon completing the electric vehicle design course, participants will be able to:

- Design and analyze the architecture and components of electric vehicles.
- Develop and optimize battery systems tailored for EVs, understanding their chemistry and performance and conduct the testing on the cells.



SKILL LAB

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DOMESTIC AND INDUSTRIAL WIRING

For III Semester Students

KLS GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI
Department of Electrical and Electronics Engineering

Overview:

The six-day training program provides comprehensive knowledge and hands-on experience in both domestic and industrial wiring systems. It begins with understanding electrical drawings and the tools used for wiring, progressing to wire size calculations, wiring techniques, and switchgear selection. Participants gain practical experience in switchboard wiring, mains connections, and layout planning for homes. The program also introduces essential electrical components such as switches, relays, and circuit breakers, including a visit to an HT yard. Power distribution systems, including three-phase power, transformers, and power factor correction, will be covered. Motor control wiring for single-phase and three-phase motors, along with motor protection systems will be covered.



Mode of Conduction of each Module:

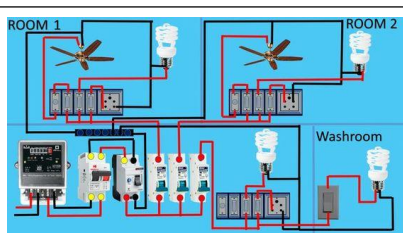
Theory: 03 Hours,
 Demo: 03 Hours,
 Lab Sessions: 03 Hours
 Total duration: 09 Hour
 Certification exam: Hours

Module 1: Understanding the Electrical drawing (Wiring Diagram, Symbols etc. E.g. 1BHK Electrical Layout in Auto CAED), Tools used for wiring.

- Wire size calculations with examples, Wire selection, Switchgear Selection approach (Fuse, MCB's etc.), types of wiring (PVC conduit, concealed wiring)

Module 2: Switch-board wiring (3 pin socket, indicator, Switches) (Hands on), Wiring for 2-BHK house (Plan), Mains connection through Energy meter (From Pole)

- Power Distribution Systems, Transformers, switchgears, and bus bars, Distribution boards and panels, power factor correction devices.



Module 3: • Introduction to Electrical Components and Devices Namely Switches, relays, contactors, Circuit breakers, fuses, Transformers and isolation devices (Visit to HT Yard GIT, Campus), Distribution Boards, Control panels etc.

Module 4: • Motor and Motor Control Wiring for Single-phase and three-phase motors, Starters and contactors, Variable frequency drives (VFD) wiring, Motor protection and control circuits, Wiring for 3-phase motor (Irrigation pump) as a case study.

Terms and Conditions

Students who have paid a skill lab fee to the institution are eligible for training. The students must maintain 90% attendance for obtaining the skill lab certificate.

Students must attend training as per scheduled time.

Acceptance

In order to accept and start the training program, students are required to register with the respective department. Details to be provided by the student to the department include:

Name, USN, UID, Mobile No, Email id

Coordinators:

Prof. Balwant K Patil
 Dept. of Electrical and Electronics
 Phone: 9972403678
 E-mail: balwant@git.edu

Prof. Nikhil R Chitragar
 Dept. of Electrical and Electronics
 Phone: 9036855485
 E-mail: nrchitragar@git.edu

Outcomes

- Practical Understanding of Wiring Techniques
- Familiarity with Tools and Equipment
- Skill Development for Employability