

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

II - SEMESTER

Course Title: Electrical and Electronic

(Course Code: 1323403)

Diploma Programme in which this course is offered	Semester in which offered
Mechanical (Manufacturing Technology)	Second Semester

Module.	Topics	Hours
Module 1	Electrical Safety 1.1 Electrical Safety 1.2 Importance of Earthing 1.3 Electric Shock 1.4 First Aid for Electric Shock 1.5 Precautions against Shock 1.6 Cause of Accidents and their preventive measures	2 h
Module 2	Hand Tools 2.1 Hand Tools for Electrical and Electronics Applications 2.1.1 Cutting Plier 2.1.2 Nose Plier 2.1.3 Wire Striper 2.1.4 Screw Driver sets 2.1.5 Testers 2.1.6 Wire Cutter 2.1.7 Soldering iron	3 h
Module 3	Electronics Components 3.1 Types, Specification and Application Resistor Capacitor Inductor Relays	2 h
Module 4	DC & AC circuits 4.1 Definitions-Electric Current, Voltage and resistance 4.2 Ohm's Law and Kirchhoff's Laws 4.3 Resistance in series, parallel 4.4 Simple Problems 4.5 Fundamental of AC Voltage and current 4.6 Relationship Between phase and line voltages	4 h
Module 5	Electrical Protective Devices 5.1 Different types of fuses and their applications 5.2 MCB – Specification, Application 5.3 ELCB / RLCB – Specification, Application 5.5 Earthing- Purpose and Types	4 h

Module 6	DC motor 6.1 Introduction to DC Motor 6.2 Construction 6.3 Principle of Operation 6.4 DC drive 6.5 Types and Application	4 h
Module 7	AC Machines 7.1 Transformer 7.1.1 Types of transformer (Current and Voltage) 7.1.2 Principle of Operation of Transformers 7.1.3 Application of Transformers 7.2 Single Phase capacitor start induction motor 7.2.1 Working principle 7.2.2 Application 7.3 Three phase Induction Motor 7.3.1 Working Principle 7.3.2 Control elements 7.3.3 Applications 7.3.4 Rpm Measurement 7.4 Servo Motor 7.4.1 Working Principle 7.4.2 Servo drive 7.4.3 Application	4 h
Module 8	Wires and Cables 8.1 Types of Electrical wires- Specification and Application 8.2 Types of Cables- Specification and Application	3 h
Module 9	Measurements and Monitoring Devices 9.1 Multi-meter and applications 9.2 Sensor 9.2.1 Types of sensor and applications Proximity switches Photo electric sensors Piezo electric sensors 9.3 Transducers 9.3.1 Types and applications 9.4 Heat Measurement 9.4.1 R-T-D (Resistance Temperature Detector) 9.4.2 Thermocouples	4 h
Module 10	Display Devices 10.1 Light Emitting Diode (LED) 10.2 Seven Segment Display 10.3 LCD Display	2 h
Module 11	Operation and Maintenance of D.G sets	2 h