

# CETPA INFOTECH PVT. LTD.

## CURRICULUM FOR HARDWARE IN ELECTRONICS

### **CONDUCTING MATERIALS**

- Introduction
- Conductors and Semi-Conductors
- Classification and properties of materials
- Quality and reliability

### **RESISTANCES**

- Introduction
- Types of Resistors
- Resistors colour coding
- Series Combinations and
- Parallel Combinations and its calculations
- Series – Parallel Combinations
- Thermistor and its properties

### **FUSES**

- Introduction
- Properties, Specification & Application
- Types of Fuses

### **CAPACITOR**

- Introduction
- Capacitor Operation
- Charge Storage
- Relation b/w C, Q and V
- Unit of Capacitance
- Types of Capacitors
- Colour Coding of Capacitor
- Failure in Capacitor
- Application

### **INDUCTIVE COMPONENTS**

- Introduction to Magnetic Material
- Introduction to Magnetic Material
- Magnetic Properties
- Accessing element of different type Array Members

- Inductor Properties
- Types and Applications
- Troubles in coils
- Transformer
- Types of Transformer
- Efficiency of Transformer
- Turn Ratio
- Coefficient of Coupling
- Comparison of Step up and Step down Transformer

### **ABOUT MULTIMETERS**

- Introduction to Multimeters
- Use of Multimeters
- Measurements using Multimeters

### **SWITCHES AND RELAYS**

- Introduction to Switches
- Types of Switches
- Applications of Switches
- Introduction to Relays
- Relay Construction
- Relays Classification
- Characteristics of Relay
- Types of Relays

### **OSCILLATORS**

- Introduction
- Types of Oscillators
- RC Oscillator
- LC Oscillator
- Crystal Oscillator
- Timer Circuit

### **ACTIVE COMPONENT**

- Semiconductors
- Causes of Failures in Semiconductors
- P-Type and N-Type Formation

- PN Junction Diode and its Characteristics
- Rectifier and its types
- Half Wave Rectifier
- Full Wave Center Tap Rectifier
- Full Wave Bridge Type Rectifier
- Zener Diodes and its characteristics
- Testing of Semiconductor Diodes

### **TRANSISTORS**

- Introduction to Bipolar Transistor & its Application
- Uni-Junction Transistor
- Field Effect Transistor
- Metal Effect Semiconductor FET (MOSFET)
- Transistor as a Switch
- Transistor as an Amplifier
- TTL Logic Gate Design
- Testing of Transistor

### **POWER SUPPLY**

- Introduction
- Linear Power Supply
- SMPS
- Converter Topology- Flyback, PushPull, Half-bridge, Full-bridge
- Applications

### **IR SENSORS**

- IR LED / Transmitter
- IR Receiver / Photo Diodes
- Operational Amplifier
  - LM 358
  - LM 324

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