



# **SNS COLLEGE OF TECHNOLOGY**

(An Autonomous Institution)

**COIMBATORE-35**

Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## **23EET103 / ELECTRIC CIRCUITS AND ELECTRON DEVICES**

### **UNIT 3- ELECTRICAL WIRING AND SAFTY**

# Materials and Accessories

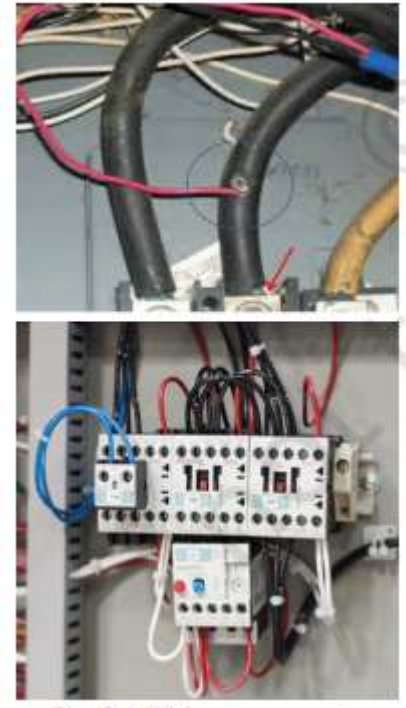
# Introduction

- ▶ Electricity requires an electric path to flow and there are many conducting materials used for this purpose. There are many semi conducting materials which are used to reduce the voltage and also drop the current flow.
- ▶ There are non-conducting materials which are used as insulation during working on live-lines.
- ▶ In this unit we will study how the household or industrial wiring is done and what materials are essential for household or industrial wiring.

# Identifying and Selecting the Wiring Materials and Components

Materials are classified into three types according to their properties:

1. Conducting materials
2. Insulating materials
3. Semiconductor materials



# Conducting Material

## Copper

- ▶ It is a good conductor of electricity. It is used in wiring materials in cables.
- ▶ Its has low resistance and is used for conduction of electricity at high, medium and low voltage



## Aluminium

- It is light weight and cheaper in comparison to copper.
- Therefore, this type of conducting material is mostly used in electrical wiring.
- It is silvery–white in colour and it has a soft texture. It is often used in wiring and making cable



## ► Insulating Materials

Insulating materials are used for insulating purpose. These types of materials are bad conductors of current. For example rubber, paper, mica, wood, glass and cotton.

# Accessories

# Wiring Accessories

- ▶ Wiring accessories are used for connecting appliances

## (a) Switch

- ▶ A switch is used to make or break an electrical circuit. It is used to switch 'on' or 'off' the supply of electricity to an appliance.

There are various switches such as

- surface switch
- flush switch
- ceiling switch
- pull switch
- push button switch
- bed switch





# Surface switch:

It is mounted on wooden boards fixed on the surface of a wall. It is of three types

## 1. One-way switch

It is used to control single circuits and lamp

## 2. Two-way switch

It is used to divert the flow of current to either of two directions. The two-way switch can also be used to control one lamp from two different places as in the case of staircase wiring

## 3. Intermediate switch

Flush switch:

Bed switch



*One-way switch*



*Two-way switch*



*Intermediate switch*



*Flush Switch*

## **Tools and materials required**

### **Tools**

1. Hand drilling machine with a drift bit of 5 centimeter
2. Poker
3. Screwdriver
4. Connector screwdriver 8 cms
5. Combination plier 15 cm
6. Try square
7. Firmer chisel 20 mm
8. Electrician knife 10 cm

### **Material**

1. Wooden round block/ PVC Round Block
2. Wooden board/ Sun mica Board
3. Single pole one-way switch 5 A, 250V
4. PVC wire
5. Pencil
6. Chalk

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

# *THANK YOU*