



# **SNS COLLEGE OF ENGINEERING**

Kurumbapalayam (Po), Coimbatore – 641 107

**An Autonomous Institution**

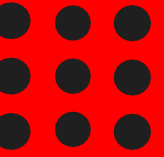
Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**COURSE NAME : 19EE01 BASIC ELECTRICAL AND ELECTRONICS  
ENGINEERING**

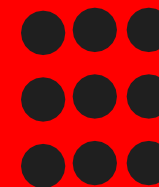
I YEAR /II SEMESTER Information Technology

Unit 3 – Wiring Grounding and Safety





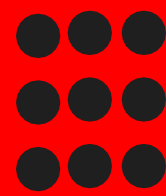
# NEED FOR WIRING







# NEED FOR WIRING





# WIRING AND ITS TYPES

Points to be considered for selection of wiring:

**Initial cost** : It should be economical.

**Durability** : It must be able to withstand wear and tear due to weather.

**Safety from fire** : It should be free from risk of fire as far as possible.

**Mechanical Protection** : It must provide good mechanical protection to the cables.

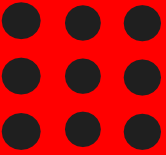
**Permanency** : The wiring must not be affected by the action of weather, fumes, dampness, chemicals etc.,

**Appearance** : It is an architectural point of view.

**Accessibility** : It should be easy to extend or repair the wiring.

**Life** : The System adopted should have good life.

**Maintenance Cost** : It should be low.





# Types of wiring

- Cleat Wiring System
- Wooden casing – capping wiring system
- Tough Rubber sheath wiring system
- Lead sheathed wiring system
- Conduit wiring system





# Cleat wiring system

- Conductors are supported by porcelain cleats.
- Very cheap and can be done easily
- It has base and a cap.
- Life is very less so not suggested for permanent wiring.
- Types
  - Having one
  - Two or three grooves for receiving one, two or three wires respectively.



## USES:

- Industries and workshops for temporary wiring.

## Points to be remembered

- Distance between cleats – 30cm to 60 cm.
- Wires should not run near water and gas pipe lines.





# Wooden casing capping wiring system

- Though its costly , commonly used in residential buildings.
- Casings are made of seasoned teak wood.
- Casing are covered – rectangular strips of wood of same width known as capping and its screwed to it.
- It is available in pieces of 3 to 6 meters length.

## Points to be remembered:

- To avoid white ants – seasoned wood should be used.
- Casing should be properly fixed at the wall.





# Tough Rubber Sheath Wiring

- PVC or TRS or CTS cables are used.
- The cables are placed on wooden batten - Batten wiring system
- Battens – clips and then screwed.
- Distance – 6cm to 15 cm.







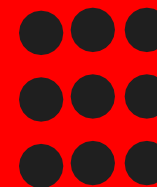
# Lead sheathed wiring system

- Similar to TRS.
- Cable – Lead sheathed cable.
- Longer life but costly.
- Avoids mechanical injury- Properly moulded.
- Earthed.





# SURFACE CONDUIT WIRING



**Surface Conduit Wiring**

PVC or GI conduits are laid on the surface of the wall or ceiling. These conduits are attached to the walls with a 2-hole strap and base clip at a regular certain distances. Electrical wires are laid inside the conduits





# CONCEALED CONDUIT WIRING



PVC conduit pipes are placed inside the chiselled brick/block wall before plaster. The wall is later completely plastered and painted. Electrical wires are laid inside the conduits. This type of wiring are aesthetically appealing since they are no electrical wires/conduits seen on the top of the wall.



# REFERENCES

1. Muthusubramanian R, Salivahanan S, “Basic Electrical and Electronics Engineering”, Tata McGraw Hill Publishers, (2009) - UNIT I – V
2. Bhattacharya. S.K, “Basic Electrical and Electronics Engineering”, Pearson Education , (2017) – UNIT I – IV
3. Mehta V K, Mehta Rohit, “Principles of Electrical Engineering and Electronics”, S.Chand & Company Ltd, (2010)- UNIT I and II
4. Mehta V K, Mehta Rohit, “Principles of Electronics”, S.Chand & Company Ltd, (2005)- UNIT IV and V
5. <https://happho.com/install-concealed-conduit-electrical-wiring-system-properly/>

**THANK YOU**