

Experiment-1

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Title:- Study of RJ45 & CAT6 cabling & connection using crimping tool.

Theory:-

RJ45 & CAT6 cabling are widely used in networking to connect various devices such as computer, router, switches and access point to create LAN and establish internet connectivity. The process of creating these connection involves the use of crimping tool to terminate the cable with RJ45 connector.

What is Straight-Through Connection?

Straight-Through Cable is a type of CAT5 with RJ-45 connection at each end, and each has the same pin out. It is in accordance with either the same color code throughout the LAN. For consistency. This type of twisted-pair cable is used in LAN to connect a computer or a network hub such as a router. It is one of most common types of network cable.

What is Crossover Connection?

The Crossover cable is a type of CAT5 where one end is T568A configuration and other end as T568B configuration. In this type of

cable connection, pin 1 is crossed with pin 3, and pin 2 is crossed with pin 6. The internal wiring of crossover cable reverses the transmission and receive signals. It is widely used to connect two devices of the same type. eg two computers or two switches to each other.

RJ45 Connector (Registered Jack 45) :-

RJ45 is most common type of ethernet connector used for wired network connection. It is an 8P8C modular plug that can accommodate eight wires allowing for data transmission and communication between network devices. The connector name indicates that it has eight positions & eight contacts.

CAT6 Cable (category 6 cable)

CAT6 is type of twisted ethernet cable which means it consists of pairs of copper wires twisted together to reduce interference & crosstalk. It is an improvement over its predecessor, CAT5e, offering higher data transfer speeds and improved performance.

Procedure of Experiment (Crimping Process)

- 1.) Strip the cable back 1 inch (25mm) from the end.
- 2.) Untwist and straighten the wires inside of the cable.

- 3.) Arrange the wires into right order. The proper sequence is as follows from left to right.
Orange/white, Orange, Green/white, Blue, Blue/white, Green, Brown/white, Brown
- 4.) Cut the wires into even line $\frac{1}{2}$ inch [13mm] from sheathing.
- 5.] Insert the wires into the RJ45 connector. If any small wires und or don't fit into a groove correctly, take the cable out and straighten the wires with your finger before trying again.
- 6.] Stick the connector into the crimping part of the tool and squeeze twice.
- 7.] Remove the cable from tool and check that all of pins are down.

