

***LAB REPORT 3***

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***20P-0018***

***Computer Networks***

***Sec A***

**Objective :**

* To Create/Build Category 6 (CAT 6) Straight Through Ethernet Network Cable.
* To Create/Build Category 6 (CAT 6) Straight Through Ethernet Network Cable.
* **Materials you will need for both cables:**

1. CAT 6 Ethernet cable (unshielded twisted pair)

2. RJ45 connectors (8P8C) - 2 for each cable

3. Crimping tool

4. Wire stripper

5. Ethernet cable tester

* **EIA/TIA-568** Wiring Standard sequence .

**Straight-Through:**

**Side A**

1. White-Orange
2. Orange
3. White-Green
4. Blue
5. White-Blue
6. Green
7. White-Brown
8. Brown

**Side B**

Same as Side A in Straight-Through.

**Cross-Over**

**Side A**

White-Orange

Orange

White-Green

Blue

White-Blue

Green

White-Brown

Brown

**Side B**

White-Green

Green

White-Orange

Blue

White-Blue

Orange

White-Brown

Brown

* **Steps to build a CAT 6 Straight-Through Ethernet Cable:**

1. **Prepare the cable:** Strip about 1.5 inches (3-4 cm) of the outer insulation from both ends of the CAT 6 cable to expose the eight internal color-coded wires.

2. **Arrange the wires:** Straighten and arrange the eight wires according to the EIA/TIA-568B wiring standard. The order from left to right should be: White-Orange, Orange, White-Green, Blue, White-Blue, Green, White-Brown, Brown.

3. **Trim the wires:** Trim any excess wire so that all the wires are of equal length, approximately from the outer insulation.

4. **Insert the wires into the connector:** Carefully insert the wires into the RJ45 connector, making sure they follow the EIA/TIA-568B order.

5. **Crimp the connector:** Use a crimping tool to secure the wires inside the connector. Make sure the connector is firmly attached to the cable.

6. **Repeat for the other end:** Repeat steps 1-5 for the other end of the cable, ensuring that both ends follow the same EIA/TIA-568A wiring standard.

7. **Test the cable:** Optionally, use an Ethernet cable tester to ensure that the cable is properly wired and functional.

* **Steps to build a CAT 6 Crossover Ethernet Cable:**

A crossover cable is used to directly connect two devices of the same type (e.g., two computers) without using a network switch or hub. The wiring is slightly different from a straight-through cable.

1. **Prepare the cable:** Strip about 1.5 inches of the outer insulation from both ends of the CAT 6 cable.

2. **Arrange the wires:** For one end, follow the EIA/TIA-568B wiring standard as described in steps 2 above. For the other end, use the EIA/TIA-568A wiring standard. The EIA/TIA-568A order from left to right is: White-Green, Green, White-Orange, Blue, White-Blue, Orange, White-Brown, Brown.

3. **Trim and insert the wires:** Trim, insert, and crimp the connectors for both ends of the cable as described in steps 3-5 above.

4. **Test the cable**: Optionally, use an Ethernet cable tester to ensure that the crossover cable is properly wired and functional.