

Don Bosco Institute of Technology, Kurla
Academic Year 2024-25

EXPERIMENT NO. 2

SEMESTER: V

DATE OF PERFORMANCE: 24th July 2024

SUBJECT: CN Lab

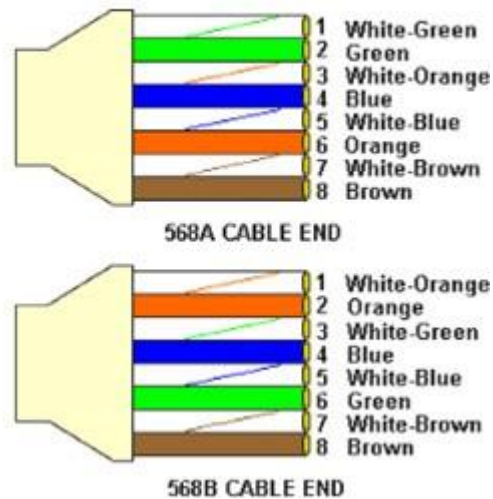
DATE OF SUBMISSION: 26th July 2024

NAME OF THE STUDENT: David James Eluvathingal

ROLL NO.: 22

AIM	Study of RJ 45 and CAT 6 cabling and connection using crimping tool.
LEARNING OBJECTIVE	The student will understand the use of basic connectors.
LEARNING OUTCOME	The students will be able to wire the connections of CAT6 cable and crimp it to RJ 45 connector.
COURSE OUTCOME	CSL502.2: Gather information regarding connectors and cables used for network and summarize their usage.
PROGRAM OUTCOME	PO1,PO2,PO3,PO4,PO5,PO9,PO10,PSO1,PSO2,PSO3
BLOOM'S TAXONOMY LEVEL	Understand
THEORY	<p>Cables can transmit information along their length. To actually get that information where it needs to go, you need to make the right connections to an RJ45 connector. Your cable run needs to terminate into a connector, and that connector needs a jack to plug into.</p> <p>Registered Jack 45 (RJ45) is a standard type of physical connector for network cables. RJ45 connectors are commonly seen with Ethernet cables and networks. Modern Ethernet cables feature a small plastic plug on each end of the cable. That plug is inserted into RJ45 jacks of Ethernet devices. The term “plug” refers to the cable or “male” end of the connection while the term “jack” refers to the port or “female” end.</p> <p>T568A and T568B are the two colour codes used for wiring eight-position modular plugs. Both are allowed under the ANSI/TIA/EIA wiring standards. The only difference between the two color codes is that the orange and green pairs are interchanged.</p>

T568A or T568B Wiring Standard:



There is no transmission differences between T568A and T568B cabling schemes. North America's preference is for T568B. Both ends must use the same standard. It makes no difference to the transmission characteristics of data.

T568B wiring pattern is recognized as the preferred wiring pattern.

STEP 1:

Using a Crimping Tool, trim the end of the cable you're terminating, to ensure that the ends of the conducting wires are even.



STEP 2:

Being careful not to damage the inner conducting wires, strip off approximately 1 inch of the cable's jacket, using a modular crimping tool or a UTP cable stripper.



STEP 3:

Separate the 4 twisted wire pairs from each other, and then unwind each pair, so that you end up with 8 individual wires. Flatten the wires out as much as possible, since they'll need to be very straight for proper insertion into the connector.



STEP 4:

Holding the cable with the wire ends facing away from you. Moving from left to right, arrange the wires in a flat, side-by-side ribbon formation, placing them in the following order: white/orange, solid orange, white/green, solid blue, white/blue, solid green, white/brown, solid brown.



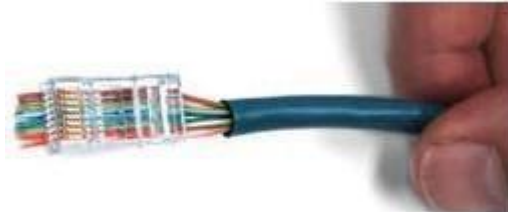
STEP 5:

Holding the RJ45 connector so that its pins are facing away from you and the plug-clip side is facing down, carefully insert the flattened, arranged wires into the connector, pushing through until the wire ends emerge from the pins. For strength of connection, also push as much of the cable jacket as possible into the connector.



STEP 6:

Check to make sure that the wire ends coming out of the connector's pin side are in the correct order; if not, remove them from the connector, rearrange into proper formation, and re-insert. Remember, once the connector is crimped onto the cable, it's permanent. If you realize that a mistake has been made in wire order after termination, you'll have to cut the connector off and start all over again!



Step 7:

Insert the prepared connector/cable assembly into the RJ45 slot in your crimping tool. Firmly squeeze the crimper's handles together until you can't go any further. Release the handles and repeat this step to ensure a proper crimp.



Step 8:

If your crimper doesn't automatically trim the wire ends upon termination, carefully cut wire ends to make them as flush with the connector's surface as possible. The closer the wire ends are trimmed, the better your final plug-in connection will be.



STEP 9:

After the first termination is complete, repeat process on the opposite end of your cable



Don Bosco Institute of Technology, Kurla
Academic Year 2024-25

LAB EXERCISE	<ul style="list-style-type: none">• Every student will understand the wire pairing and crimp it to RJ 45.
REFERENCES	<ul style="list-style-type: none">• B.A. Forouzan, “Data Communications and Networking”, TMH, Fourth Edition.