DEPARTMENT OF

COMPUTER SCIENCE & ENGINEERING

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WORKSHEET - 1.1

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Branch: CSE	**Section/Group:** 606/A
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Subject Name: Computer Networks	**Subject Code:** 21-CSH-256

1. **Aim:**
   Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool. To implement cross-wire cabling through clamping tool.

2. **Software Requirements:** NA

3. **Hardware Requirements:**

   - Unshielded twisted pair (UTP) patch cable
   - Modular connector (8P8C plug, aka RJ45)
   - Crimping tool
   - Cable tester (optional, but recommended)

RJ45 Pin # (END 1)	Wire Color	Diagram End #1	RJ45 Pin # (END 2)	Wire Color	Diagram End #2
1	White/Orange		1	White/Green	
2	Orange		2	Green	
3	White/Green		3	White/Orange	
4	Blue		4	White/Brown	
5	White/Blue		5	Brown	
6	Green		6	Orange	
7	White/Brown		7	Blue	
8	Brown		8	White/Blue	

4. Procedure for Straight Cable:

Step 1: At the end of the cable, 1.5 inches down, remove the jacket.

Step 2: The four sets of twisted wire should be spread apart. If necessary, you can further strip the jacket for Cat 5e using the pull string before cutting it. There is a spine on Cat 6 cables that must also be severed.

Step 3: The wire pairs should be carefully untwisted and arranged in the T568B orientation. We want to keep as much of the cable twisted as possible, so make sure not to untwist them any further down the wire than where the jacket starts.

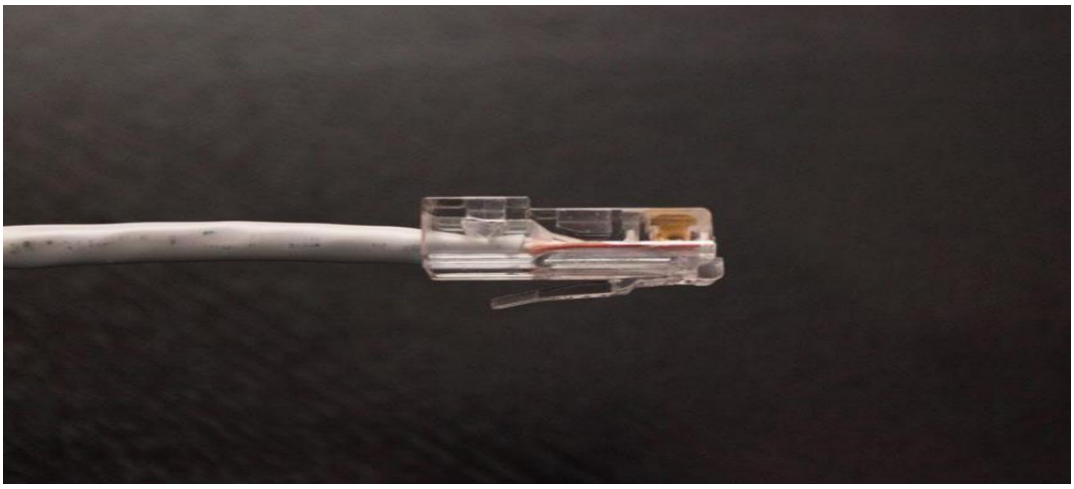
Step 4: Cut the wires as straight as you can, 0.5 inches above the jacket's end.

Step 5: Be sure that each wire passes through the proper guides within the modular connection as you carefully insert the wires all the way in.

Step 6: Insert the connector into the crimping tool, then fully press the crimper.

Step 7: On the other end of the cable, repeat steps 1-6.

Step 8: Use a cable tester to test each pin to ensure that you have properly terminated the cable at each end. When you're finished, the connectors ought to resemble this:



5. Procedure for Cross Cable:

Step 1: Locate a regular Ethernet wire that isn't being used for anything. You can utilise a long 100 feet (30.5 m) cable or a shorter size depending on your needs by using this method.

Step 2: Make an opening a few inches long towards the cable's end. Take careful to avoid cutting yourself or the cable's circuitry.

Step 3: The cable casing should be peeled back. The internal wiring will be exposed as a result. Look at the way the wiring is twisted together and take notice of the wire colours. The coloured wires (green, orange, white-green,

and white-orange) will be severed for this project while the remaining wires will remain in their normal locations.

Step 4: Cut the orange, white-green, green, and white-green paper. We'll leave the other lines in place.

Step 5: With the wires cut, work now one-by-one.

- First, strip the orange wire on both cut sides down. (approx. 1/4 or 1/2 inch)
- After both ends of the orange wire has been stripped, strip both ends of the green wire down. (approx. 1/4 or 1/2 inch)

Step 6: Connect the green striped end on Side "A" to the orange striped end on Side "B." Twist the wires together, then patch using electrical tape or a different type of tape. Optionally, solder the leads together if you have a soldering iron.

Step 7: Your crossover wire's first stage is now finished. Let's move on.

Step 8: Let's connect the final two wires in the same manner as we did with the orange and green wires on one side of our crossover cable.

- Start by stripping the green-white wires. (once again, approx. 1/4 or 1/2 inch)

- Repeat the wire stripping on orange-white wires. (once again, approx. 1/4 or 1/2 inch)

Step 9: Connect the green-white wire on Side "A" to the orange-white wire on Side "B." The wires should be twisted together and taped. Again, you can solder the wires together rather than twisting them if you wish.

Step 10: Add the remaining wires together. The green-white wire on Side "B" and the orange-white wire on Side "A" should be connected. Using tape or solder, shape the wires.

Step 11: Clean the cable up.

- Note the direction that the wiring in the cable case is twisting.
- Holding the cable in your hands, *twist* the cable in the same way as the internal wiring is twisted.
- Keep the wire twisted, and close it up with tape or shrink-wrap.

6. Results:

Cross and Straight Cable Prepared.