

Cable Laboratory

V1.0 - Semester 2 2006

Date: _____

Student Name: _____ Id: _____
(Family Name) (First Name)

Unit Code: _____

Tutorial Day/Time/Room/Campus _____

Tutor: _____

Overview

Laboratory Exercise Sections

The tutor will discuss this document before you start the exercises.

Refer to your tutor for further clarification as you are doing the exercises.

Section A - Making a Cable

You are required to make a UTP CAT5 Straight-Thru cable.
In the process of doing this you will learn how to use and identify the necessary tools.
While making the cable please answer the questions in Section B.

Section B - Laboratory Questions

While making the cable please answer these questions.

Section C - Clean Up

Before you leave you **MUST** clean up any mess made and pack all tools back into the Kit Box.

Hand back to your tutor at the end of **this** laboratory session.

Laboratory Exercise Sections

Overview

Each group of 4 students will use a Cable Making Kit that should contain the following items:

Crimper, Cutter/Stripper, Wire Cutter, EIA/TIA Wiring Diagram, CAT 5 UTP Stranded Cables, RJ45 Connectors, a Solid core CAT5 cable for comparison with the stranded core

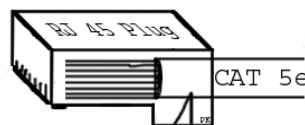
Your tutor will first discuss the structure of the wired infrastructure then demonstrate the making of a UTP CAT5 cable.

Section A - Making a Cable

Note: You should answer the questions in **Section A** as you are making the cable.

Making a UTP CAT5 LAN Work Area Cable - Steps

1. Cut a 1 metre length of cable - what tool is used?
2. Strip off cable jacket about 20 mm from the end of the cable - what tool is used?
(The tool may need to be adjusted for the CAT5 cable, ask instructor)
3. Separate the wire pairs
4. Untwist the wire pairs
5. Organise and flatten the wires, use EIA/TIA 568A mapping standard
6. Clip wires parallel at a length of 13 mm.
7. Insert wires into RJ-45 connector (copper facing up), use EIA/TIA 568A mapping standard



8. Inspect colours to ensure match EIA/TIA 568A mapping standard **BEFORE CRIMPING**
(<http://www.siruscomputers.com/rj45.htm>)

Laboratory Exercise Sections

Section A - Making a Cable

Note: You should answer the questions in **Section A** as you are making the cable.

Making a UTP CAT5 LAN Work Area Cable - Steps

10. Crimp down the wires after your tutor has checked the wire mapping - what tool is used?

11. Inspect the crimped end and apply step 2 to 10 for the other end of the CAT 5 cable.

12. Test the wire-map of the cable - what tool is used? - The tutor will test your cable.

13. Are you testing the quality of the cable with this tool? Why?

Laboratory Exercise Sections

Section B - Laboratory Questions

1. How many wire pairs are there?

2. What colours are the wire's jackets (per wire)?

3. How is a Cat 5 Cable constructed (*Draw a Diagram*)?

4. What problem must we avoid when stripping off the jacket?

5. Using the EIA/TIA 568A standard what colour of wire matches to each pin?

PIN 1) _____	PIN 5) _____
PIN 2) _____	PIN 6) _____
PIN 3) _____	PIN 7) _____
PIN 4) _____	PIN 8) _____

6. What problems must you check for before crimping the cable?

Laboratory Exercise Sections

Section B - Laboratory Questions

7. What is the difference between a solid core and a stranded core CAT 5 cable?



8. When would you use a solid / stranded cable?

9. Why are the wires in a pair twisted around each other?

10. The maximum amount of untwist allowed is 13mm, why?

Laboratory Exercise Sections

Section B - Laboratory Questions

11. Define the following terms:

- Work area cable, Horizontal cable, Patch cable, Patch Panel

12. What is maximum length of a Work area cable, Horizontal cable and patch cable ?

13. What type of tests can the cable tester perform?

14. The recommended maximum signal transmission distance using on a CAT 5 cable is 100 metres, why is this the case ?

15. How can the transmission distance be increased?

Section C - Clean Up !!

Before

You leave

You

MUST

Clean up

Any mess made

And

Pack all tools

back

into

the Kit Box.