

POWER ENGINEERING 2 LABORATORY
SAFE WORKING WITH ELECTRICAL EQUIPMENT

Please sign at the bottom to confirm that you have read and understood these instructions.

In the Power and Machines Laboratory you may be required to assemble and operate equipment which is connected to 400V, 220V ac, 220V dc, or 110V ac supplies. Every effort has been made to ensure that the equipment and experiments are safe, but we share responsibility for your personal safety. Care and attention must be practised at all times to minimise the possibility of accident.

Electric Shock

Electric shock is caused by an electric current passing through the body. A current of only 30mA can cause death, so while 3A-13A fuses will protect equipment, they will not protect you.

Your body will conduct current if there is a potential difference between two parts of you. To prevent electric shock, the first rule is not to come in direct contact with, or touch, any LIVE conductors. Treat all conductors as potentially LIVE and always switch off supplies before working on any part of a circuit or equipment.

- Where supplies are generated in the lab, always switch off and wait for the machine to come to rest before touching any components.
- All supplies at the binnacles are switched and all have indicator lamps. Always check that the switches are open and that the lamps are extinguished, before touching any live components.

It is possible to receive an electric shock as a result of indirect contact with a live conductor, if you touch an unearthed metallic part which has become LIVE.

- Ensure that all conductors are correctly insulated, terminated and shrouded.
- Ensure that all equipment is solidly earthed, so that casings or frames cannot become LIVE.
- As a further precaution do not lean on equipment while working on it. You may unwittingly create a return path in your body through which current would flow if the equipment accidentally became live.

Injury from Rotating Machines

- Do not remove guards from machines, or operate machines without guards.
- Do not lean over machines and avoid wearing ties, scarves etc, which can become entangled with the machine. Keep long hair tied back.
- Always wait for machines to come to rest before working on them.

Working practice and behaviour

- Bags, coats etc. should be stored near the main door. Avoid wearing jewellery, and watches with metallic wrist straps. Do not sit on chairs or benches near the machines or equipment.
- Lay out equipment neatly. Keep wires as short as possible, but not so short that they are under tension. Use correct colour coding for cables (brown, black, grey and blue for three phase and neutral, brown and blue for dc or single phase ac and neutral, and green/yellow for earth).
- Work professionally and responsibly. There will always be a responsible staff member present, and you should consult them if you are uncertain of the safety of your actions.

WE HAVE A GOOD SAFETY RECORD IN THE POWER LABORATORY. PLEASE HELP US TO KEEP IT THAT WAY.

I have read and understand the safety instructions..... Date.....

PRE-LAB QUESTIONNAIRE

Name

Group

Date

1. Shade in the diagram below with brown, black, grey, blue and green to identify the individual phase, neutral and earth conductors.
2. Count up the number of wires you think you will use to correctly connect between TB1, TB2, MCB and FC.

Estimated number

3. Count and list below the number of the wires you will have to make with each of the following wire numbers

No		No		No		No		
H11	.....	H31	.....	H51	.....	H71	.....
H13	.....	H33	.....	H53	.....	H55	.....
H19	.....	H21	.....	H23	.....		
H15	.....	H35	.....	H17	.....	H90	.....
Total number of wires				Total number of crimps		

