DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

EQUIPMENT SOP

Ensure you have a copy of the latest Manufacturers Data Sheets for the device/s,

Completed SOP should be kept locally in Red Safety Folder and made available to all persons working in the area.

SOP Title Using electronic test and measurement equipment to test circuits	**Version** 1
Creation Date 11/04/2026	**Produced by** Mr Andrew Moss
Review Date 11/04/2027	**Approved By** Mr Gerald McBrearty

Purpose
The purpose of this document is to outline the safe procedures using electronic benchtop equipment for testing electronic components and circuits.

Scope
The procedure provides general instructions on how to use test and measurement equipment in a laboratory environment in a safe manner, using tools such as a DC Power supply, arbitrary signal generator, Benchtop multi-meter, Oscilloscope, network analysers, spectrum analyser, etc. It does not cover the use of other specialised equipment such as a soldering iron, Infra-red station, microscopes, etc.

Health and Safety precautions
Students are to be given clear and specific instructions in the proper safe handling and use of test equipment. Test and measurement equipment operate using mains electrical power (240V), electric shock can occur if equipment if damaged or poorly maintained. Some equipment can be heavy requiring 2 people to carry/position. (see manual handling training). Potential consequences of using test and measurement equipment. Electric shock. Cut/pinch to fingers. Eye strain.

Materials
DC Power Supply Arbitrary signal generator Digital Multi-meter Digital Oscilloscope Breadboard Light duty hand tools (screw drivers, pliers, etc) Probes and cables (probes, cables, connectors, etc)

Standard Operating Procedure
Before use ensure the area is clean, tidy and clear of anything not required or other equipment\work. Visual checks must be made of the equipment for damage and has an approved/passed PAT label. (Report if damage found). Make sure equipment is sited in a secure position and will so topple over of fall from the benchtop. Prepare the work area by obtaining components, tools, cables, etc. Power on the devices and where possible set to default/preset configuration. Make sure equipment output ports are turned off. Set the sources to desired levels. (voltage, current limits, frequency, etc.) Attach cables between the test equipment and circuit. Turn on power and take measurements. If problems arise turn of power adjust/modify/fault find. Once task complete disconnect circuit, reset equipment to defaults settings, power down equipment, tidy the work area by returning hand tools/cables, and dispose\recycle any waste.

Othe procedures that need consideration
Some hand tools and probes used in this process ca be sharp (wire cutter/stripper, clips, dmm probes, etc.) which can cause cuts/punchers to the skin. Working with high power (voltage and/or currents) vigilance must be high, not working alone, PPE must be worn (Electrically insulated gloves). Do not touch any part of the test circuit when powered (Live). If received any electric shock see a 1st aider and report the incident. Any equipment failure or suspected fails to be reported/logged with technicians. Injuries caused to be logged and investigated. Lab benches used fitted with RCCBO sockets.

Responsibilities

Technicians

Visually inspecting area and equipment.
Supplying information and guidance as required.
PAT Testing and maintaining equipment.
Keeping area tidy.
Replacing faulty parts.
Acting upon reported issues.
Maintain consumables such as PPE, components, tooling, etc

Students\other staff

Cleaning the area after use.
Responsible for using correct PPE and fume extraction.
Putting away used tools.
Reporting faulty equipment or issues.
Reporting and injuries such as burns/cuts.

Documents and References

Documents

- DC Power supply equipment datasheet.
- Arbitrary signal generator equipment datasheet.
- Digital Multi-meter equipment datasheet.
- Oscilloscope equipment datasheet.
- Spectrum analyser equipment datasheet.
- Network analyser equipment datasheet.
- PAT test information. See safety folder.

References\Links

HSE Electrical / Electronics

Electrical safety and you: A brief guide - HSE
Work using electrically powered equipment - HSE
Maintaining portable electric equipment in low-risk environments - HSE