



VINAYAKA MISSION'S
RESEARCH FOUNDATION
(Deemed to be University under section 3 of the UGC Act 1956)



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VINAYAKA MISSION'S RESEARCH FOUNDATION

AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY, PAIYANOOR

EMBEDDED SYSTEMS LAB

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	EMBEDDED SYSTEMS LAB
Purpose	To provide training for students, research scholars and industrial personnel, in response testing, frequency response characterization and in – circuit signal injection both experimental training set-up and real time parameters measurements.
Scope	In Embedded Systems lab theoretical concepts of Embedded System is presented in a laboratory environment and through practical hands-on experiments.
Responsibility	Faculty In-charge of the facility, HOD/ECE

STANDARD OPERATING PROCEDURE FOR MICROCONTROLLER TRAINER KIT

- Switch on the Trainer Kit (it takes a minute or two).
- Load the Opcodes or Instructions in the allotted Memory Locations.
- Execute the Program.
- Check the Result in the specified Locations.

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
- Gentle use of Keyboards are insisted.
- Use only shielded probes. Never allow your fingers to slip down to the metal probe tip when the probe is in contact with a hot circuit.
- Reset the Kit after completing the Program.

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ELECTRONICS LAB

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STANDARD OPERATING PROCEDURE FOR SIMULATION SOFTWARE

- Switch on the System Installed with the Software.
- Type the instructions without any mistakes.
- Run the Program and save the result.

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
- Do not use in high temperature and high pressure, humidity, strong vibration and strong magnetic fields and storage.
- Use in relatively stable environment, and provide good ventilation and cooling conditions.
- Use only shielded probes. Never allow your fingers to slip down to the metal probe tip when the probe is in contact with a hot circuit.
- Turn off the System once completed the program.

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SEMICONDUCTOR DEVICES LAB

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STANDARD OPERATING PROCEDURE FOR POWER SUPPLY

- Turn on the DC power supply. Low-power DC supplies operate in two main modes - either voltage sources or current sources.
- Observe the voltage and current readings.
- Set the DC power supply output voltage to 10 V by adjusting the output voltage knob. Operating as a voltage source is the most common, where the supply provides low voltage DC; typically ranging between 0 and 36 V. In a current source operation, these supplies are "current limited" where their maximum current is set to the desired value, and their voltage is automatically adjusted to provide the desired maximum current. Current and voltage limits thus provide operational flexibility as well as safety margins when operating a DC power supply.
- Press the "Current" button to display the current limit and adjust the current knob to adjust the maximum current limit. Set the current limit of the supply.
- Note that most single-output DC power supplies have three terminals labeled as "+," "-", and ground. In many applications, "-" and ground are tied to provide a more stable and reduced noise environment when providing an external circuit with power. However, certain cases require that "-" is floating from ground to isolate the electrical circuit or apparatus under test from the supply ground.
- Upon completion of experiment the DC Power Supplies shall be turned off first, followed by turning off of mains power supply.

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
- Avoid shorting circuit the output of DC power supply.
- Set the voltage and current adjustment knobs as you desire. The unit should be stored in a dry and well ventilated place and the power cord removed if storing for long periods.
- Turn off the DC Power supply and disconnect the connection.

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STANDARD OPERATING PROCEDURE FOR DIGITAL IC TRAINER KIT

- The connections should be given as per the experiment to be performed referring to the lab. Manual.
- Connections thus given shall be verified by the course instructor or lab in-charge
- To perform the experiment supply mains have to be switched on.
- Upon completion of experiment the Digital Trainer IC Kit shall be turned off first, followed by turning off of mains power supply.

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
- Avoid shorting circuit the output of DC power supply.
- Set the voltage and current adjustment knobs as you desire. The unit should be stored in a dry and well ventilated place and the power cord removed if storing for long periods.
- Turn off the DC Power supply and disconnect the connection after completion of experiment.

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STANDARD OPERATING PROCEDURE FOR DSO

- Switch on the oscilloscope to warm up (it takes a minute or two).
- Do not connect the input lead at this stage.
- Trig volt level at limit : When turning the trigger knob, Alerts the user that the trigger level reached its limit.
- Horizon position at limit When turning the horizontal position knob , alerts user that the horizontal position reached its limit
- Volts/Div at limit Alerts the user that the vertical volt/Div knob was adjusted to the min (2mV/div) or maximum (5V/div) value
- Volts position at limit When turning the vertical position knob , alerts user that the vertical knob reached its limit.
- Sec/Div at limit : prompts the user that the Volts/Div is at full range while turning the vertical scale knob.
- Functions isn't useable : Function not supported in this mode. (Example: Reference mode is not available in YX format)
- No signal! : The system could not detect a suitable signal (used in the auto set)
- Adjust at limit: You could adjust the pulse width with the ADJUST knob until the pulse width has reached the min of 20.0ns or max 10.0s limit.
- Adjust INTENSITY (brightness) and FOCUS to give a bright, sharp trace.
- The DSO is now ready to use. Experimental procedure to be followed as given in the manual.
- Upon completion of experiment the DSO shall be turned off first, followed by turning off of mains power supply.

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
 - DO not store or leave the instrument where the LCD display will be exposed to direct sunlight for long periods of time.
 - To avoid damage to the instrument or probes, do not expose them to sprays, liquids, or solvents.
 - Use only shielded probes. Never allow your fingers to slip down to the metal probe tip when the probe is in contact with a hot circuit.
 - DO not store or leave the instrument where the LCD display will be exposed to direct sunlight for long periods of time.
- CAUTION: To avoid damage to the instrument or probes, do not expose them to sprays, liquids, or solvents

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