



**VINAYAKA MISSION'S RESEARCH FOUNDATION**  
**AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY, PAIYANOOR**



**CIRCUITS AND DEVICES LABORATORY**

**STANDARD OPERATING PROCEDURE**

Name of the Lab./facility	Semiconductor Devices lab
Name of the equipment	Cathode Ray Oscilloscope
Purpose	The cathode-ray oscilloscope (CRO) is a common laboratory instrument that provides accurate time and amplitude measurements of voltage signals over a wide range of frequencies.
Scope	The main objective of this instrument is to observe the constantly varying signal voltages in a 2-d plot of one or more signals as a function of time. Other signals such as sound and vibration can be converted to voltages and displayed.
Responsibility	Faculty – Lab in charge, HOD/EEE

**STANDARD OPERATING PROCEDURE FOR CATHODE RAY OSCILLOSCOPE**

- Check for any visual problems in the CRO like loose connections.
- The objective of observing a signal on the oscilloscope screen is to make voltage and time measurements.
- These measurements may be helpful in understanding the behavior of a circuit component, or the circuit itself, depending on what has to be measured.
- The oscilloscope screen consists of the grids which can be external or internal to the screen of CRO, which divides both the horizontal axis (voltage) and the vertical axis (time) into divisions which will be helpful in making the measurements.
- These values are determined by two variables namely the time/div and the volt/div both of which can be adjusted from the relevant buttons available on the front panel of the oscilloscope.

**PRECAUTIONS TO BE FOLLOWED**

- Do not touch or disconnect while CRO is in operation.

- The push buttons in the CRO should be handled softly without ant hard pressing.

**RECORD TO BE MAINTAINED**

- Laboratory Manual containing the experiments that can be performed with the equipment.
- Maintenance Record





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**STANDARD OPERATING PROCEDURE**

Name of the Lab./facility	Semiconductor Devices lab
Name of the equipment	Digital Storage Oscilloscope
Purpose	Digital Storage Oscilloscope stores and analyses the signal digitally rather than using analog techniques. It is now the most common type of oscilloscope in use because of the advanced trigger, storage, display and measurement features which it typically provides.
Scope	This oscilloscope allows electrical signals, especially time varying ones, to be observed. The signals may be slow moving or rapid. The oscilloscope has amplification and delay features that allow part or all of the signal to be observed.
Responsibility	Faculty i/c of the facility, HOD/EEE

**STANDARD OPERATING PROCEDURE FOR DIGITAL STORAGE OSCILLOSCOPE**

- Check for any visual problems in the DSO like loose connections.
- VOLTS/DIV: The VOLTS/DIV knobs adjust the vertical scale (in a 1-2-5 sequence) of the selected waveforms (channel 1 and channel 2).
- The position control knobs adjust the vertical position of the channel 1 & 2 waveforms.
- Select a formula from the math menu: CH1+CH2, CH1-CH2 or FFT (Fast Fourier Transform).  
It can convert a time-domain signal into its frequency components by an advanced FFT math function.

**PRECAUTIONS TO BE FOLLOWED**

- Use only the power cord specified for this product and certified for the country of use.
- Do not connect or disconnect probes or test leads while they are connected to a voltage source.
- Do not operate this product with covers or panels removed.

- Do not touch exposed connections and components when power is present.

**RECORD TO BE MAINTAINED**

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record

  
Prepared by

  
Approved by

  
Principal  
(Authorized by)