



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

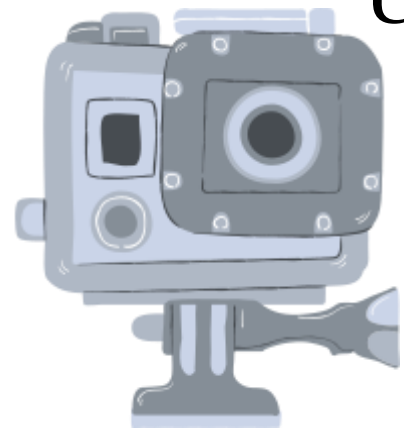
**COURSE NAME: 19EET205/ MEASUREMENTS AND
INSTRUMENTATION**

II YEAR / IV SEMESTER

Unit 1 –MEASUREMENT OF VOLTAGE AND CURRENT

Topic 8: Standards and Calibration

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Standards



- A standard is a physical representation of a unit of measurement.
- The term 'standard' is applied to a piece of equipment having a known measure of physical quantity.





Types of Standards

- International Standards (defined based on international agreement)
- Primary Standards (maintained by national standards laboratories)
- Secondary Standards (used by industrial measurement laboratories)
- Working Standards (used in general laboratory)

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Calibration

- Calibration of all instruments is important since it affords the opportunity to check the instruments against a known standard and subsequently to find errors and accuracy.
- Calibration Procedure involve a comparison of the particular instrument with either
 - a Primary standard
 - a secondary standard with a higher accuracy than the instrument to be calibrated.
 - an instrument of known accuracy.



Calibration



Calibration methods are classified into following two types,

- 1) Primary or Absolute method of calibration
- 2) Secondary or Comparison method of calibration
 - i. Direct comparison method of calibration
 - ii. Indirect comparison method of calibration



Calibration



1) Primary or Absolute method of calibration

If the particular test instrument (the instrument to be calibrated) is calibrated against primary standard, then the calibration is called as primary or absolute calibration. After the primary calibration, the instrument can be used as a secondary calibration instrument.

2) Secondary or Comparison calibration method

If the instrument is calibrated against secondary standard instrument, then the calibration is called as secondary calibration. This method is used for further calibration of other devices of lesser accuracy. Secondary calibration instruments are used in laboratory practice and also in the industries because they are practical calibration sources.



Calibration



i) Direct comparison method of Calibration

Direct comparison method of calibration with a known input source with same order of accuracy as primary calibration. So the instrument which is calibrated directly is also used as secondary calibration instruments.

ii) Indirect comparison method of Calibration

The procedure of indirect method of calibration is based on the equivalence of two different devices with same comparison concept.



*Thank
You!*

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