

Gujarat University

UG semester I

Skill Enhancement Course

SEC-116: Basic Instrumentation Measurement and Analysis

(Effective from 2023-2024)

UNIT 1:

(15Hour)

Vernier Calipers:

Introduction, Theory, Figure, Description of the instrument, Detail study of least count, Error, Positive error, Negative error, Determination of magnitude of positive and negative errors. Some Limitation of Venire Calipers, Application of Venire Calipers. Limitation

Experimental work to measure thickness of given slab and other thing...

Micrometer screw:

Introduction, Theory, Figure, Description of the instrument, Definition of pitch, and its determination, study of least count, meaning of the error and explanation of positive and negative errors.

Determination of positive and negative errors. Method of taking observation with the help of micrometer screw. Application of micrometer Screw. Some Limitation of screw gauge

Experiment find diameter of wire and thickness of thin sheet and other thing,

UNIT 2:

(15Hour)

Travelling Microscope:

Introduction, Construction and main part of of travelling microscope , Microscope , vertical and horizontal scale ,Least count of scale ,Application of travelling microscope , Precaution to be taken in measurement

Experimental work to Measure the diameter of Rubber tube

Spectrometer:

Introduction, Description of the instrument, Construction and explanation of three main part of spectrometer, Mercury discharge lamp, Sodium Discharge lamp, study of least count, The Adjustment, leveling and method of recording the observation of spectrometer, application.

Experimental work....

Reference:

- 1 **Fundamentals of Venire Calipers and Screw Gauge by Rajesh Mishra**
- 2 **Basics In Metrology And Measurements by Dr. R. Venkat Reddy**