

Semester-1
Skill Enhancement Course-SEC-116(T+P)
Credit-2

Semester: 1	Course No.: 116 (T+P)	Course Code: : PHSEC 116 (T+P) Course Title: Basic Instrumentation, Measurements and Analysis
Credits: 2		Course Category: Skill Enhancement course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO111 T-1	REMEMBERING	Skill for precise measurements required for evaluating different physical quantities will be developed
CO111 T-2	UNDERSTANDING	A student will also learn basic measurement instruments and the extent of error involved in the measurements by instrument.
CO111 T-3	APPLYING	
CO111 T-4	ANALYSING	
CO101.5	EVALUATING	

Unit No.	Unit Contents	Sessions Allotted
1	<p>Vernier calliper: 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 limitations of Venire Calliper. Application of Venire Calliper. Limitation</p> <p>Experiments: To measure thickness of given slab and other thing.</p> <p>AC and DC bridges: how to balance AC and DC bridges, circuit diagram of Wheatstone bridge, Owen's bridge, Schering bridge Experiments: Balancing of Wheatstone bridge (to find R), Owen's bridge(To find L), Schering bridge (To find C)</p>	15
2	<p>Travelling Microscope: Introduction, Construction and main part of travelling microscope, vertical and horizontal scale of microscope, least count of scale. Application of travelling microscope, Precaution to be taken in measurement. Experiment: To Measure the diameter of Rubber tube.</p> <p>Spectrometer: Introduction, Description of the instrument, Construction and explanation of three main parts of spectrometer. Mercury discharge lamp, Sodium discharge lamp, study of least count, The Adjustment, levelling and method of recording the observation of spectrometer, application and experimental work.</p>	15

Reference Books

1. Fundamentals of Venire Callipers and Screw Gauge by Rajesh Mishra 2018, independently published.
2. Basics In Metrology And Measurements by Dr. R. Venkat Reddy ,2021.

