

Course Code: PHS 392
Course Title: Advanced Physics Laboratory
Number of Unit: 2 Units
Course Duration Per Week: 3 Hours

COURSE DETAILS:

Course coordinator Akinboro Festus
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Office Location Room A307 COLNAS Main Building

COURSE CONTENT:

Experiments are chosen to cover the span of the 300 level courses (Optics, Electricity, Electronics, Atomic, Molecular, Nuclear and Low-temperature Physics). Special techniques to measure high temperatures and pressures and to achieve low temperature and high vacuum. Aspects which cannot be done experimentally will be treated theoretically.

COURSE REQUIREMENTS:

This is a compulsory course for all students in the Department of Physics. In view of this, students are expected to participate in all the practical classes and have minimum of 75% attendance.

READING LIST:

A.I.I. ETTE - An Introductory Practical Physics Manual for University – Longman Nigeria.
F. Tayler – A laboratory manual of Physics, F. Edelon
Honddo & Stoughton

LECTURE NOTES

SECTION A

Experiment:

Aim: OSCILLOSCOPE II

Oscilloscope as a measurement instrument: For measuring the following;

(1) Voltage (2) Frequency

SECTION B

Experiment: 1

Aim: Determination of the resistivity of a wire using the meter bridge.

Apparatus: meter Bridge, jockey, galvanometer, galvanometer protector, battery, standard resistor and two (2) piece of wire of different diameter.

Experiment: 2

Aim: Measurement of an unknown resistance using the meter bridge.

Apparatus: Wheatstone bridge, dry cell, key, decade resistance box, unknown resistance and centered reading galvanometer.

Experiment: 3

Aim: Measurement of the focal length of a concave mirror by locating the centre of curvature

Apparatus: Concave mirror M, meter rule, pin P, clamp and retort stand.

Experiment: 4

Aim: Comparison of E.M.F's using a potentiometer

Apparatus: Dry cell D, potentiometer, key K_1 , galvanometer G with protective resistance P and shorting key K_2 , jockey, J, accumulator C, standard cell, rheostat R.

Experiment: 5

Aim: Frequency of a tuning Fork By Changing Weight

Experiment: 6

Aim: Measurement of the internal resistance of a cell by potentiometer.

Apparatus: Dry cell D, resistance box R (about $0 - 50\Omega$), switch S, potentiometer, key K_1 , galvanometer G and protective resistance P with shorting key K_2 , jockey J, and accumulator C