

Course Code: PHS 391  
Course Title: Advanced Physics Laboratory  
Number of Unit: 2 Units  
Course Duration Per Week: 3 Hours

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### **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. Talyer – A laboratory manual of Physics, F. Edelon

Honddo & Stoughton

## LECTURE NOTES

### SECTION A

#### Experiment:

#### OSCILLOSCOPE I

External and Internal Structure of an Oscilloscope.

Function of internal structure of an oscilloscope.

### SECTION B

#### Experiment: 1

**Aim:** Determination of the Viscosity of a given Liquid by Stokes' Method

**Apparatus:** A tall jar, given liquid, small steel balls, stop watch and a scale.

#### Experiment: 2

**Aim:** Determination of Moment of inertia using a bifilar suspension

**Apparatus:** Two heavy stand and clamps, two threaded corks, meter rule, brass rod, stop watch, spirit level.

#### Experiment: 3

**Aim:** Determination of the Specific Heat Capacity of a bad conductor

**Apparatus:** Copper calorimeter with stirrer (of thick copper wire), double-walled enclosure with cold water between the walls, thermometer reading  $1/10^{\circ}\text{C}$ , stop watch, steam heater, and a piece of rubber (e.g. large rubber stopper).

#### Experiment: 4

**Aim:** Spectrometer-Angle of Minimum Deviation

**Apparatus:** Prism, Spectrometer

#### Experiment: 5

**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: 6

**Aim:** Frequency of a tuning Fork By Changing Length