SESSIONAL CLASS SCHEDULE
PHYSICS LAB

EWCE-9: L-1, T-2

WEEK	TENTATIVE DATE (WED DAY)	PROGRAM	REPORT SUBMISSION DATE	REMARKS
1	27.09.23	ORIENTATION		
2	04.10.23	EXPT DAY-1		
3	11.10.23	EXPT DAY-2		
4	18.10.23	EXPT DAY-3		
5	25.10.23	EXPT DAY-4		
6	01.11.23	EXPT DAY-5		
7	08.11.23	EXPT DAY-6		
	15.11.23	HOLY DAY		MIDTERM
8	22.11.23	EXPT DAY-7		
9	29.11.23	EXPT DAY-8		
10	06.12.23	REVISION CLASS		
11	13.12.23	EXAM/VIVA:DAY -1		
12	20.12.23	EXAM/VIVA:DAY -2		
13	27.12.23	RESERVE DAY		
	31.12.23	QUIZ		EXTRA TIME
14	03.01.24	RESERVE DAY		
CLASS END:04.01.24				

SESSIONAL SYLLABUS
COURSE : PHY-102 (CH-1.5)

LIST OF EXPERIMENTS

Expt No	Name of Experiments	Remarks
E_1	Determination of specific resistance of a wire using a meter bridge.	
E_2	Determination of resistance of a galvanometer by half deflection method and a high resistance by the method of deflection.	
O_2	Determination of radius of curvature of a Plano convex lens by Newton's ring method.	
O_4	Determination of the wave length of sodium light by a spectrometer using a plane diffraction grating.	
W_2	Determination of the spring constant and the rigidity modulus of the spring.	
W_3	Determination of the value of g acceleration due to gravity by means of a compound pendulum.	
M_1	Determination of Young's modulus of a bar by bending method.	
H_1	Determination of the thermal conductivity of a bad conductor by Lee's method.	

MARKS DISTRIBUTION OF SESSIONAL (150)

- Daily experimental report = 45
- Final Exam = 45
- Class Performance + Attendance = 15
- Quiz = 30
- Viva voice / Presentation = 15

Total: = 150

i. MARKS DISTRIBUTION OF DAILY EXPT. REPORT (45)

1. Abstract **(Own word)** = 03
2. Introduction **(Own word)** = 03
3. Theory (including exp setup) and apparatus = 03
4. Procedure (past tense & passive voice) = 05
5. Experimental data = 15
6. Calculation (data, graph & error) + Result = 10
7. Discussion (past tense & passive voice, **own word**) = 03
8. Conclusion & Reference = 03

Total = 45

ii. MARKS DISTRIBUTION OF FINAL EXAM (45)

- Theory and Apparatus = 10
- Experimental data = 15
- Calculation (data, graph & error) = 15
- Result = 2.5
- Discussion = 2.5

Total = 45

iii. QUIZ (30)

A quiz test will be taken after end of the sessional classes. Theory and practical related question will be set such as : True / False, Fill in the Blank, Short question, Broad question, etc.

iv. VIVA/PRESENTATION (15)

A final viva will be taken from all through the syllabus (Theory and Sessional).

Experiment Day : Rough Sheet

Write the name of the experiment (BLOCK LATTER) : For example:

DETERMINATION OF SPECIFIC RESISTANCE OF A WIRE USING A METER BRIDGE.

1. **Theory** : Write the working Formula with symbol meaning. **For example:**

$$R = \frac{D_{n+P}^2 - D_n^2}{4\lambda p}$$

Where,

R = Radius of curvature of the plano-convex lens
λ = Wavelength of the monochromatic light
D = Diameter of the ring
p = Difference of the numbers of rings

2. **Apparatus** : Write the name of the apparatus.

3. **Experimental Data** : Draw the table & write necessary information from book

Table - 1 : **Table Caption** e.g. Data for.....

	.....appropriate unit	.....appropriate unit	.....appropriate unit

4. **Calculation** :

a. Using working formula and table data

b. Draw Graphs (where necessary & **use cm graph**) with appropriate data from the Table

c. Error calculation (%) : using standard & measured values

d. Write the **Result** : Using the experiment name write the result with error calculation.

Example : The specific resistance of wire measured by using meter bridge is .... with error of ...%.

RECOMMENDED BOOK :

1. Practical Physics for Degree Students - Dr. Gias uddin Ahmad and Md. Shahabuddin.

REFERENCE BOOKS :

1. B.Sc. Practical Physics- C. L Arora
2. Practical Physics- S.L. Gupta and V. Kumar

Important Note :

i. Must take **signature** in the rough sheet from the respective class teacher, otherwise, it will not be evaluated.
ii. Must submit **this rough sheet** with the **final lab report,** otherwise, the final report will not be evaluated.
iii. Submit the final lab report **within 1 week** after completion of the experiment.
iv. Don't use mobile phone in the Lab, if you do, you will be penalized. Copying data from the mobile phone will be a punishable offence.

Final Lab report writing procedure

1. **Abstract** : only 1st Page (**Own words**) For example:

Meter Bridge is very easy and useful technique for measurement of unknown resistance. The resistance per unit length of meter bridge wire is determined. The resistance per unit length of meter bridge wire is found to be 0.01 Ohm/cm with an error 20%. This technique is very useful to determine unknown resistance and resistivity.

2. **Introduction : Start from 2nd page (Own words)** write with reference no. [1], [2]

For example:

Resistance is the friction in an electrical circuit that controls the flow of current [1]. The resistance of a given object depends primarily on two factors: What material it is made of, and its shape. An object of uniform cross section has a resistance proportional to its resistivity and length and inversely proportional to its cross-sectional area [2]. Every real-world circuit must include an appropriate resistance so that there is an appropriate current flow [1].

An instrument for measuring resistance is called an ohmmeter. Simple ohmmeters cannot measure low resistances accurately because the resistance of their measuring leads causes a voltage drop that interferes with the measurement [2]. There are many techniques for measurement of unknown resistance such as Meter Bridge, Post office box, two probe techniques etc.

Meter Bridge is based on the principle of Wheatstone bridge and it is used to find the resistance of an unknown conductor or to compare two unknown resistance [3]. The resistance per unit length of meter bridge wire and specific resistance of a wire are determined using this technique.

3. **Theory** : You can write theory from practical text book. Write with reference no. [3], [4]. Draw Figure (if any).
4. **Apparatus** :
5. **Description of the apparatus** (if any) : write with reference no. [1], [4].
6. **Procedure** : (past tense & in passive voice) : write with reference no. [1], [4].
7. **Experimental Data** : Draw the table & write necessary information from book

   Table – 1 : Table Caption e.g. Data for.....
8. **Calculation** :
   a. Using working formula and table data
   b. Draw Graphs (where necessary) with appropriate data from the Table
   c. Error calculation (%) : using standard & measured values
   d. Write the **Result** : Using the experiment name write the result with error calculation.
   Example : The specific resistance of wire measured by using meter bridge is .... with error of ...%.
9. **Discussion** : (past tense & in passive voice, **own words**)

   Discuss about your result and error. Justify your error.
10. **Conclusion** : (**Own words**) For example:

Meter Bridge is one of the useful techniques for measurement of unknown resistance which is based on the principle of Wheatstone bridge. The resistance per unit length of meter bridge wire is determined using this technique. The resistance per unit length of meter bridge wire is found to be 0.01 Ohm/cm with an error 20 %.

11. **References** :

[1] Dr. Gias uddin Ahmad and Md. Shahabuddin, "Practical Physics for Degree Students", Page, 12 – 16.
[2] www.wikipedia.com
[3] C. L Arora, "B.Sc. Practical Physics", Page, 20 – 25.
[4] Resnick and Halliday, "Physics Part-II" page 365-369
[5] http://en.wikipedia.org/wiki/Electrical_resistance_and_conductance

N.B : i. You must submit the final report with the **Rough sheet,** otherwise, it will not be evaluated.

ii. Submit the final lab report **within 1 week** after completion of the experiment.