



## ARSD College, University of Delhi

### Lesson Plan

Course Name :GE-1 Electricity and Magnetism Lab						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
II	32225101	GE-1 Electricity and Magnetism Lab	0	0	4	2
Teacher/Instructor(s)		Ms Swati				
Session		Second Semester				

#### Course Description:

- Sessions on designing a given circuit on a bread board and verify network theorems.
- Sessions on the use of specific measurement instruments and experimental apparatus used in the lab, including necessary precautions.
- Sessions on the review of experimental data analysis, sources of error and their estimation in detail, writing of scientific laboratory reports including proper reporting of errors. Application to the specific experiments done in the lab.

#### List of Experiments:

At least 06 experiments from the following:

1. Ballistic Galvanometer:(i) Measurement of charge and current sensitivity(ii) Measurement of CDR(iii) Determine a high resistance by Leakage Method(iv) To determine Self Inductance of a Coil by Rayleigh's Method.
2. To compare capacitances using De'Sauty's bridge.
3. Measurement of field strength B & its variation along the axis of a circular coil (Determine dB/dx)
4. To study the Characteristics of a Series RC Circuit.
5. To study a series LCR circuit and determine its (a) Resonant Frequency, (b)Quality Factor
6. To study a parallel LCR circuit and determine its (a) Anti-resonant frequency and (b) Quality factor Q
7. To determine a Low Resistance by Carey Foster's Bridge.
8. To verify the Thevenin and Norton theorem
9. To verify the Superposition, and Maximum Power Transfer Theorem

#### Details of the Lab Course

Session	Name of Experiment	Contact Hours
1	<b>Introduction:</b> To use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages,(c) DC Current, and (d) checking electrical fuses	4
2	<b>Experiment 1:</b> Ballistic Galvanometer:(i) Measurement of charge and current sensitivity(ii) Measurement of CDR	4
3	<b>Experiment 2:</b> Determine a high resistance by Leakage Method using Ballistic Galvanometer	4
4	<b>Experiment 3:</b> To determine Self Inductance of a Coil by Rayleigh's Method using Ballistic Galvanometer	4
5	<b>Experiment 4:</b> To compare capacitances using De Sauty's bridge.4	4
6	<b>Experiment 5:</b> Measurement of field strength B & its variation along the axis of a circular coil (Determine dB/dx)	4
7	<b>Experiment 6:</b> To study the Characteristics of a Series RC Circuit.	4
8	<b>Experiment 7:</b> To study a series LCR circuit and determine its (a) Resonant Frequency, (b)Quality Factor	4
9	<b>Experiment 8:</b> To study a parallel LCR circuit and determine its (a) Anti-resonant frequency and (b) Quality factor Q	4
10	<b>Experiment 9:</b> To determine a Low Resistance by Carey Foster's Bridge	4
11	<b>Experiment 10:</b> To verify the Thevenin and Norton theorem	4
12	<b>Experiment 11:</b> To verify the Superposition, and Maximum Power Transfer Theorem	4
<b>Total</b>		<b>48</b>

#### Suggested Books:

Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Reprint
1.	Advanced Practical Physics for students, B.L.Flint & H.T.Worsnop, Asia Publishing House	1971
2.	Engineering Practical Physics, S.Panigrahi & B.Mallick, Learning India Pvt. Ltd.	2015
3.	A Text Book of Practical Physics, Indu Prakash and Ramakrishna, 11 <sup>th</sup> Edition, 2011, Kitab Mahal, New Delhi.	2011
4.	Virtual lab <a href="https://www.vlab.co.in/">https://www.vlab.co.in/</a>	

#### Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		25
	• Quiz/Viva		
	• Observation & Record		
	• Attendance		

	<ul style="list-style-type: none"><li>• Model Exam</li></ul>		
2.	End Semester Examination	5 hr	25