

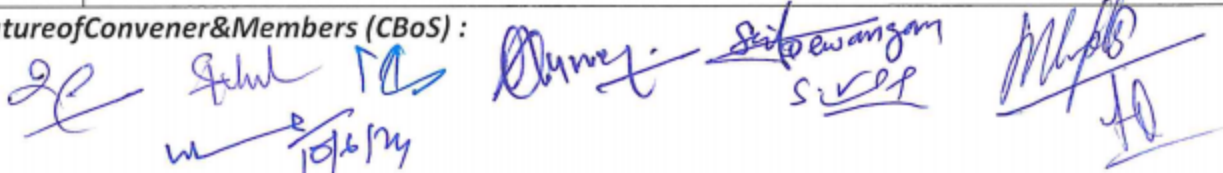
# FOUR YEARS UNDERGRADUATE PROGRAM (2024 – 28)

## DEPARTMENT OF PHYSICS

### COURSE CURRICULUM

<b>PART – A: INTRODUCTION</b>			
<b>Program: Bachelor in Science</b> (Certificate/ Diploma/ Degree/ Honors)		<b>Semester: II</b>	
		<b>Session: 2024-25</b>	
1	Course Code	PHSC- 02P	
2	Course Title	Electricity & Magnetism	
3	Course Type	Discipline Specific Course	
4	Pre-requisite (if any)	As per program	
5	Course Learning Outcomes (CLO)	<p><i>After the completion of the course, Students are expected to understand working laws of Electricity, Magnetism and EMWs. The students will also be able to</i></p> <ul style="list-style-type: none"> <li>➤ <i>Verify various circuit laws, network theorems, using simple electric circuits. Assemble required parts/devices and arrange them to perform experiments.</i></li> <li>➤ <i>Verify various laws in electricity and magnetism such as Lenz's law, Faraday's law and learn about the construction, working of various measuring instruments</i></li> <li>➤ <i>Record/ observe data as required by the experimental objectives. Analyze recorded data and formulate it to get desired results.</i></li> <li>➤ <i>Interpret results and check for attainment of proposed objectives related to laws of Electricity, Magnetism and its applications</i></li> </ul>	
6	Credit Value	<b>01 Credit</b>	<b>1 Credit = 30 Hours Laboratory Work</b>
7	Total Marks	<b>Maximum Marks: 50</b>	<b>Minimum Pass Marks: 20</b>
<b>PART – B: CONTENT OF THE COURSE</b>			
<b>Total No. of learning-Training/performance Periods -30 Periods (30 Hours)</b>			
Sr. No.	Objects (At least 10 of the following or related Experiments)	No. of Periods	
1	To use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c) DC Current, and (d) checking electrical fuses.	<b>30</b>	
2	To compare capacitances using De'Sauty's bridge.		
3	Measurement of field strength B and its variation in a Solenoid 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.		
10	To use a vibration magnetometer and study magnetic field.		
11	Study of magnetic field due to a current loop.		
12	Study of magnetic fields using Deflection Magnetometer		
13	Mini Project: Construction and Study of Solenoid and measurement of its magnetic field		
<b>Keywords:</b>	Multimeter, Capacitance Comparison, Magnetic Field, RC Circuit, Series LCR Circuit, Parallel LCR Circuit, Low Resistance Measurement, Electrical Theorems		

**Signature of Convener & Members (CBoS) :**



## PART – C: LEARNING RESOURCES

### Text Books, Reference Books and Others

#### Text Books Recommended-

1. Engineering Practical Physics, S.Panigrahi&B.Mallick,2015, Cengage Learning India Pvt. Ltd.
2. A Text Book of Practical Physics, Indu Prakash and Ramakrishna, 11th Edition, 2011, Kitab Mahal, New Delhi.
3. Unified Practical Physics : R P Goyal, Shivrul Agrawal & Sons
4. Unified Practical Physics: YugbodhPrakashan
5. Unified Practical Physics: NavbodhPrakashan

#### Reference Books Recommended-

1. Basic Electrical and Electronics Engineering by S. K. Bhattacharya
2. A Textbook of Electrical Technology by B.L. Theraja and A.K. Theraja (Volumes 1 and 2)
3. Engineering Circuit Analysis by William H. Hayt, Jack E. Kemmerly, and Steven M. Durbin
4. Practical Physics by G.L. Squires

### Online Resources (e-books/ learning portals/ other e-resources)

1. Link for e-Books for Physics: Physics Practical:  
<https://www.uou.ac.in/sites/default/files/slm/BSCPH-104.pdf>
2. Virtual Lab :<https://vlab.amrita.edu/index.php?sub=1&brch=192>
3. <http://emv-au.vlabs.ac.in/#>
4. <https://www.ae.msstate.edu/vlsm/>
5. <https://nationalmaglab.org/magnet-academy/watch-play/interactive-tutorials>
6. <https://jigyasa-csir.in/cgcri/n12-t4-a3/>

## PART – D: ASSESSMENT AND EVALUATION

### Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment(CIA):15 Marks

EndSemester Exam(ESE):35 Marks

<b>Continuous Internal Assessment( CIA):</b> (By Course Teacher)	Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar +Attendance –05 Total Marks - 15	Better marks out of the two Test / Quiz +Marks obtained in Assignment shall be considered against 15 Marks
<b>End Semester Exam (ESE):</b>	Laboratory Performance: On spot Assessment Performed the Task based on lab. work - 20 Marks Spotting based on tools & technology (written) –10 Marks Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

