FOUR YEARS UNDERGRADUATE PROGRAM (2024-28)
DEPARTMENT OF PHYSICS
COURSE CURRICULUM

PART – A: INTRODUCTION

Program: Bachelor in Science (Certificate/ Diploma/ Degree/ Honors)		Semester: II/ IV/V/ VI	Session: 2024-25
1	Course Code	PHSEC- 01	
2	Course Title	Basic Electrical Skill	
3	Course Type	Skill Enhancement Course	
4	Pre-requisite (if any)	As per Program	
5	Course Learning Outcomes (CLO)	On successful completion of the course, student is expected to enhance his electrical skill through: ➢ Understanding importance of accuracy in measuring physical quantities. ➢ Using basic mechanical tools. ➢ Using various measuring instruments. ➢ Fault finding and repairing simple domestic appliances	
6	Credit Value	02 Credits (1C+1C)	1 Credit= 15 Hours for Theoretical Learning & = 30 Hours Laboratory or Field learning/ Training
7	Total Marks	Maximum Marks: 50	Minimum Pass Marks: 20

PART – B: CONTENT OF THE COURSE

Total No. of Teaching–learning Periods:
Theory – 15 Periods (15 Hrs) and Lab. or Field learning/Training 30 Periods (30 Hours)

Module	Topic (Course Contents)	No. of Period
I	**Measurement**: Idea about accuracy in measurement, measuring devices for commonly used physical quantities (Length, Mass, Density, Temperature, Power, Current, Voltage, Resistance, capacitance, inductance, frequency etc). **D.C. Circuit**: Ohms law, Series and parallel resistance circuit, Kirchhoff's law& their application, Primary and secondary cells, maintenance of secondary cells. **A.C. Circuits**: Generation of AC voltage, wave shape, frequency, peak, average, instantaneous & RMS values, idea about R, L, C circiuits **Heating & Lighting effects of current**: Joule's law of electric heating and its domestic applications, idea of commonly used lighting bulb, tube, CFL, LED. **Working:** Working principle of Domestic appliances like electric fan, Cooler, Inverters, Mixer, Electric heater etc **Safety measurements-** Safety measurements in working with mechanical and electrical tools, testing and repair of electrical appliances.	15
II	**Laboratory Work:** **(i)** Use of basic tools: Screwdriver, Pliers, Wrench, Hacksaw, Spanner, Hand and electric drill, Soldering iron etc. **(ii)** Use of Voltmeter, Current meter, electronic balance. **(iii)** Use of Multimeter, CRO. **(iv)** Design & Construction of extension board **(v)** Fan repairing and its study **(vi)** Mixer repairing and its study **(vii)** Electric kettle repairing and its study **(viii)** Electric press repairing and its study **(ix)** Cooler repairing and its study **(x)** Geezer repairing and its study **(xi)** Invertor repairing and its study	30

Signature of Convener & Members (CBoS) :

10/6/24

PART – C: LEARNING RESOURCES

Text Books, Reference Books and Others

Text Books Recommended-

1. A text book in Electrical Technology - B L Theraja - S Chand and Co.
2. Electrical circuits, - M Nahvi and J Edminister, Schaum's outline series, Tata McGraw 2005
3. Circuit Theory, A Chakraborti, Dhanpat Rai & Co.
4. A Text book of electrical technology, - Vol.1, B L Thereja, S. Chand & Co, Delhi
5. A text book of electrical technology- J B Gupta, SK Kalaria & Sons,
6. Principle of electrical engineering- V K Mehta, Rohit Mehta, S. Chand & Co, Delhi
   Electronic Devices, 7/e Thomas L. Floyd, 2008, Pearson India

Reference Books Recommended

1. Electrical and Electronic Measurements and Instrumentation by R.K. Rajput
2. Electrical Workshop: Safety, Commissioning, Maintenance & Testing of Electrical Equipment by R.P. Singh
3. Electricity and Magnetism by D.N. Vasudeva

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

1. National Digital Library- https://ndl.iitkgp.ac.in/
2. https://nptel.ac.in/courses/108/108/108 108076/
3. Basic Instrumentation Skills – Selfstudy Institute
4. physics.iisuniv.ac.in
5. https://www.sathyabama.ac.in/sites/default/files/course-material/2020-10/note_1469078786.PDF

PART – D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks:	**50 Marks**
Continuous Internal Assessment (CIA):	**15 Marks**
End Semester Exam (ESE):	**35 Marks**

Continuous Internal Assessment (CIA): (By Course Coordinator)	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

End Semester Examination (ESE)	**Laboratory /Skill Performance: On spot Assessment** **A. Performed the Task based on learned skill - 20 Marks** **B. Spotting based on tools (written) – 10 Marks** **C. Viva-voce (based on principle/technology) - 05 Marks**	**Evaluation by Coordinator**

Signature of Convener & Members (CBoS):