LABORATORY HANDOUT

ENGINEERING PHYSICS LAB (BSC-112)

CSE – 1st SEMESTER

ACADEMIC YEAR (2024-25)

Dr. Ajit Virdi

Professor

Department of Applied Sciences and Humanities

Department of Computer Science and Engineering

Model Institute of Engineering & Technology (Autonomous)

KotBhalwal, Jammu - 181122

www.mietjmu.in

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
BSC-112	Engineering Physics Lab	BSC	1	0	0	2	50	-	50

COURSE OUTCOMES

	At the end of the course the student will be able to:
CO1	Apply the concept of magnetic field to understand the working of electric vibrators and Faraday's laws.
CO2	Relate the phase variation between current and voltage through inductor, capacitor, and resistor in LCR series and parallel circuits.
CO3	Measure and analyze the working of diodes and transistors in different configurations.
CO4	Measure and analyze the intensity variation of light due to interference, diffraction, and polarization.
CO5	Examine the basic operation of laser, solar cell, and its application i.e., Planck's constant.

LIST OF EXPERIMENTS

S.No.	Title
1	To measure the frequency of A.C. mains using an electrical vibrator.
2	To analyze the variation of EMF with respect to velocity of magnet to verify Faraday's laws.
3	To measure the impedance of LCR circuit
4	To verify and plot the V-I characteristics of a PN junction diode.
5	To observe the common base/ common emitter characteristics of PNP/NPN transistors.
6	To verify Zener diode characteristics
7	To determine the dispersive power of a given prism using a spectrometer.
8	To compute the wavelength of monochromatic light using Newton's rings apparatus.
9	To determine the wavelength of sodium light using a plane transmission grating
10	To determine the specific rotation of sugar/glucose using Laurent's Half shade polarimeter.
11	To evaluate the value of Planck's constant using a LEDs.
12	To examine the characteristics of a Solar cell.
13	To determine the wavelength of a He-Ne laser.

ADDITIONAL WEB RESOURCES

1.	VLAB LINK: Basic electronics by IIT Kharagpur which gives hands-on experience to the students. http://vlabs.iitkgp.ac.in/be/#

LAB REPORT INSTRUCTIONS

- Provide specific title of the lab experiment.
- Theory: Provide a concise abstract (typically 100-200 words) that summarizes the purpose, methods, key findings, and significance of the experiment.
- Materials/ Equipment: List all materials, components, and equipment used in the experiment. Include specifications when applicable.
- Software/Simulation Tools:
- Experimental Procedure: Describe the step-by-step procedure for conducting the experiment. Be detailed and clear in your instructions. Include diagrams or schematics to illustrate the setup, connections, and component placement. Explain any variations or adjustments made to the standard procedure.
- Observation & Calculations/Analysis: Detail the data you collected during the experiment. Include descriptions of measurements and any calculations made. Use tables, charts, or graphs to present data clearly. Discuss any trends, patterns, or significant observations. Interpret the data in the context of the experiment's objectives. Ensure that all figures, tables, and equations are correctly labeled.
- Results: Summarize the key findings of the experiment. Present results in a clear and organized manner using tables and graphs. Include units of measurement and labels for data points.
- Conclusion: Provide a concise summary of the experiment's key points and outcomes.

GRADING AND ASSESSMENT

- **Continuous Evaluation**: 30 marks
- **Final Demo & Viva**: 10 marks
- **Attendance**: 10 marks
- **Lab Overall Marks**: 50 marks

COURSE POLICIES

- **Attendance**: Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Late Submissions**: Manuals and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**
  Monday (12:55 PM - 1:45 PM)
  Friday (12:55 PM - 1:45 PM)

- **Contact Information**
  ajit.ash@mietjammu.in

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RUBRICS FOR LAB CONTINUOUS EVALUATION

Parameters	Performance			Marks
	Low	**Medium**	**High**	
Execution of the Experiment	Student was not able to setup and conduct the Experiment completely	Student was able to setup and conduct the experiment but measurement/ results/ observations were not correct	Students was able to set and conduct the experiment and the measurement/ results/ observations were not correct	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Record	Student was not able to describe the detailed procedure and could not record the measurement.	Student was able to describe the detailed procedure partially or with some inaccuracy.	Student was able to describe the detailed procedure accurately and record all measurements correctly.	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Viva Voice	Students could not demonstrate sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrated sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrate strong knowledge of foundation, functional or applied aspects related to the experiment during viva	10
	0-2 Marks	**3-6 Marks**	**7-10 Marks**	
Total Marks				**30**