LABORATORY HANDOUT

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB
(ESC-211)

CSE-2nd SEMESTER

ACADEMIC YEAR (2024-25)

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Department of Computer Science and Engineering

Model Institute of Engineering & Technology (Autonomous)

Kot Bhalwal, Jammu - 181122

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Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
ESC-211	Basic Electrical and Electronics Engineering Lab	ESC	1	0	0	2	50	-	50

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Apply fundamental concepts to solve simple DC and AC electric circuits.
CO2	Verify the basic characteristics of transformers and electrical machines
CO3	Design diode and rectifier circuits and analyze their characteristics.
CO4	Design and evaluate various transistor biasing configurations and circuits.
CO5	Design different voltage regulators

LIST OF EXPERIMENTS

S.No.	Title
1	Verify Characteristics of passive circuit elements (R, L, C).
2	Examine Time and frequency responses of RC, RL and RLC circuits.
3	Verify and analyze of network theorems.
4	Analyze single-phase transformers.
5	Perform the polarity test of the single-phase transformer
6	To perform open and short circuit tests on single phase transformers.
7	Measure three phase power using two Wattmeter methods.
8	Verify and Plot V-I characteristics of p-n junction and Zener diodes.
9	Verify and Plot Input and Output characteristics of BJT (CE).
10	Implement half wave and full wave rectifiers.
11	Design voltage regulator using series pass transistor.

ADDITIONAL WEB RESOURCES

1.	VLAB LINK: Basic Electronics by IIT Kharagpur which gives hands-on experience to the students. https://be-iitkgp.vlabs.ac.in/List%20of%20experiments.html
2.	VLAB LINK: Analog Signals, Network and Measurement Virtual Laboratory which gives hands-on experience to the students https://asnm-iitkgp.vlabs.ac.in/List%20of%20experiments.html

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 (2:45 PM - 4:00 PM)
  Friday (1:45 PM - 4:00 PM)

- **Contact Information**

- umar.ece@mietjammu.in

RUBRICS FOR LAB CONTINUOUS EVALUATION

Parameters	Performance			
	Low	**Medium**	**High**	**Marks**
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**