

MEE-108 BASIC ELECTRONICS AND AMPLIFIERS LAB

Course Title	Basic Electronics and Amplifiers lab	Course Code	MEE-108
Semester	I	Course Group	Practical
Teaching Scheme in Hrs (L: T:P)	1:0:2	Credits	2
Methodology	Lecture+ Practical	Total Contact Hours	45
CIE	60 Marks	SEE	40 Marks

Pre requisites

Basics of Mathematics

Course Outcomes

CO1	Apply basic electrical principles to identify components and analyze electrical networks using resistor colour coding, equivalent resistance, and Kirchhoff's laws.
CO2	Analyze the characteristics and performance of semiconductor diodes through experiments on PN junctions, rectifiers, Zener diode regulators, and LED brightness control.
CO3	Apply transistor and FET concepts to construct, analyze, and evaluate amplifier, feedback, and oscillator circuits by assessing biasing, frequency response, voltage gain, and circuit performance.

Course Contents

1. Identification of resistors and determination of resistance using colour coding
2. Verification of Kirchhoff's Current Law (KCL)
3. Verification of Kirchhoff's Voltage Law (KVL)
4. Determination of equivalent resistance of resistors in series and parallel combinations
5. V-I characteristics of PN junction diode (forward and reverse bias)
6. Study of half-wave and full-wave rectifier circuits
7. V-I characteristics of Zener diode
8. Zener diode as voltage regulator
9. LED brightness control using series resistance
10. Input and output characteristics of BJT in common-emitter (CE) configuration
11. Voltage divider bias single-stage RC-coupled CE amplifier and plotting of frequency response
12. Determination of voltage gain of CE amplifier operating in active mode
13. Drain and transfer characteristics of JFET / MOSFET
14. Voltage divider bias single-stage RC-coupled FET / MOSFET amplifier and plotting of frequency response
15. Determination of voltage gain of FET / MOSFET amplifier operating in active (linear) region
16. Two-stage RC-coupled amplifier and plotting of frequency response

17. RC phase-shift oscillator – generation of sinusoidal oscillations and measurement of frequency

18. Wien bridge oscillator – design, construction, and verification of frequency of oscillation

19. Study of negative feedback amplifier and its effect on voltage gain and bandwidth

CO – PO MAPPING MATRIX

	E	P	De sig	C on du	En gi ne	T h	Et h	I nd ivi	C o	Pr oi	Li fe-
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	1	2	1	-	-	-	-	-	1
CO2	3	3	2	3	2	1	-	1	1	-	1
CO3	3	3	3	3	2	1	-	1	1	-	1