

## ELECTRICAL CIRCUITS LABORATORY

### Objective:

The laboratory experiments in Electrical Circuits and Measurement lab are oriented to provide practical understanding of circuit theory and measurements concepts. Linking the theory with practice. It is very important for any student to learn how to put theory into practice. With this view, the relation of theoretical circuit elements, circuit components and theoretical laws to understanding of circuit and meters functioning is the main objective of the Circuits & Measurement lab.

### Course Outcomes:

CO1: Verify various Laws and Theorems and determine two port network parameters

CO2: Determine the resonant Frequency, quality factor & bandwidth of the RLC circuits

### LIST OF EXPERIMENTS

Any 5 of the following experiments are to be conducted

1. Verification of the venin's and Norton's theorems
2. Superposition theorem and maximum power transfer theorem
3. Reciprocity theorem and milliman's theorem
4. Series & parallel resonance
5. Locus diagrams of RL & RC series circuits
6. Verification of compensation theorem
7. Z and Y parameters
8. Measurement of reactive power for star and delta connected balanced loads.

**List of Equipment with cost:**

S.No.	NAME OF THE EQUIPMENT	QUANTITY	COST
1.	Oscilloscope 20 MHz	3	36,780.00
2.	FGC-18 function generator 1 MHz	4	12,980.00
3.	45P millimeter(meco)	5	10,500.00
4.	Regulated power supply 30V/2A(dual)	8	34,840.00
5.	Digital multimeter	4	5,000.00
6.	Voltmeter(0-30V)(s)	4	1,520.00
7.	Voltmeter(0-50V)(s)	2	760.00
8.	Voltmeter (0-20V)(s)(meco)	4	1,800.00
9.	Voltmeter(0-75/150V)	2	2,430.00
10.	Voltmeter (0-75/150V)	1	1,215.00
11.	Voltmeter (0-30/60V)	4	1,215.00
12.	Voltmeter (0-75/150-300V- 600V)M.I	3	3,105.00
13.	Voltmeter (0-75/150V)	4	4,860.00
14.	Ammeter (0-100uA)(s)	3	1,140.00
15.	Ammeter (0-30mA)(s)	4	1,800.00
16.	Ammeter (0-50mA)(s)	2	900.00

17.	Ammeter (0-1A)(s)	1	1,035.00
18.	Ammeter (50mA)	4	4,140.00
19.	Ammeter (100mA)	5	5,175.00
20.	Ammeter (500mA)	1	1,035.00
21.	Ammeter (0-1A)	1	1,035.00
22.	Ammeter (0-500mA)	9	10,935.00
23.	Ammeter (0-100mA)	2	2,430.00
24.	Ammeter (0-50mA)	2	2,430.00
25.	Ammeter (0-250mA)	2	2,430.00
26.	Ammeter (0-0.5A)	6	7,290.00
27.	Ammeter (0-1A)	4	4,860.00
28.	Ammeter (0-5A)	3	3,045.00
29.	Ammeter (0-1A)	2	2,430.00
30.	Ammeter (0-2A)	2	2,430.00
31.	Ammeter (0-5A)	1	1,215.00
32.	Rheostats		
	300 $\Omega$ /1.5A	2	1,500.00
	100 $\Omega$ /2.8A	5	7,650.00
	00 $\Omega$ /1.7A	10	18,950.00

	200Ω/2.8A	3	8,160.00
33.	D.R.B. 1Ω to 1MΩ	3	3,960.00
34.	D.T.B(1000MH to 1000MH)	2	2,852.00
35.	D.C.B.(100pfd-1mfd)	2	2,596.00
36.	Auto transformers 10A	3	12,114.00
37.	1 KVA 115/230V	2	6,400.00
38.	1 KVA 115/230V	1	3,200.00
	<b>Total</b>		<b>2,40,142.00</b>