Course Name:	Elements of Electrical and Electronics Engineering Laboratory	Semester:	I
Date of Performance:	8/11/2024	Batch No:	C5-2
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Faculty Sign & Date:		Grade/Marks:	/ 20

Experiment No: 7

Title: Measurement of Power using Two Wattmeter Method
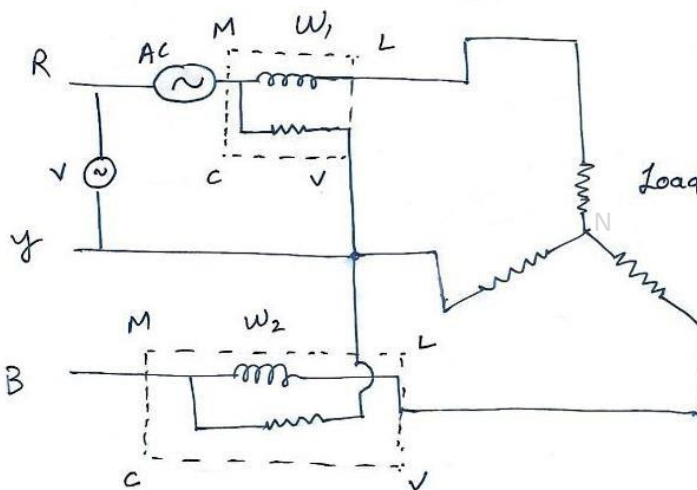
Aim and Objective of the Experiment:

- To measure the power of three phase power using Two Wattmeter Method

COs to be achieved:

CO2: Demonstrate and analyze steady state response of single phase and three phase circuits

Circuit Diagram:

Stepwise-Procedure:
1. Connect the circuit as shown in circuit diagram
2. Increase the load and note down the reading VL,IL,W1 and W2
3. Practically you will obtain total power W=W1+W2
4. Theoretically power is measured by using formula $P=\sqrt{3}V_L I_L \cos\phi$,   using $\cos\phi=1$(unity) for resistive load.

Observation Table:

Sr.no	V_L (Volts)	I_L (Amp)		W_1 (KW)		W_2 (KW)		W= (W_1+W_2) (KW)		P = $\sqrt{3}V_L I_L COS\phi$ (KW) (Practical values)	Lamp load given from lamp bank (KW)
		TH	PR	TH	PR	TH	PR	TH	PR	PR	
1	400	0.8	0.9	0.27	0.3	0.27	0.3	0.54	0.6	0.54	0.6
2	400	1.6	1.8	0.55	0.6	0.55	0.6	1.1	1.2	1.08	1.2
3	400	2.4	2.6	0.83	0.9	0.83	0.9	1.66	1.8	1.56	1.8
4	400	3.6	3.5	1.24	1.24	1.24	1.24	2.48	2.48	2.1	2.3

Theoretical Calculations:

Power= $\sqrt{3}$ x V_L x I_L x cos φ

cos φ=1

Power =Wattage rating of lamp load x No of lamps (One lamp is of 100W rating)

W1= V_L x I_L x cos (30+φ)

$\Phi=0$

W2= V_L x I_L x cos (30-φ)

Total Power=P=W1+W2

Conclusion:

From this experiment we learnt to measure the power of a three-phase using two wattmeter method. We also analyzed the three phase circuits. The two-wattmeter method provides an efficient way to measure the total power.

Signature of faculty in-charge with Date: