Course Name:	Elements of Electrical and Electronics Engineering Laboratory	Semester:	✓ I/II
Date of Performance:	/ / 20--	Batch No:	C-5(3)
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Faculty Sign & Date:		Grade/Marks:	/ 20

Experiment No: 7

Title: Measurement of Power using Two Wattmeter Method

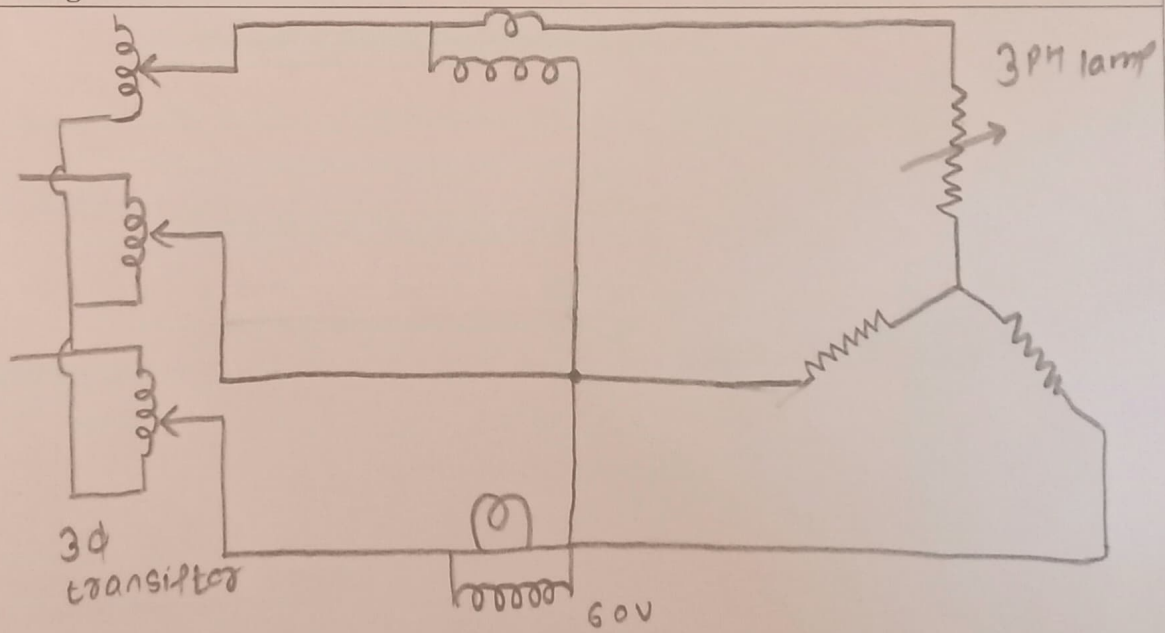
Aim and Objective of the Experiment:

- 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)	Lamp load given from lamp bank (KW)
		TH	PR	TH	PR	TH	PR	TH	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) **Φ=0**

W2= V_L x I_L x cos (30-φ)

Total Power=P=W1+W2

Conclusion:

From the given experiment, the 2 wattmeter method proved to be an effective and accurate technique for measuring power in a 3 phase power system. The experiment successfully demonstrated the ability of the two wattmeter method to provide accurate readings of both active and reactive power in a balanced 3 phase system

Signature of faculty in-charge with Date: