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| **Course Name:** | **Elements of Electrical and Electronics Engineering** | **Semester:** | **I** |
| **Date of Performance:** | **28/11/ 2023** | **Batch No:** | **C5\_3** |
| **Faculty Name:** | **SPJ** | **Roll No:** | **16010123325 (53)** |
| **Faculty Sign & Date:** |  | **Grade/Marks:** | **/ 25** |

**Experiment No: 7**

**Title:** **Measurement of Power using Two Wattmeter Method**

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| **Aim and Objective of the Experiment:** |
| * To measure the power of three phase power using Two Wattmeter Method |

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| **COs to be achieved:** |
| **CO2:** Demonstrate and analyze steady state response of single phase and three phase circuits |

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| **Circuit Diagram:** |
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| **Stepwise-Procedure:** |
| 1. 1.Connect the circuit as shown in circuit diagram 2. 2. Increase the load and note down the reading VL,IL,W1 and W2 3. 3. Practically you will obtain total power W=W1+W2 4. 4. Theoretically power is measured by using formula P=√3VLILcosϕ,   using cosϕ=1(unity) for resistive load. |

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| **Observation Table:**   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Sr.no** | **VL (Volts)** | **IL**  **(Amp)** | | **W1**  **(KW)** | | **W2**  **(KW)** | | **W= (W1+W2)**  **(KW)** | | | **P = √3VLILCOSϕ (KW)** | **Lamp**  **load given from lamp bank**  **(KW)** | |  |  | **TH** | **PR** | **TH** | **PR** | **TH** | **PR** | | **TH** | **PR** |  |  | | 1 | 415 | - | 0.9 | - | 40 | - | 45 | | - | 680 | **646.9** | 6 | | **2** | 415 | - | 1.7 | - | 70 | - | 80 | | - | 1200 | **1221.9** | 12 | | **3** |  | - |  | - |  | - |  | | - |  |  |  | | **4** |  | - |  | - |  | - |  | | - |  |  |  |   **Theoretical Calculations:**  **Power= x VL x IL x cos φ**  **cos φ=1**  **Power =Wattage rating of lamp load x No of lamps (One lamp is of 100W rating)**  **W1= VL x IL x cos (30+φ)**  **Φ=0**  **W2= VL x IL x cos (30-φ)**  **Total Power=P=W1+W2** |

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| **Conclusion:** |
| In summary, the Two Wattmeter Method proves to be a robust and accurate technique for measuring three-phase power, ensuring reliable assessments of power consumption in diverse electrical systems. This method enhances efficiency and precision in power measurement applications. |

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| **Signature of faculty in-charge with Date:** |