LAB NO: 02

IMPLEMENTATION OF A SERIES DC CIRCUIT

OBJECTIVE:

_____

_____

THEORY:

KIRCHHOFF'S VOLATGE LAW (KVL):

Kirchhoff's Voltage Law (KVL) states that the algebraic sum of the voltages across any set of branches in a closed loop is zero.

$$\sum_{k=1}^{n} V_k = 0$$

SERIES DC CIRCUIT:

Series circuits are sometimes called *current*-coupled or daisy chain-coupled. The current in a series circuit goes through every component in the circuit. Therefore, all of the components in a series connection carry the same current. There is only one path in a series circuit in which the current can flow. The formula to search resistance in series is Rs = R1 + R2 + R3.... R_n. The voltage across each of the components is the same, and the total current is the sum of the currents through each component.

CURRENT:

$$I = I_1 = I_2 = I_3 = \ldots = I_r$$

In a series circuit the current is the same for all of elements.

RESISTOR:

The total resistance of resistors in series is equal to the sum of their individual resistances:

$$R_{\text{total}} = R_1 + R_2 + \cdots + R_n$$

VOLTAGE:

The total voltage in the circuit is sum of all the voltages across each of the component.

$$V_{total} = V_1+V_2+V_3\ldots\ldots\ldots\ldots\ldots\ldots+ Vn$$

SCHEMATIC DIAGRAM

Figure 2.1: Series DC Circuit

PROCEDURE:

CALCULATIONS:

Points	I Theoretical	I Measured
A.		
B.		
C.		

Table 2.1

Points	V Theoretical	V Measured
VR_1		
VR_2		
VR_3		
V_{AC}		

Table 2.2

CONCLUSION:

_____

_____

_____

_____

POST LAB QUESTIONS:

1. Is KVL verified in this experiment?

_____

_____

_____

2. What is the relation between resistance and current in the circuit?

_____

_____

_____

3. Why the value of current is same in a series circuit?

_____

_____

Teacher Remarks:

Obtained Marks: _____ / 10