JEE2330 – Spring 2025
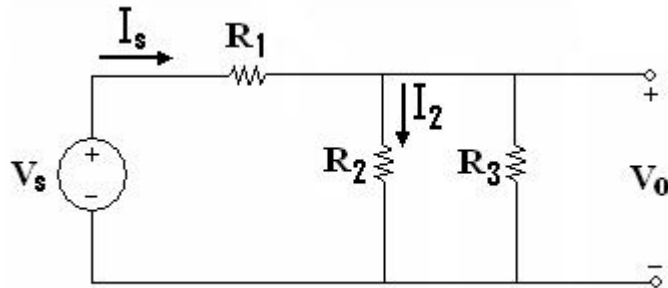# Lab #1 Problem

A DC circuit similar to that of Figure 1.10 of the lab manual is shown below. In this circuit, $R_1 = 2.2$ kΩ, $R_2 = 1.5$ kΩ, and $R_3 = 1.5$ kΩ.

1. Calculate the source voltage V_S if $I_S = 4$ mA. $V_S = $ _____

2. Calculate the current I_2 through R_2 if $I_S = 4$mA. $I_2 = $ _____

3. Calculate the open circuit output voltage V_{OC} for this circuit. $V_{OC} = $ _____

4. Calculate the short circuit current I_{SC}. $I_{SC} = $ _____

5. Calculate the Thevenin resistance R_T. $R_T = $ _____

6. Use the Thevenin equivalent circuit to calculate the expected reading of a laboratory DMM set to the 20 V scale if it is used to measure the output voltage V_O. Be sure to consider the resistance of the DMM on the 20 V scale.

                                                                                                          $V_O = $ _____

7. Use the Thevenin equivalent circuit to calculate the expected reading of a laboratory DMM set to the 20 mA scale if it is used to measure the short circuit current I_{SC}. Be sure to consider the resistance of the DMM on the 20 mA scale.

                                                                                                          $I_{SC} = $ _____

8. Calculate the Thevenin resistance based on the DMM readings. $R_T = $ _____