Name:	Major: ☐ ELEC ☐ CSEN

ECEG 201 Laboratory 3, Calibrating the Temperature Sensor

Introduction

Your task for this exercise is to use the measured output voltage of your temperature at two different temperatures to derive a formula for the actual temperature as a function of the output voltage.

Deliverables

You must turn in this worksheet by noon on Monday, 2020-02-10. Each student will work individually on this activity. You may discuss the activity with other students but you must do your own work and submit your own data.

Procedure

1. **Record** the values of V_{DD} and V_{OUT} that you found when your sensor was placed in ice water.

2. Use a supply voltage of (3.30 ± 0.05) V for your temperature sensor. Measure the supply voltage and output voltage using the AD2 voltmeter.

3. **Record** the values of V_{DD} and V_{OUT} when the sensor is submerged in warm water. **Record** the water temperature as reported by the laboratory temperature probe.

4. Derive a formula for the actual temperature as a function of the sensor's output voltage. Assume that the sensor response is linear, and use your measured data to find the slope and y-intercept of the line. Your formula should expect voltage to be in volts and temperature to be in °C. Assume that the ice water bath was at 0.00 °C. Pay attention to significant digits in your calculations.