

# ECE 111 - Homework #14

Week #14 - ECE 321 Electronics II. Due December 7th

Please submit as a Word or pdf file to BlackBoard or email to Jacob\_Glower@yahoo.com with header ECE 111 HW#14  
www.BisonAcademy.com

1) Find a temperature sensor from [www.Digikey.com](http://www.Digikey.com) other than the one covered in class. From the data sheets, determine the resistance vs. temperature relationship.

2) Convert this resistance to a voltage using a voltage divider and a +5V source. Plot the voltage vs temperature relationship.

3) Over the range of -20C to +20C, determine a linear calibration curve fit as

$$T \approx aV + b$$

4) Over the range of -20C to +20C, determine a cubic calibration curve fit as

$$T \approx aV^3 + bV^2 + cV + d$$

5) If the voltage across your voltage divider is 2.67V, what is the temperature?