ECE 231 Spring 2025
Grading Rubric for Lab Assignment 8.2
Prof. McLaughlin

The assignment is to create a digital thermometer using ATmega328P on Arduino Uno, TMP-36 sensor, SSD1306 OLED, momentary push-button switch, and LED according to this specification:

1. When a momentary push-button switch is pressed, display temperature in degrees Celcius. When the button is not pressed, display the temperature in degrees Farenheit.
2. Display the temperature on both your laptop monitor and the OLED with a precision of 0.1 degrees, followed by the letter C or F. For example 70.0F, or 21.1C.
3. Illuminate a red LED whenever the temperature exceeds a pre-determined "Too_HOT" level. Test your system using "TOO_HOT" values of 60 and 80 degrees F.
4. Write your main() function in one source code file, and include the user-contributed files as discussed above.

What to submit:
• Video showing functioning system. The video should show both the OLED display and your monitor display and demonstrate the functionality and performance described in the specification given above.
• Copy of your main() source code. No need to submit copies of any of the user-contribued libraries.

Grading Rubric:

10 points for a project that meets items 1 and 2 and demonstrates a TOO_HOT led glowing at any temperature.

Subtract 3 points if the temperature is obviously incorrect. At room temperature, the system should show 20.0C or 68.0F. The students' display should be between 15.0 and 25.0C and 58.0 - 78.0F if it is being demonstrated at room temperature.

Subtract 3 points if the functioning serial monitor display is not demonstrated

Subtract 3 points if the functioning OLED display is not demonstrated

Subtract 3 points if the functioning TOO_HOT LED is not demonstrated

Subtract 3 points if the system does not change from F to C display with the push of a switch

Subtract 10 points if the main() source code is not submitted.

Lowest possible score is 0