UNIVERSITY OF SAINT THOMAS – SAINT PAUL – MN
Electrical and Computer Engineering

ENGR 432: REAL TIME SYSTEMS
LAB 3: MORE STMCUBEMX AND HAL – ADC, SERIAL COMMUNICATION AND DMA.
Spring 2023

Groups of 2

In this lab, we will use ADC, Serial Communication, and DMA techniques to further practice using STMCubeMX and the HAL library.

> **Upload to Canvas the full project folders from all parts into a single compressed folder. Upload also a 1-page report of your thoughts and analysis including any problems you faced and how you managed to solve them.**
>
> **The time to demo this lab is Tuesday March 07 during the class time.**

Part 1

Use an STM board to read a temperature reading from an Analogue sensor (MCP9700A).

1- Use UART or any other serial communication protocol, send the reading from Board_1 to another board Board_2.
2- Display the readings on an LCD connected to Board_2.

Part 2

Redo the previous parts but now use DMA on Board_2 to store up to 5 ADC readings received from Board_1 via UART. Then after a delay of 5 seconds, display one reading at a time on the LCD screen. Devise a way to prove that your DMA works.