

**Communication Engineering
Project**

Due date/time: January 06, 2023 23:59

Consider the signal $m(t) = -2 \cos(200\pi t) + \sin(50\pi t)$. Use MATLAB, Python, or C to complete the following tasks:

Task 1: Pulse Code Modulation (5 points) Consider the message signal $m(t)$ for the time interval (0,2) seconds. Obtain the pulse code modulated binary sequence if the signal is sampled at the Nyquist sample rate and $L = 128$ quantization levels are used. You can start labeling the quantization labels from the top. The first sample is taken at $t = T_s$. Your code should display the binary representation of the first 10 samples on the screen, in the format "0110011-1010010-...".

Task 2: Delta Modulation (5 points) Consider the message signal $m(t)$ for the time interval (0,2) seconds. Obtain the delta modulated binary sequence if the signal is sampled at four times the Nyquist sample rate. The first sample is taken at $t = T_s$. Your code should display the binary representation of the first 20 samples on the screen.

Note: You should submit your project as a single source file (.m, .py, or .c).