### ELEC 5705 RF Systems Design: Assignment #5

Due April 12th, 2021

In this assignment you will need to create a band pass transmit waveform. You can use a single carrier style of AM and PM modulation, but beyond that the constellation you pick is completely up to you. The information to be transmitted is letters from the alphabet (text only). You must be able to transmit all letters (lower and upper case), spaces, periods and commas. The TX frequency is to be 100MHz, and the signal BW is to be 1MHz at base band (2MHz at RF). You should attempt to maximize the number of characters/second/Hz, but as well you might want to think about optimizing the constellation from the radio’s perspective as well. A complete report will include a plot of character error rate versus SNR. Note for the next assignment we will aim for a character error rate of 1% in an actual transmitter design, but for this assignment your TX can be ideal except for a method to determine the character error rate.