

ECE 440 – Spring 2019

Homework 6

Due before class on Wednesday 03/27

1. With $N_0 = 10^{-5}$ W/Hz and $A = 40$ mV in a baseband data transmission system (positive and negative square pulses), what is the maximum data rate that will allow a probability of error of 10^{-4} or less? Use a bandwidth of 0 to first null for the square pulse spectrum.
2. Five messages bandlimited to W , W , $2W$, $4W$ and $4W$ Hz respectively are frequency division multiplexed into a single transmitted signal. What is the minimum bandwidth necessary to transmit that signal? How about if we use time division multiplexing instead?
3. Problem 4.33 in pg. 213.
4. Problem 4.34 in pg. 213.