DA-IICT, CT 303, Autumn 2024-2025
Lab Exercise 7
Date: 30/09/2024, Expected by: 12/10/2024
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References for perusal:

[1] *Manual, kit 2807:* ASK, FSK, BPSK, DBPSK Modulator & Demodulator, Scientech.

[2] *Contemporary Communication Systems Using MATLAB*, John G. Proakis, and Masoud Salehi, 2013, Cengage learning.

- In the exercise sheet, there are 2 lab problems.
- The first problem needs to be solved using the kit, while the remaining one needs to be done using MATLAB.
- The coding in MATLAB should be done in groups of 2.
- **It is required for a group of 4 to occupy two consecutive desks and share the kit among themselves. Once the hardware-based experiments are done, they should split in groups of 2 and occupy the adjacent PCs on the desks.**
- All the required soft copies of the texts referred to in the exercises are available in the lecture folder of the instructor for section A.

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1. From [1], perform experiments 1 to 6 on Amplitude shift keying (ASK). The page numbers for the same are given in the table of contents. You need to follow the procedures given in the manual and observe the output as suggested in the observations.
2. From [2], go through "Signal correlator" from section 5.2, solve illustrative problems 5.1 and 5.2. Then, reproduce the MATLAB script for illustrative problem 5.2. Thereafter, from the problems at the end of the chapter, solve problem 5.3.

Instructions for Preparing Lab Report:

- For experiments done on kit, you need to take a snap shot of each output on the oscilloscope. This can be done either by connecting a USB stick to the oscilloscope, or connecting the oscilloscope to the PC. Your lab report must contain these snapshots.
- You need to verify and subsequently mention in the report that the outputs given in the manual corresponding to the experiments are indeed correct.
- For MATLAB based experiments, your lab report must contain the code and all the figures. Further, you need to explain the results in the graphs.
- For tutorial problems, you need to put up the solution in the lab report.

General Instructions:

- The lab is intentionally made from the references given above so that you have ample resources to refer to and learn.
- For the final evaluation, we may have a quiz/lab test which will test if you have gone through the codes and tweaked them in Matlab.
- For learning Matlab functions used in the codes, refer to the help section which pops up as you press F1 in Matlab.