	American International University- Bangladesh (AIUB) **Faculty of Engineering (EEE)**

OBE Assignment

Course Name :	Signal & Linear System	**Course Code :**	**EEE2213**
Semester :	Spring 2020-21	**Sec :**	
Student Name:		**Student ID:**	
Submission Date :	**On or before April 29, 2021**		

P.a.2.C3	**KP5**	**CP1** **CP2** **CP3**
Apply information and concepts of mathematics to solve complex engineering problems with a range of conflicting requirements		

Question

A state own company decided to venture their business in FM radio channels. They bought the FM range from 79.0 MHz to 92.0 MHz and decided to open 3 radio channels as follows:

Channel Type	Channel Name	FM
News only	News Today	79+ *.*
Music only	Gan Amar	80+ *.*
Normal	Fungama	81+ *.*

[Here ** are the last 2 digits among the middle 5 digits of your ID, e.g. if the student ID is 18-12345-2 then *.* will be 4.5 and the channels will be (79+4.5=83.5 MHz), (80+4.5=84.5 MHz) and (81+4.5=85.5 MHz)]

Now, apply the knowledge and method of Fourier Transform as well as Frequency Division Multiplexing to complete the following tasks:

1. Find out the suitable signal frequency range for each channel and justify your answer.
2. Consider 3 separate signal curve for each channel.
3. Design a FDM system to reconstruct any of these 3 channels.

Ref: https://www.dpamicrophones.com/mic-university/facts-about-speech-intelligibility#:~:text=In%20general%2C%20the%20fundamental%20frequency,f0%20is%20around%20300%20Hz/.

MARKING RUBRIC:

CP	Assessment Criteria	Evaluation Criteria				Marks
		Poor [1]	Average [2-3]	Good [4]	Excellent [5]	
CP1	Finding suitable frequency range for the channel	Frequency ranges are not selected and justified.	Frequency ranges are selected but not justified.	Frequency ranges are selected, and suitability is partially justified.	Suitable Frequency ranges are selected and properly justified.	
CP2	Considering separate signal frequency and curve	Different signal curves are not chosen, and modulated signal frequency ranges are not separated.	Different signal curves are not chosen but FDM frequency ranges are separated.	Different signal curves are chosen but FDM frequency ranges are not separated.	Different signal curves are chosen and FDM frequency ranges are also separated.	
CP3	Designing a FDM system	Design flow has major errors with insufficient illustration of each step.	Design Flow has major error, but stages are sequentially illustrated.	Design Flow has minor error with stages sequentially illustrated.	Design Flow has no error and stages are sequentially illustrated.	
Total Marks Obtained (0ut 0f 15)						