American International University- Bangladesh
Department of Electrical and Electronic Engineering
COE 3201: Data Communication Laboratory

Start: **08:30 am**, End: 0**9:20 am**

Data Communication Lab Assessment 3 (Section E)

Instructions:

1. Attend this assessment from PC. Have Matlab ready before-hand.
2. Have pen and paper ready with you.
3. Solve the given tasks in Matlab and create a word file with your codes and figures.
4. **Submit your word file using email (tanjil@aiub.edu). Email subject line must be: LA3E**
5. **Inside email body you must include your name, section, and ID.**
6. Inside email body you must show your ID related calculation.
7. Your total time is 50 minutes for preparing the answers and 40 minutes for submission. No extra time will be allocated. Start: **08:30 am**, End: **09:20 am**. Submission must be done by **10:00 am**.
8. Use sampling frequency 5000 Hz.
9. Avoid plagiarism.

Assume your ID is AB-CDEFG-H, and then convert 'E', 'F' and 'G' to 8-bit ASCII characters (table is given below) and together you have a bit stream of 24 bits. Convert this bit stream to analog signal using the following:

1. Use QASK. Different amplitudes in the modulated signal are 1 volt, 2 volt, 3 volt and 4 volt for 00 to 11, respectively. Use 'H' Hz as frequency and 0° phase in modulated signal.

2. Use 8-FSK. Different frequencies in the modulated signal are 'G' Hz, 'G+2' Hz, 'G+4' Hz, 'G+6' Hz, 'G+8' Hz, 'G+10' Hz, 'G+12' Hz and 'G+14' Hz for '000' to '111', respectively. Use 1 volt as amplitude and 0° phase in modulated signal.

3. Use QPSK. Different phases in the modulated signal are be -135°, 135°, -45°, and 45° for 00 to 11, respectively. Use 1 volt as amplitude and 'H' Hz as frequency in modulated signal.

Use suitable values for other necessary parameters.

In your assessment paper you should attach your three separate codes and three separate figures for ASK, FSK, and PSK. Show your variable values that depends on your ID clearly.

7-Bit ASCII (American Standard Code for Information Interchange)								
	000...	001...	010...	011...	100...	101...	110...	111...
..0000	*NUL*	*DLE*	*SP*	0	@	P	`	p
..0001	*SOH*	*DC1*	!	1	A	Q	a	q
..0010	*STX*	*DC2*	"	2	B	R	b	r
..0011	*ETX*	*DC3*	#	3	C	S	c	s
..0100	*EOT*	*DC4*	$	4	D	T	d	t
..0101	*ENQ*	*NAK*	%	5	E	U	e	u
..0110	*ACK*	*SYN*	&	6	F	V	f	v
..0111	*BEL*	*ETB*	'	7	G	W	g	w
..1000	*BS*	*CAN*	(	8	H	X	h	x
..1001	*HT*	*EM*	)	9	I	Y	i	y
..1010	*LF*	*SUB*	*	:	J	Z	j	z
..1011	*VT*	*ESC*	+	;	K	[	k	{
..1100	*FF*	*FS*	,	<	L	\	l	|
..1101	*CR*	*GS*	-	=	M	]	m	}
..1110	*SO*	*RS*	.	>	N	^	n	~
..1111	*SI*	*US*	/	?	O	_	o	*DEL*