AMERICAN INTERNATIONAL UNIVERSITY- BANGLADESH

Laboratory Report

Report Title:	Study of Digital to Analog Conversion using MATLAB		
Lab Report No:	05	**Date of Submission:**	23-07-22
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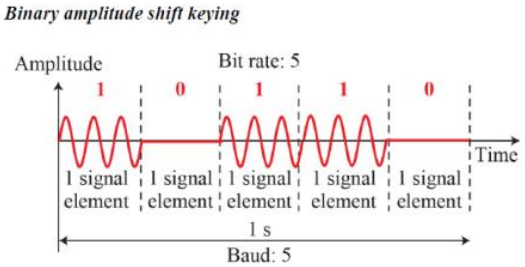
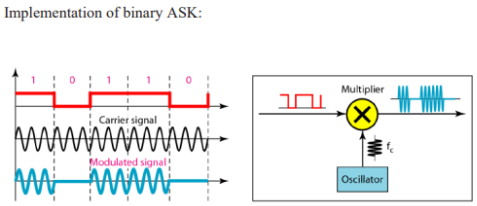
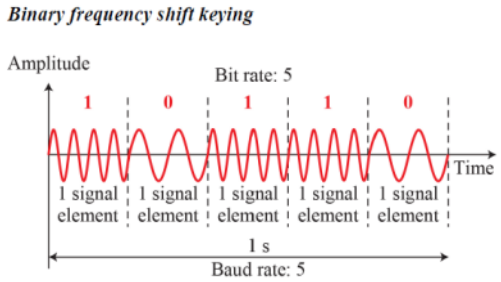
Course Code:	COE3103	**Course Title:**	Data Communication
Course Instructor:	Afsah Sharmin	**Section:**	B

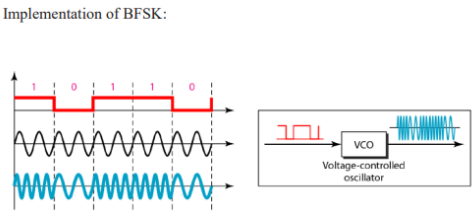
ASK: In amplitude shift keying, the amplitude of the carrier signal is varied to create signal elements Both frequency and phase remain constant while the amplitude changes.



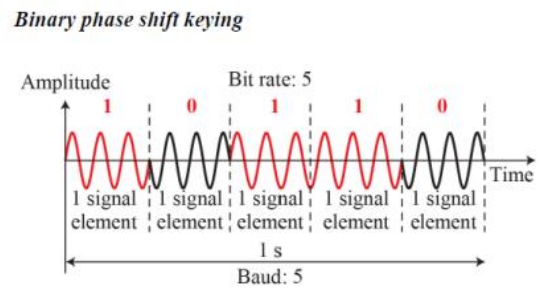


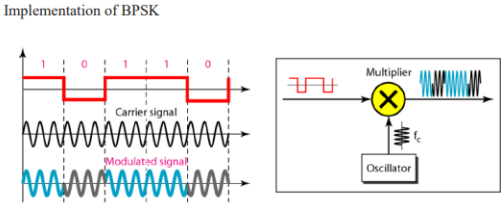
FSK: In frequency shift keying, the frequency of the carrier signal is varied to represent data The frequency of the modulated signal is constant for the duration of one signal element, but changes for the next signal element if the data element changes Both peak amplitude and phase remain constant for all signal elements





PSK: In phase shift keying, the phase of the carrier is varied to represent two or more different signal elements Both peak amplitude and frequency remain constant as the phase changes Today, PSK is more common than ASK or FSK. However, we will see shortly that QAM, which combines ASK and PSK, is the dominant method of digital to analog modulation





Digital to Analog Modulation is given below:

MATLAB Code	Output

```
close all;
clc;
f=5;
f2=10;
x=[1 1 0 0 1 0 1 0] % input
signal ;
nx=size(x,2);
i=1;
while i<nx+1
 t = i:0.001:i+1;
 if x(i)==1
 ask=sin(2*pi*f*t);
 fsk=sin(2*pi*f*t);
 psk=sin(2*pi*f*t);
 else
 ask=0;
 fsk=sin(2*pi*f2*t);
 psk=sin(2*pi*f*t+pi);
 end
 subplot(3,1,1);
 plot(t,ask);
 hold on;
 grid on;
 axis([1 10 -1 1]);
title('Amplitude Shift Key')
 subplot(3,1,2);
 plot(t,fsk);
 hold on;
 grid on;
 axis([1 10 -1 1]);
title('Frequency Shift Key')
 subplot(3,1,3);
 plot(t,psk);
 hold on;
 grid on;
 axis([1 10 -1 1]);
title('Phase Shift Key')
 i=i+1;
end
```

```
x = 1×8
     1     1     0     0     1     0     1     0
```