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Enrolment number: - BT19ECE010

Date: - March 22nd, 2022

Subject: - Digital Communication

LAB REPORT 5

Aim: Perform FSK and PSK modulation using MATLAB or GNU Octave

FSK Modulation

Code:

```
% BT19ECE010 Yaskumar Ingrodiya
clc
close all
clear all

fc1=input('Enter the freq of 1st Sine Wave:');
fc2=input('Enter the freq of 2nd Sine Wave:');

fp=input('Enter the freq of Square Wave:');

amp=input('Enter the amplitude:');

t=0:0.001:1; % For setting the sampling interval

c1=amp.*sin(2*pi*fc1*t);% For Generating 1st Sine wave
c2=amp.*sin(2*pi*fc2*t);% For Generating 2nd Sine wave

%For Plotting The Carrier wave
subplot(4,1,1);
plot(t,c1)
xlabel('Time')
ylabel('Amplitude')
title('Carrier Wave')

%For Plotting The Carrier wave
subplot(4,1,2)
plot(t,c2)
xlabel('Time')
ylabel('Amplitude')
title('Other Carrier Wave')

m=amp.*square(2*pi*fp*t)+amp;%For Generating Square wave message
```

```

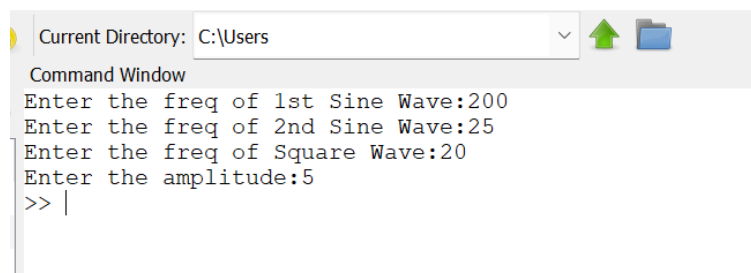
%For Plotting The Square wave
subplot(4,1,3)
plot(t,m)
xlabel('Time')
ylabel('Amplitude')
title('squarewave')

for i=0:1000 %here we are generating the modulated wave
    if m(i+1)==0
        mm(i+1)=c2(i+1);
    else
        mm(i+1)=c1(i+1);
    end
end

%For Plotting The Modulated wave
subplot(4,1,4)
plot(t,mm)
xlabel('Time')
ylabel('Amplitude')
title('Modulated Wave')

```

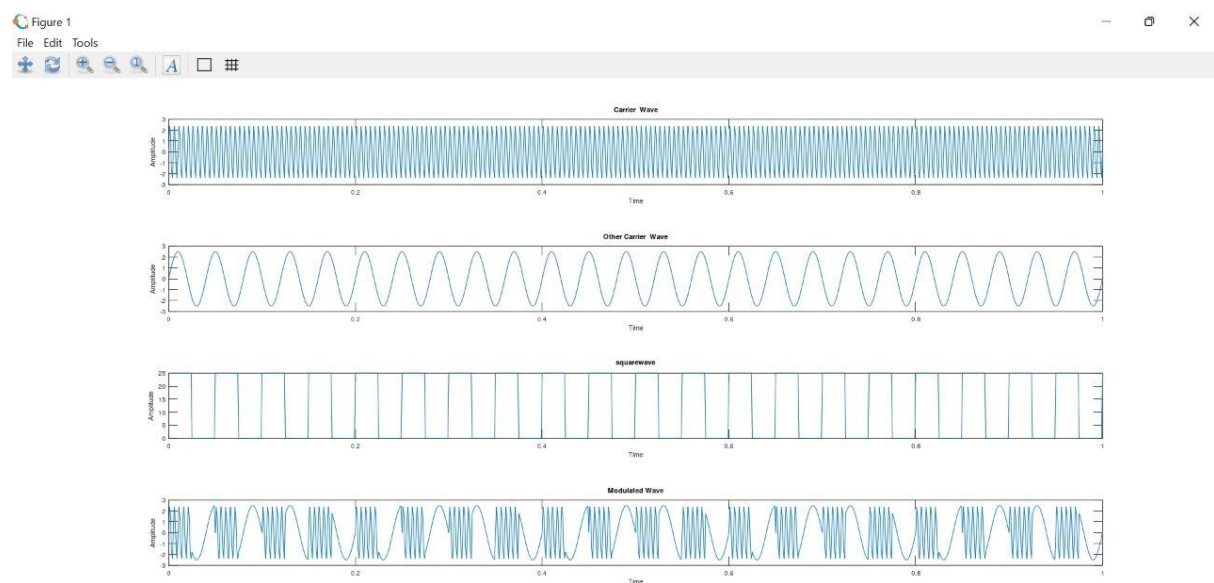
Input:



Screenshot:

```
w Help News
Current Directory: C:\Users
Editor
File Edit View Debug Run Help
FSKMarch22nd.m
1 % BT19ECE010 Yaskumar Ingrodiya
2 clc
3 close all
4 clear all
5
6 fc1=input('Enter the freq of 1st Sine Wave:');
7 fc2=input('Enter the freq of 2nd Sine Wave:');
8
9 fp=input('Enter the freq of Square Wave:');
10
11 amp=input('Enter the amplitude:');
12
13 t=0:0.001:1; % For setting the sampling interval
14
15 c1=amp.*sin(2*pi*fc1*t);% For Generating 1st Sine wave
16 c2=amp.*sin(2*pi*fc2*t);% For Generating 2nd Sine wave
17
18 %For Plotting The Carrier wave
19 subplot(4,1,1);
20 plot(t,c1)
21 xlabel('Time')
22 ylabel('Amplitude')
23 title('Carrier Wave')
24
25 %For Plotting The Carrier wave
26 subplot(4,1,2)
27 plot(t,c2)
28 xlabel('Time')
```

Output:



PSK Modulation

Code:

```
% BT19ECE010 Yaskumar Ingrodiya
clc
close all
clear all

fc1=input('Enter the freq of 1st Sine Wave:');
fp=input('Enter the freq of Square Wave:');
amp=input('Enter the amplitude:');

t=0:0.001:1; % For setting the sampling interval
c1=amp.*sin(2*pi*fc1*t);% For Generating Sine wave

%For Plotting The Sine wave
subplot(3,1,1);
plot(t,c1)
xlabel('Time')
ylabel('Amplitude')
title('Carrier Wave')

%For Generating Square wave
m=amp.*square(2*pi*fp*t)+amp;

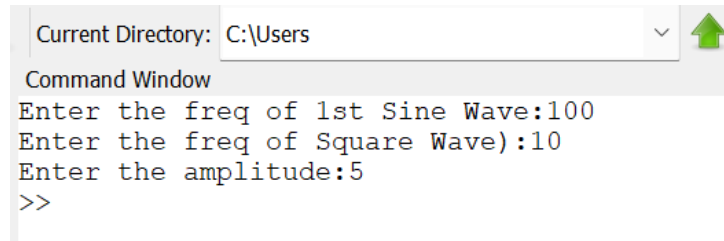
%For Plotting The Square wave
subplot(3,1,2)
plot(t,m)
xlabel('Time')
ylabel('Amplitude')
title('Square Wave')

for i=0:1000 %here we are generating the modulated wave
```

```
    if m(i+1)==0
        mm(i+1)=-c1(i+1);
    else
        mm(i+1)=c1(i+1);
    end
end

%For Plotting The Modulated wave
subplot(3,1,3)
plot(t,mm)
xlabel('Time')
ylabel('Amplitude')
title('Modulated Wave')
```

Input:



Screenshot:

```
 / Help News
Current Directory: C:\Users
Editor
File Edit View Debug Run Help
FSKMarch22nd.m PSKMarch22nd.m
1 % BT19ECE010 Yaskumar Ingrodiya
2 clc
3 close all
4 clear all
5
6 fcl=input('Enter the freq of 1st Sine Wave:');
7 fp=input('Enter the freq of Square Wave:');
8 amp=input('Enter the amplitude:');
9
10 t=0:0.001:1; % For setting the sampling interval
11 c1=amp.*sin(2*pi*fcl*t); % For Generating Sine wave
12
13 %For Plotting The Sine wave
14 subplot(3,1,1);
15 plot(t,c1)
16 xlabel('Time')
17 ylabel('Amplitude')
18 title('Carrier Wave')
19
20 %For Generating Square wave
21 m=amp.*square(2*pi*fp*t)+amp;
22
23 %For Plotting The Square wave
24 subplot(3,1,2);
25 plot(t,m)
26 xlabel('Time')
27 ylabel('Amplitude')
28 title('Square Wave')
line: 2 col: 1 encoding: SYSTEM (CP1252) eol: CRLF
Command Window Editor Variable Editor
```

Output:

