
Name: - Yashkumar Ingrodiya

Enrolment number: - BT19ECE010

Date: - March 22nd, 2022

Subject: - Digital Communication

LAB REPORT 5

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

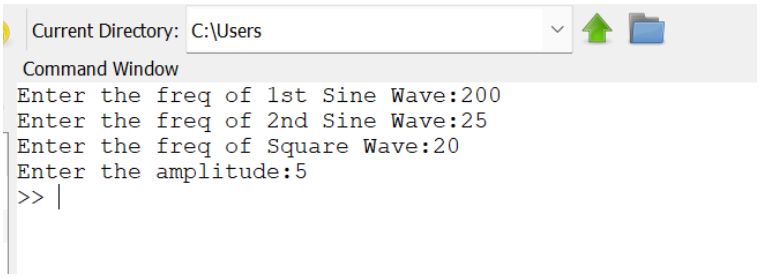
FSK Modulation

Code:

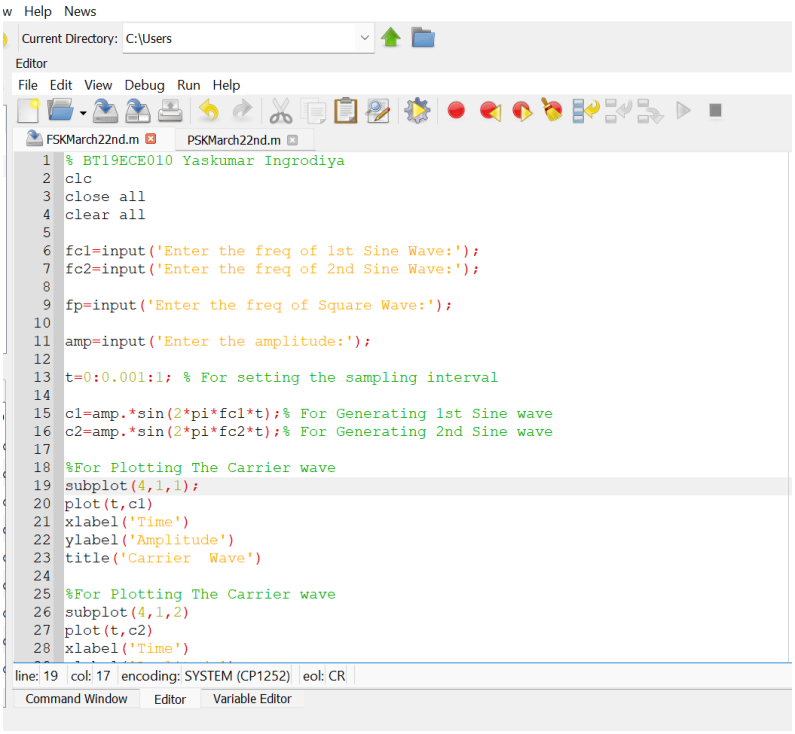
```
% BT19ECE010 Yaskumar Ingrodiya
clc
close all
clear all

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')
```

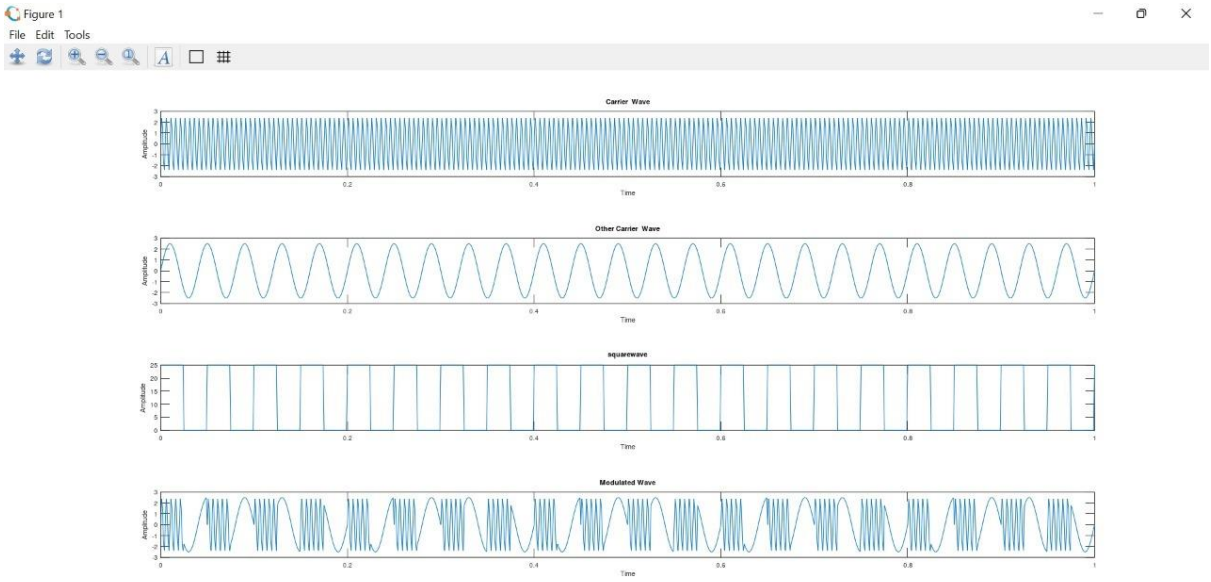
Input:



Screenshot:



Output:



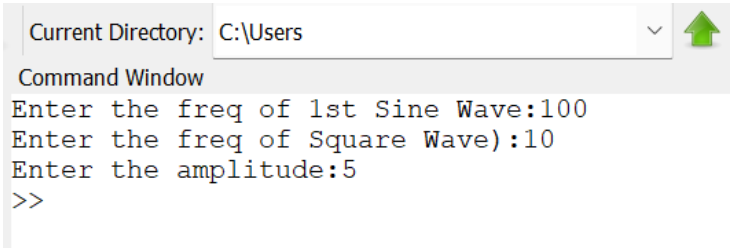
PSK Modulation

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:

```
% 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')
```

Output: