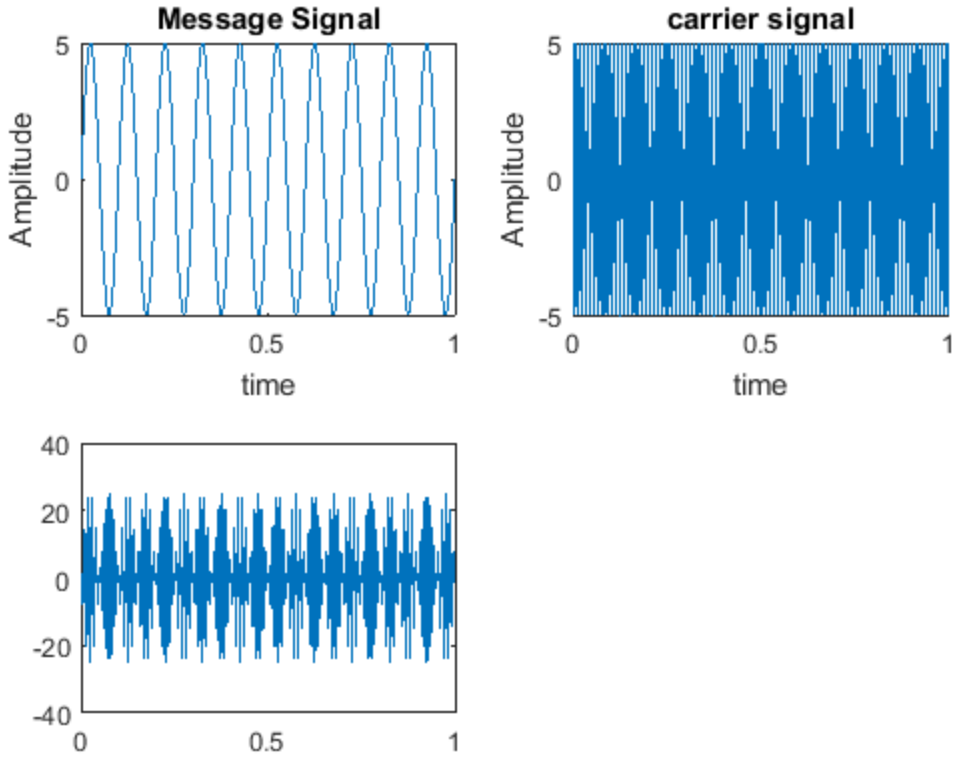
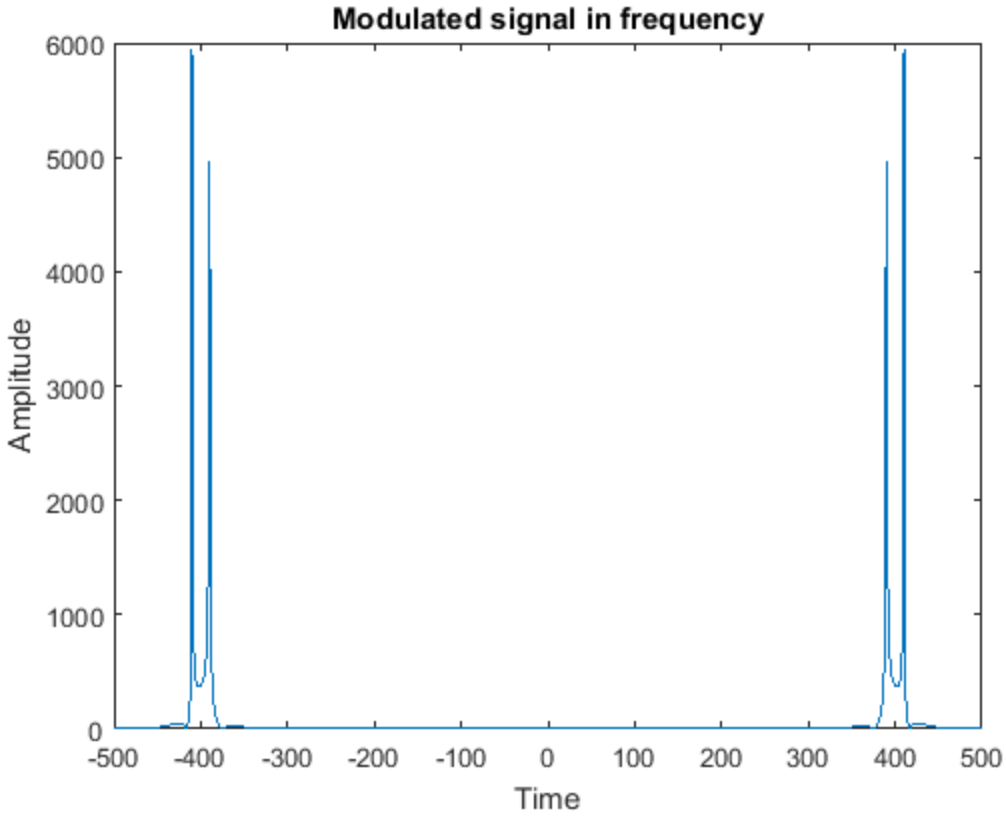
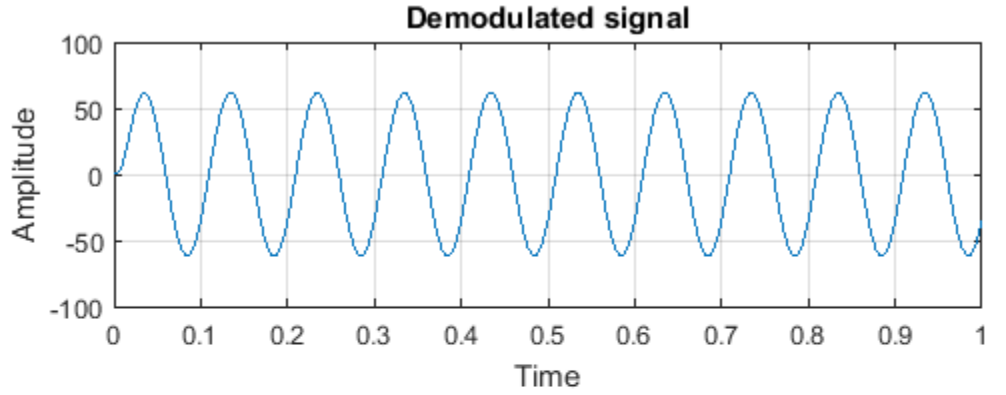
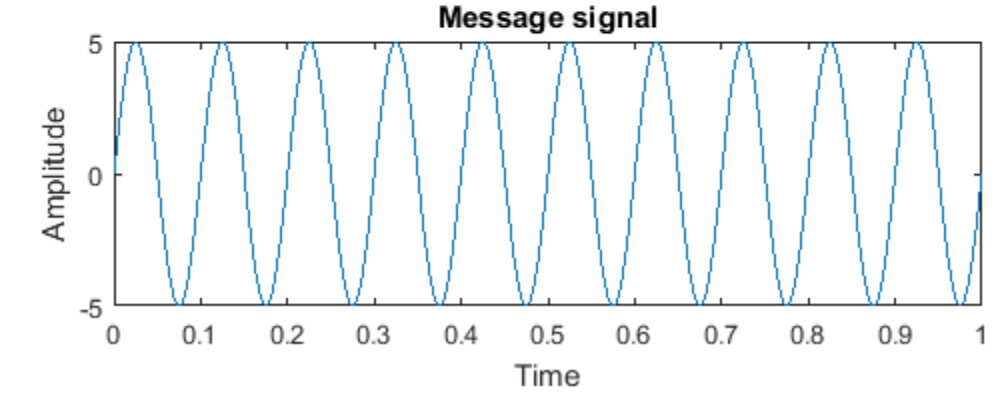
```
%Batch - 2017
%Branch: ECE, SEM-5, Gp. G2
%Group: 6
%Name: SHRETI
%Roll No. 1704076
%Name - Shuvanshu Priyadarshan
%Roll No. - 1704077
%Name: Vineet Kumar
%Roll No. - 1704078
%Name: Santhosh Kumar
%Roll No. - 1704079
%AIM: Study of Double Side Band Suppressed Carrier Amplitude
 Modulation
%--------------------------------------------------------------------------------
t=0:0.001:1;
Ts=0.001;
Am=5;
Ac=5;
fm=10;
fc=100;
m=Am*sin(2*pi*fm*t);
c=Ac*cos(2*pi*fc*t);
figure(1);
subplot(2,2,1);
plot(t,m);
title('Message Signal');
xlabel('time');
ylabel('Amplitude');
subplot(2,2,2);
plot(t,c);
title('carrier signal');
xlabel('time');
ylabel('Amplitude');
u=0.6;
x=m.*c;
subplot(2,2,3);
plot(t,x);
%DSB-SC in frequency domain
N=1024;
XC=fft(x,N);
f=(-N/2:1:((N/2)-1))*(1/(N*Ts));
figure(3);

plot(f,abs(XC));
title('Modulated signal in frequency');
xlabel('Time');
ylabel('Amplitude');
%demodulation
d=x.*c;
w=0.05;
[num,dem]=butter(2,w);
Y=filter(num,dem,d);
```

```
figure(2)

subplot(2,1,1);
plot(t,Y);
grid on;
title('Demodulated signal');
xlabel('Time');
ylabel('Amplitude');
subplot(2,1,2);
plot(t,m);
title('Message signal');
xlabel('Time');
ylabel('Amplitude');
```




Modulated signal in frequency
Amplitude
Time
6000
5000
4000
3000
2000
1000
0
-500
-400
-300
-200
-100
0
100
200
300
400
500


Demodulated signal
Amplitude
Time
100
50
0
-50
-100
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


Message signal
Amplitude
Time
5
0
-5
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1

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