Butterworth Filter

PROGRAM:

Rs=50;

Rp=0.5;

Wp=0.4;

Ws=0.6;

%butterworth lpf

figure(1)

[n1,Wn1] = buttord(Wp,Ws,Rp,Rs);

[b1,a1]=butter(n1,Wn1,'low');

[h1,w1]=freqz(b1,a1);

subplot(3,1,1)

plot(abs(h1))

title('Magnitude');

subplot(3,1,2)

plot(angle(h1))

title('Angle');

y1=impulse(b1,a1,n1)

subplot(3,1,3)

stem(y1)

title('Impulse');

% butterworth hpf

figure(2)

[n2,Wn2] = buttord(Wp,Ws,Rp,Rs);

[b2,a2]=butter(n2,Wn2,'high');

[h2,w2]=freqz(b2,a2);

subplot(3,1,1)

plot(abs(h2))

title('Magnitude');

subplot(3,1,2)

plot(angle(h2))

title('Angle');

y2=impulse(b2,a2,n2)

subplot(3,1,3)

stem(y2)

title('Impulse');