function [h,hw]=hpf()

clear all

clc

fpass=1000;

fstop=1500;

fs=8000;

d1=0.9;

d2=50;

w=(fpass+fstop)\*2\*pi/(2\*fs);

tb=(fstop-fpass)\*2\*pi/fs;

N=(8\*pi)/tb;

h=zeros(1,N);

for n=1:N

h(n)=-sin(w\*(n-ceil(N/2)))/(pi\*(n-ceil(N/2)));

end

h(ceil(N/2))=1-w/pi;

figure

stem(h)

xlabel('n');

ylabel('h(n)');

title('HPF impulse response without windowing');

fvtool(h);

hold on;

title('HPF without windowing');

for x=1:N

w(x)=0.54-0.46\*(1-cos((2\*pi\*x/(N-1))));

end

figure

stem(w);

title('Hamming window');

xlabel('n');

ylabel('w(n)');

hw=(h.\*w);

figure

stem(hw);

xlabel('n');

ylabel('h(n)');

title('Impulse response after windowing');

fvtool(hw);

xlabel('n');

ylabel('h(n)');

title('HPF after windowing');

end