

Assessment 8:

Design a notch filter to remove the power line interference from an ECG Signal. 'ecg2x60.dat'

Code:

```
close all
clc
ecg = load('ecg2x60.dat');
t = linspace(1,476,476);
figure(1)
subplot(4,1,1)
plot(t,ecg)
title('ECG signal')
xlabel('Time')
ylabel('Amplitude')
fe = fft(ecg);
fs = 200;
[psd,w] = pwelch(ecg,[],50,200,fs);
figure(1)
subplot(4,1,2);
plot(w,psd);
title('PSD');
xlabel('Frequency');
ylabel('Power Spectrum');
a = 1;
b = [0.3826 0.236 0.3826];
figure(2)
freqz(b,a);
f = filter(b,a,ecg);
figure(1)
subplot(4,1,3);
plot(f);
title('Filtered signal');
xlabel('Time');
ylabel('Amplitude')
[psdf,wf] = pwelch(f,[],50,200,fs);
figure(1)
subplot(4,1,4);
plot(wf,psdf);
```

Output:

