LAMPIRAN

1. Plot domain waktu

```
clear
clc
close
load('D:\kerusakanouter\normal2000\normal2000rpmbearing6')
y1=data_all(:,1);
load('D:\kerusakanouter\cacat025out2000\cacat025out2000bearing4')
y2=data_all(:,1);
load('D:\kerusakanouter\cacat050out2000\cacat050out2000bearing10')
y3=data_all(:,1);
sampling_rate=51200; %kecepatan sampling Hz
recording_time=20;   %waktu perekaman data (recording time)
L=sampling_rate*recording_time;  %panjang data (length of signal)
% plot amplitude time domain
figure
subplot(3,1,1)
plot(y1(1:51200))
axis ([0 5197 -20 20])
title('a')
xlabel('Time')
ylabel('Amplitudo')
subplot(3,1,2)
plot(y2(1:51200))
axis ([0 5197 -20 20])
title('b')
xlabel('Time')
ylabel('Amplitudo')
subplot(3,1,3)
plot(y3(1:51200))
axis ([0 5197 -20 20])
title('c')
xlabel('Time')
```

```
ylabel('Amplitudo')
```

2. Plot domain spektrum

```
clear
clc
close
load('D:\kerusakanouter\normal1500\normal1500rpmbearing2')
y1=data_all(:,1);
load('D:\kerusakanouter\normal2000\normal2000rpmbearing6')
y2=data_all(:,1);
sampling_rate=51200; %kecepatan sampling Hz
recording_time=20;   %waktu perekaman data (recording time)
L=sampling_rate*recording_time;  %panjang data (length of signal)
NFFT = 2^nextpow2(L); % Next power of 2 from length of y
Y1 = fft(y1,NFFT)/L;
f = sampling_rate/2*linspace(0,1,NFFT/2+1);
NFFT = 2^nextpow2(L); % Next power of 2 from length of y
Y2 = fft(y2,NFFT)/L;
f = sampling_rate/2*linspace(0,1,NFFT/2+1);
% Plot single-sided amplitude spectrum.
subplot (2,1,1)
plot(f,2*abs(Y1(1:NFFT/2+1)))
axis ([0 300 0 0.2]);
title('(a)')
xlabel('Frequency (Hz)')
ylabel('Amplitudo')
figure
subplot (2,1,1)
plot(f,2*abs(Y2(1:NFFT/2+1)))
axis ([0 300 0 0.2]);
title('(b)')
xlabel('Frequency (Hz)')
ylabel('Amplitudo')
```

3. Plot domain spektrum

```
clear
clc
close
load('D:\kerusakanouter\normal2000\normal2000rpmbearing6')
y1=data_all(:,1);
load('D:\kerusakanouter\normal1500\normal1500rpmbearing2')
y2=data_all(:,1);
load('D:\kerusakanouter\cacat050out2000\cacat050out2000bearing10')
y3=data_all(:,1);
sampling_rate=51200; %kecepatan sampling Hz
recording_time=20;   %waktu perekaman data (recording time)
L=sampling_rate*recording_time;  %panjang data (length of signal)
%envelope analysis based on Hilbert transform
analy=hilbert(y1);
Y1=abs(analy);
T=recording_time;
sig_f=abs(fft(Y1(1:L)',L));
sig_n=sig_f/(norm(sig_f));
freq_s=(0:L-1)/T;
subplot(3,1,1)
plot(freq_s,sig_n);
axis ([0 350 0 0.03]);
title('(a)')
xlabel('Frequency (Hz)')
ylabel('Amplitudo')
analy=hilbert(y2);
y2=abs(analy);
T=recording_time;
sig_f=abs(fft(y2(2:L)',L));
sig_n=sig_f/(norm(sig_f));
freq_s=(0:L-1)/T;
subplot(3,1,2)
plot(freq_s,sig_n);
```

```
axis ([0 350 0 0.03]);
title('(b)')
xlabel('Frequency (Hz)')
ylabel('Amplitudo')
analy=hilbert(y3);
y3=abs(analy);
T=recording_time;
sig_f=abs(fft(y3(2:L)',L));
sig_n=sig_f/(norm(sig_f));
freq_s=(0:L-1)/T;
subplot(3,1,3)
plot(freq_s,sig_n);
axis ([0 350 0 0.03]);
title('(c)')
xlabel('Frequency (Hz)')
ylabel('Amplitudo')
```