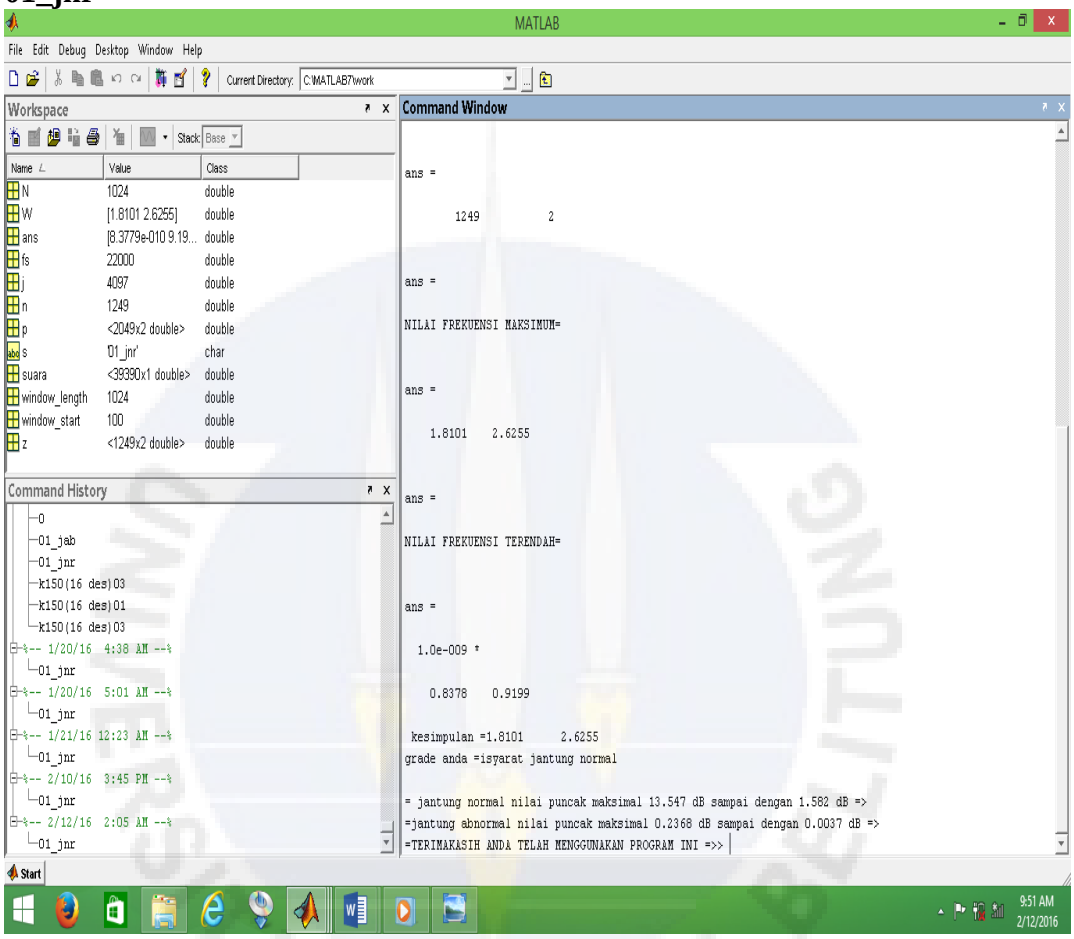
LAMPIRAN A

ISYARAT SUARA JANTUNG NORMAL

01_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [1.8101 2.6255] double
ans [8.3779e-010 9.19... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '01_jnr' char
suara <39390x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
0
01_jab
01_jnr
k150(16 des)03
k150(16 des)01
k150(16 des)03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
1.8101 2.6255
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.8378 0.9199
kesimpulan =1.8101 2.6255
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
9:51 AM
2/12/2016

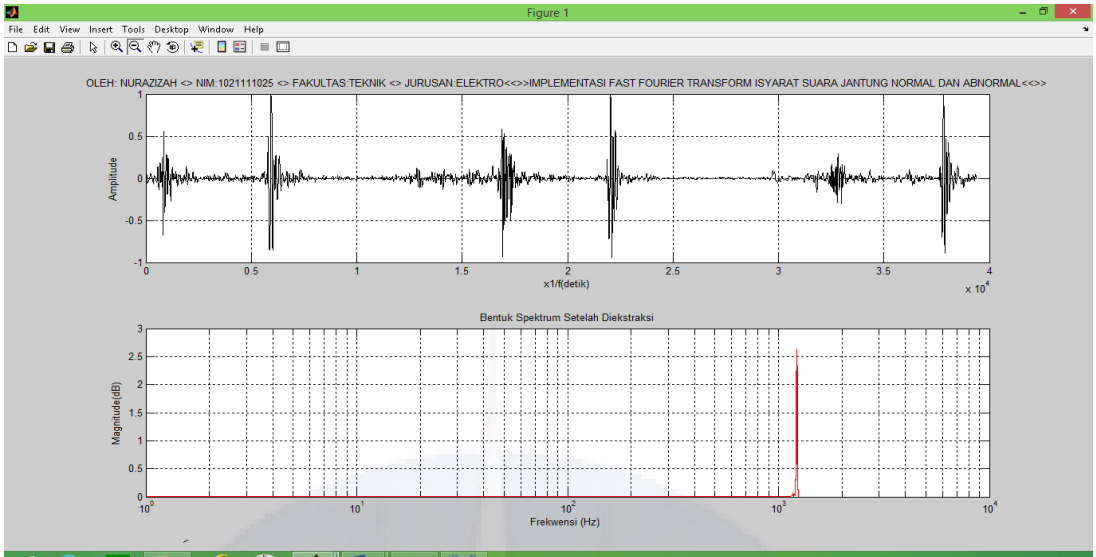


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:50 AM
2/12/2016

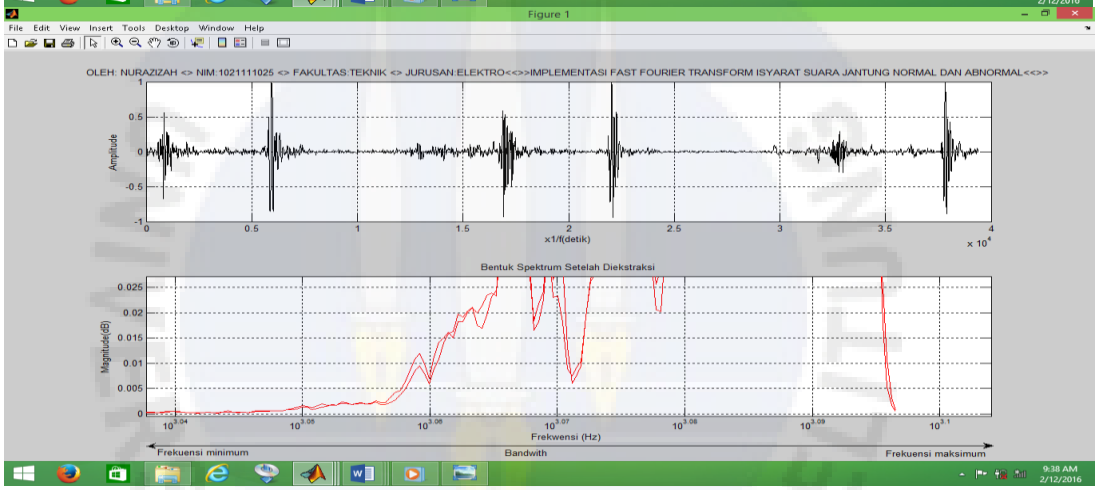


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
Frekuensi minimum
Bandwith
Frekuensi maksimum
9:38 AM
2/12/2016

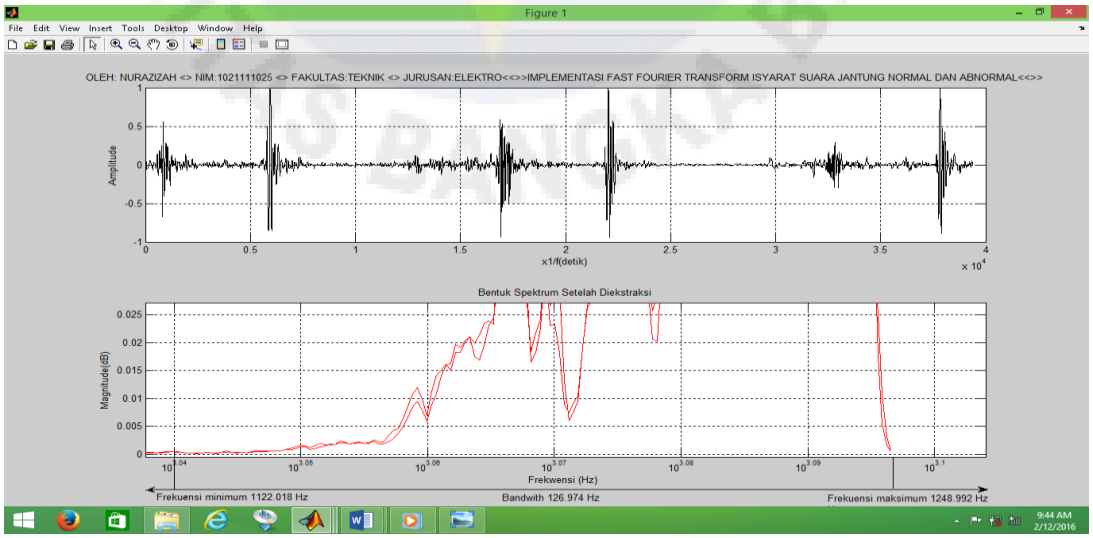


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
Frekuensi minimum 1122.018 Hz
Bandwith 126.974 Hz
Frekuensi maksimum 1248.992 Hz
9:44 AM
2/12/2016

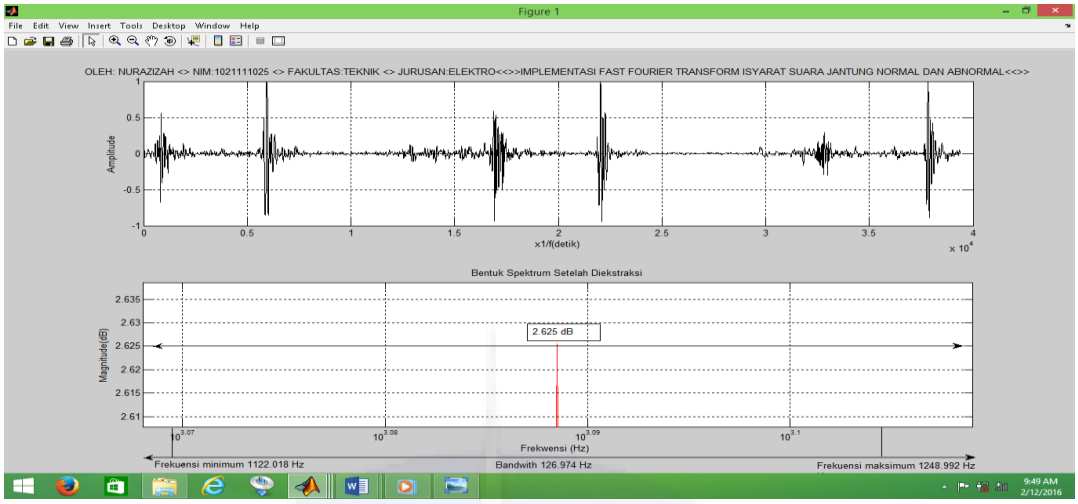
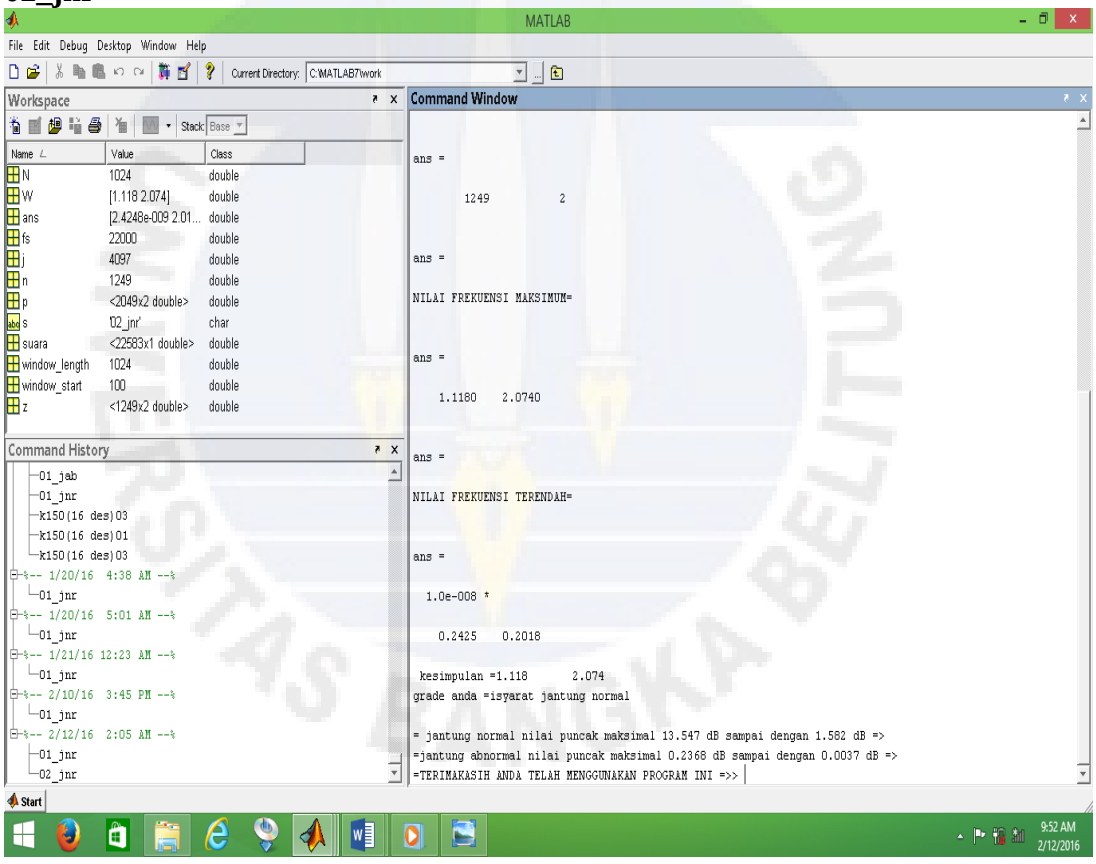


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
2.625 dB
Frekwensi (Hz)
Frekuensi minimum 1122.018 Hz
Bandwith 126.974 Hz
Frekuensi maksimum 1248.992 Hz
9:49 AM
2/12/2016

02_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [1.118 2.074] double
ans [2.4248e-009 2.01... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '02_jnr' char
suara <22583x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jab
01_jnr
k150(16 des)03
k150(16 des)01
k150(16 des)03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
1.1180 2.0740
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-008 *
0.2425 0.2018
kesimpulan =1.118 2.074
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
9:52 AM
2/12/2016

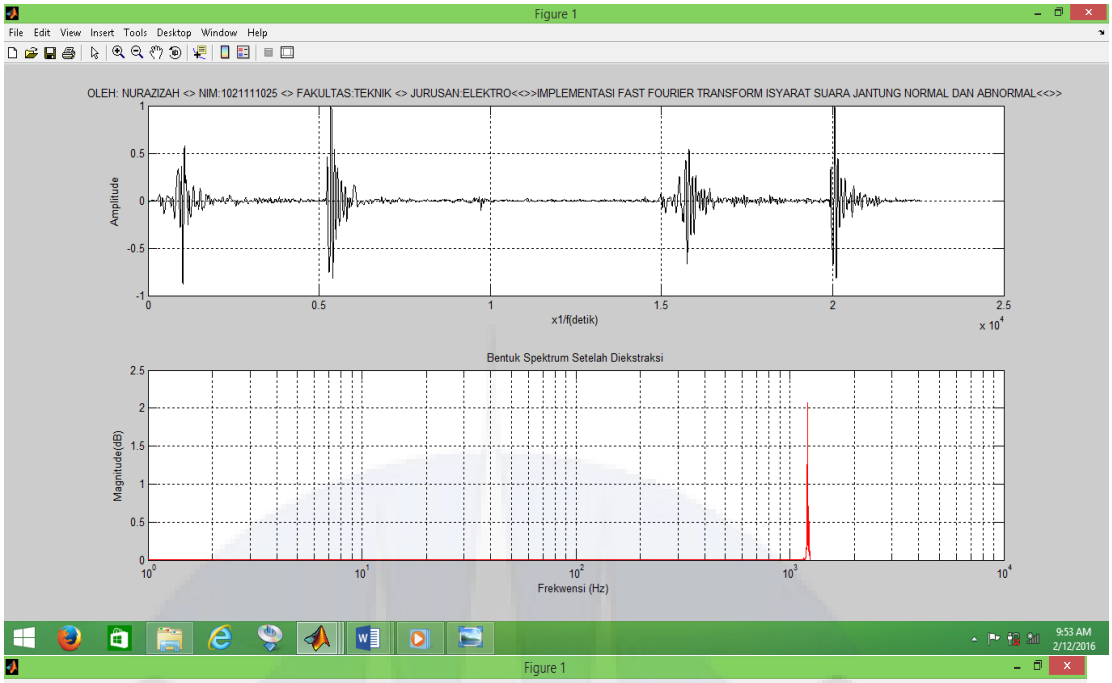


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:53 AM
2/12/2016

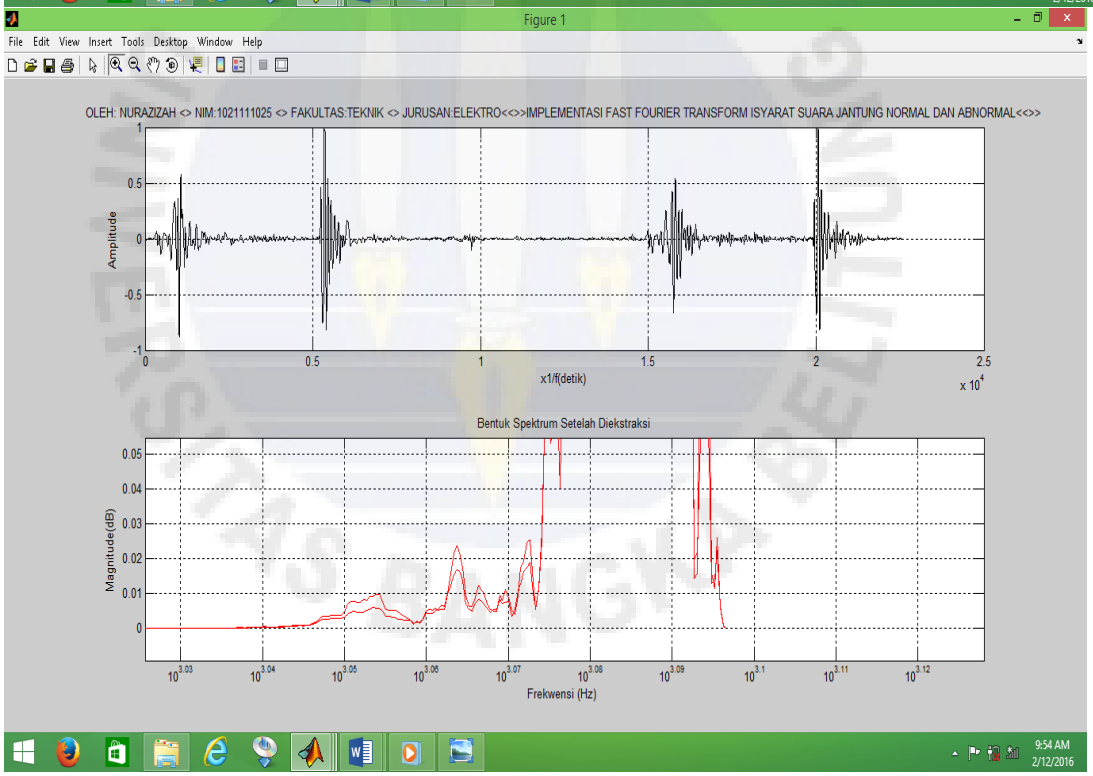


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:54 AM
2/12/2016

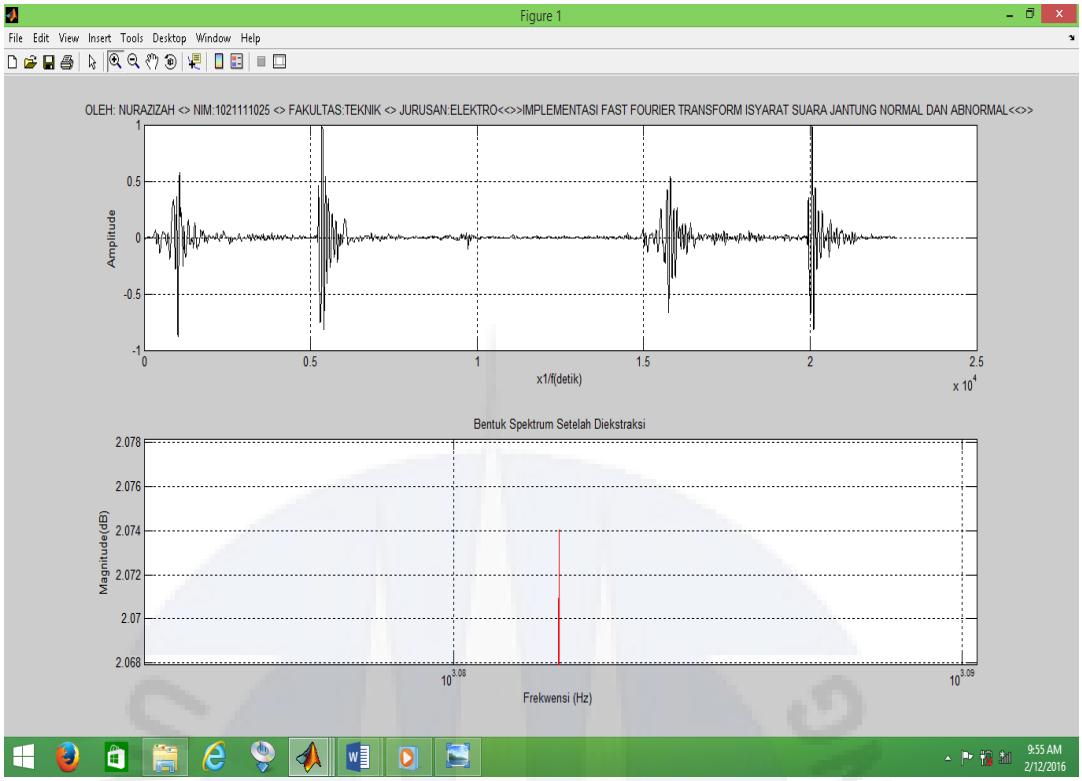
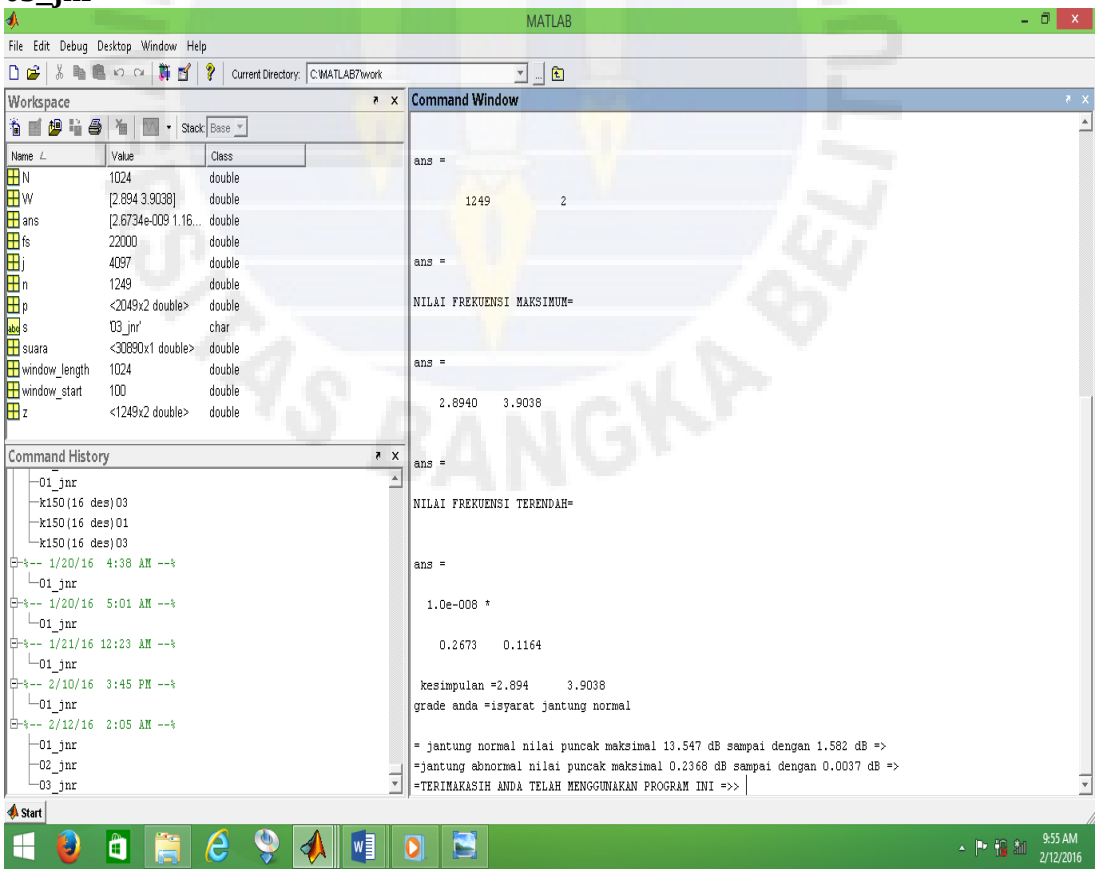


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:55 AM
2/12/2016

03_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Name Value Class
N 1024 double
W [2.894 3.9038] double
ans [2.6734e-009 1.16... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '03_jnr' char
suara <30890x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
k150(16 des)03
k150(16 des)01
k150(16 des)03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
2.8940 3.9038
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-008 *
0.2673 0.1164
kesimpulan =2.894 3.9038
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
9:55 AM
2/12/2016

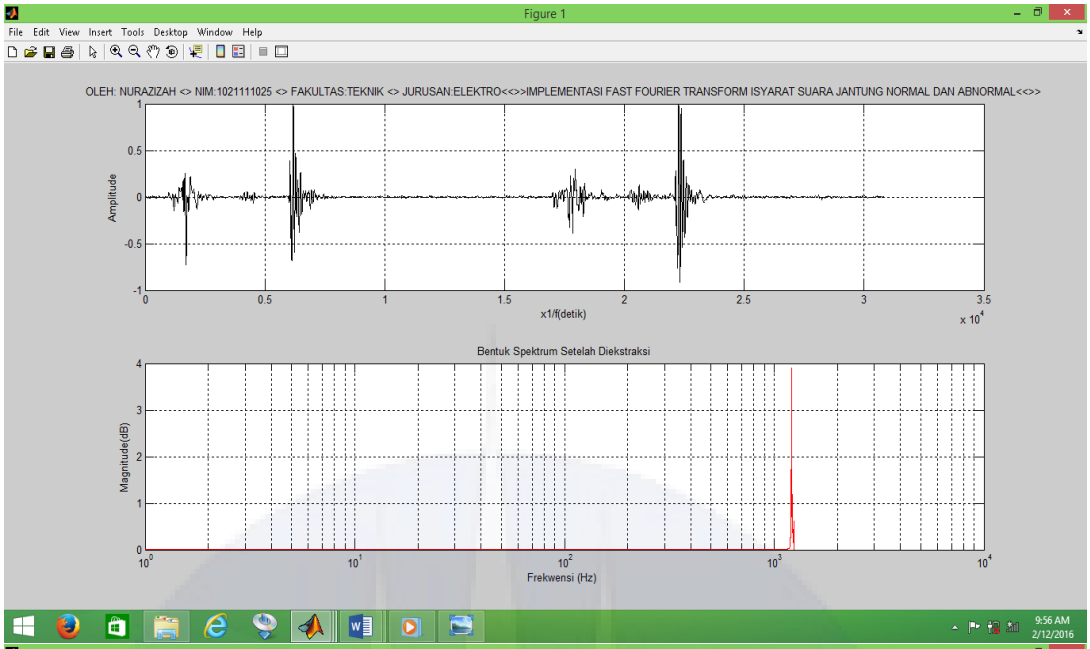


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:56 AM
2/12/2016

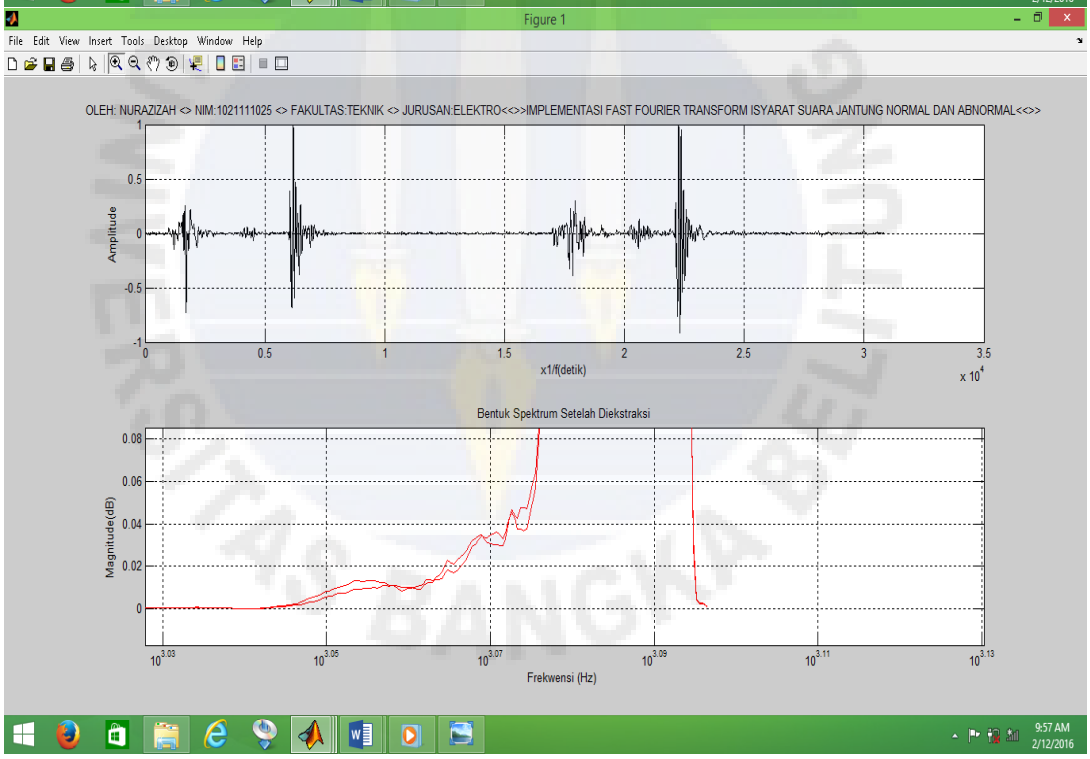


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:57 AM
2/12/2016

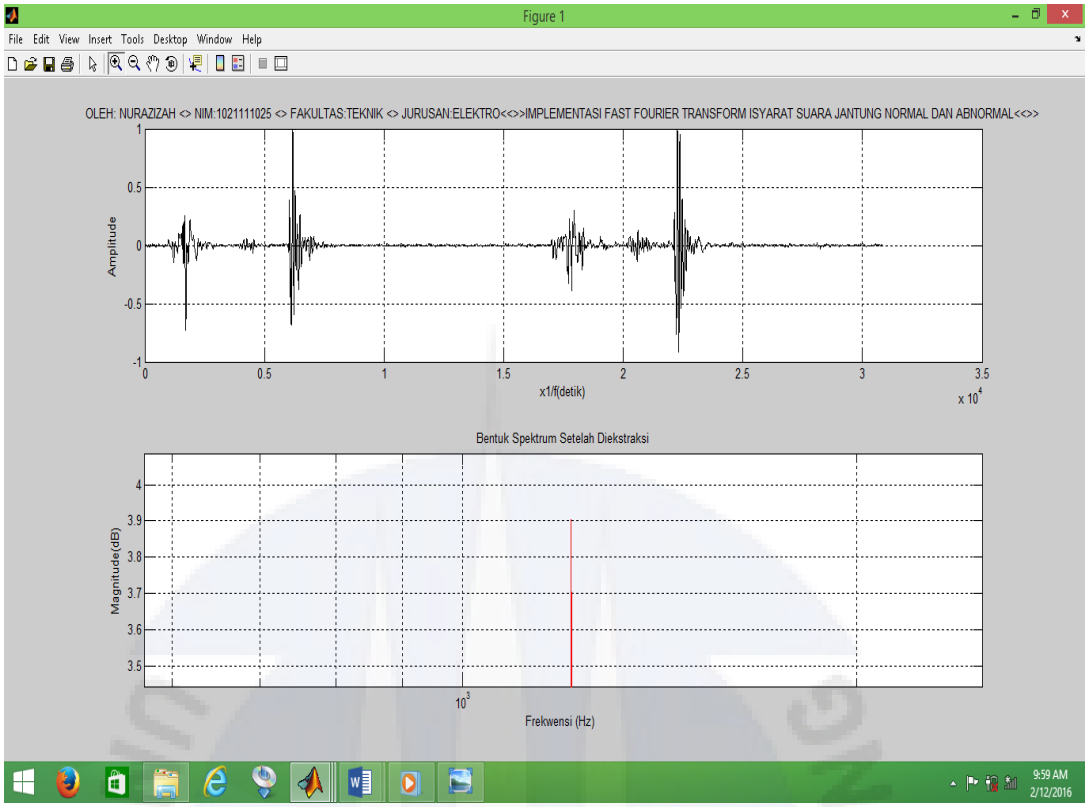
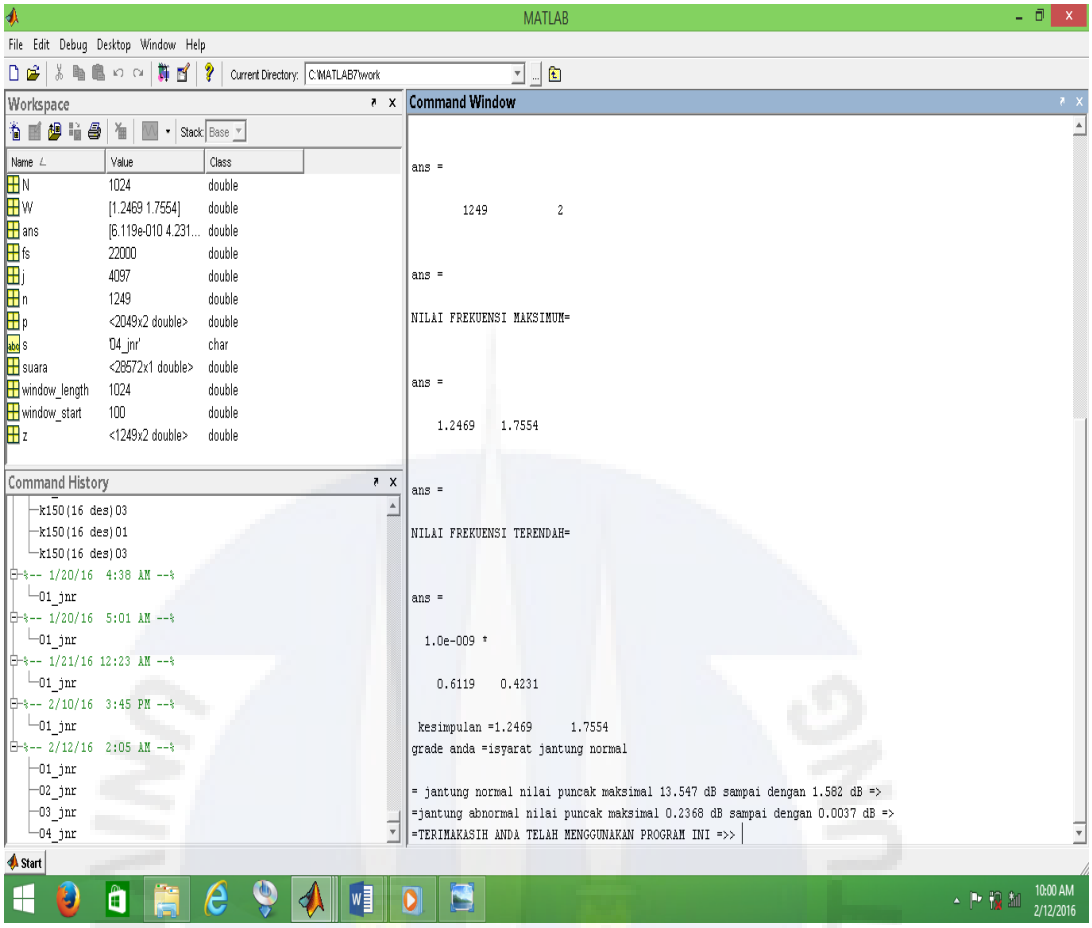


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
10^3
Frekwensi (Hz)
9:59 AM
2/12/2016

04_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [1.2469 1.7554] double
ans [6.119e-010 4.231... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '04_jnr' char
suara <28572x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
k150(16 des)03
k150(16 des)01
k150(16 des)03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
1.2469 1.7554
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.6119 0.4231
kesimpulan =1.2469 1.7554
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
10:00 AM
2/12/2016

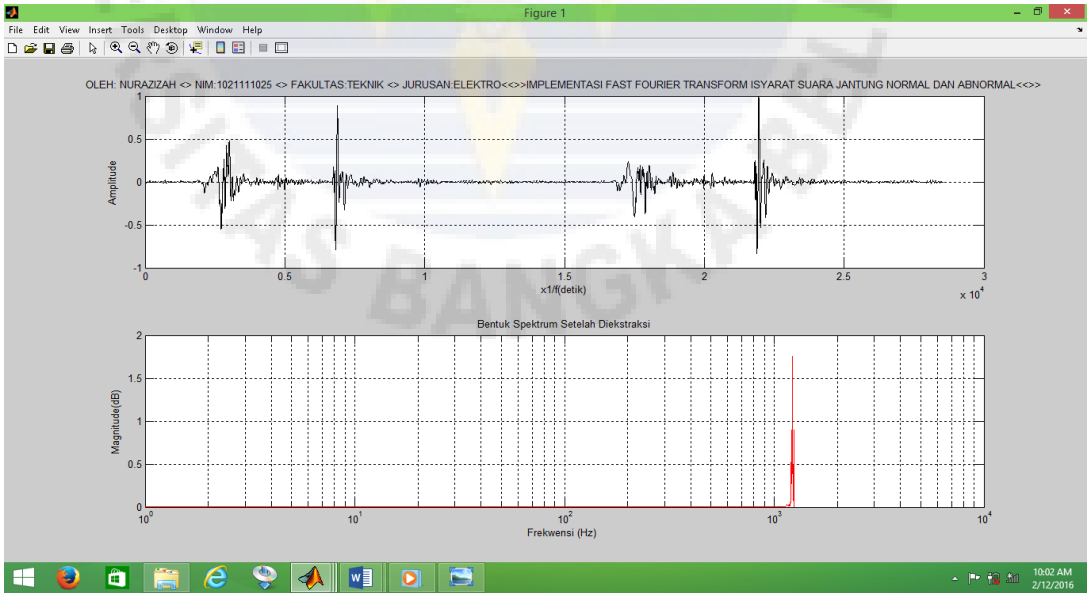


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:02 AM
2/12/2016

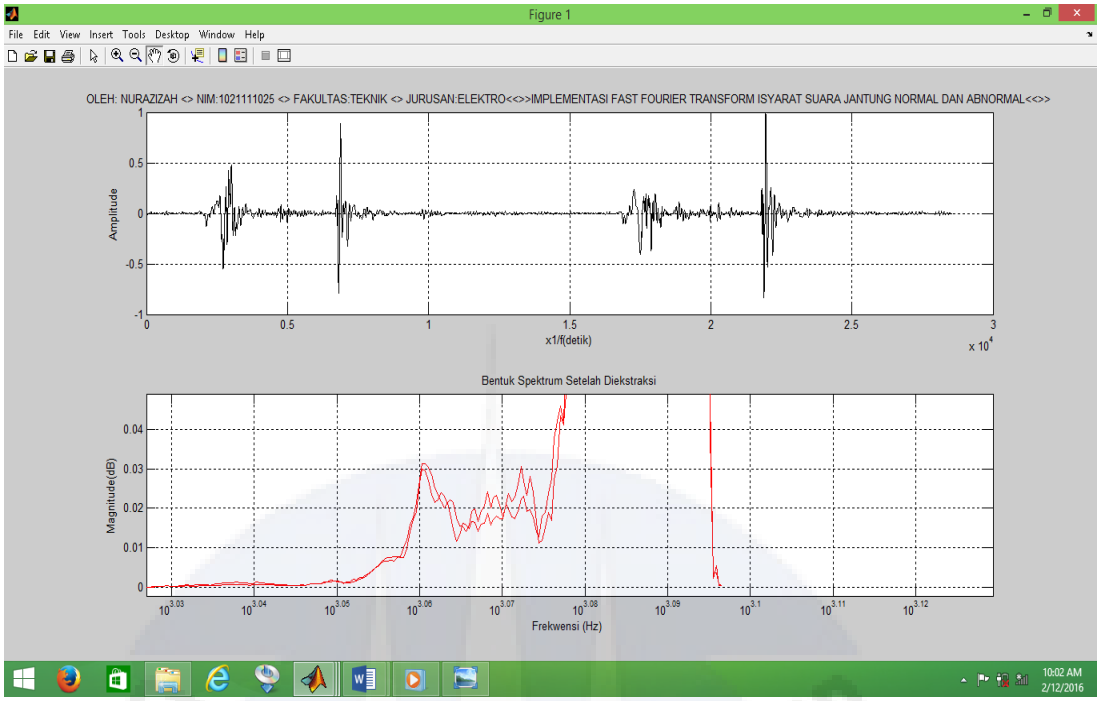


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:02 AM
2/12/2016

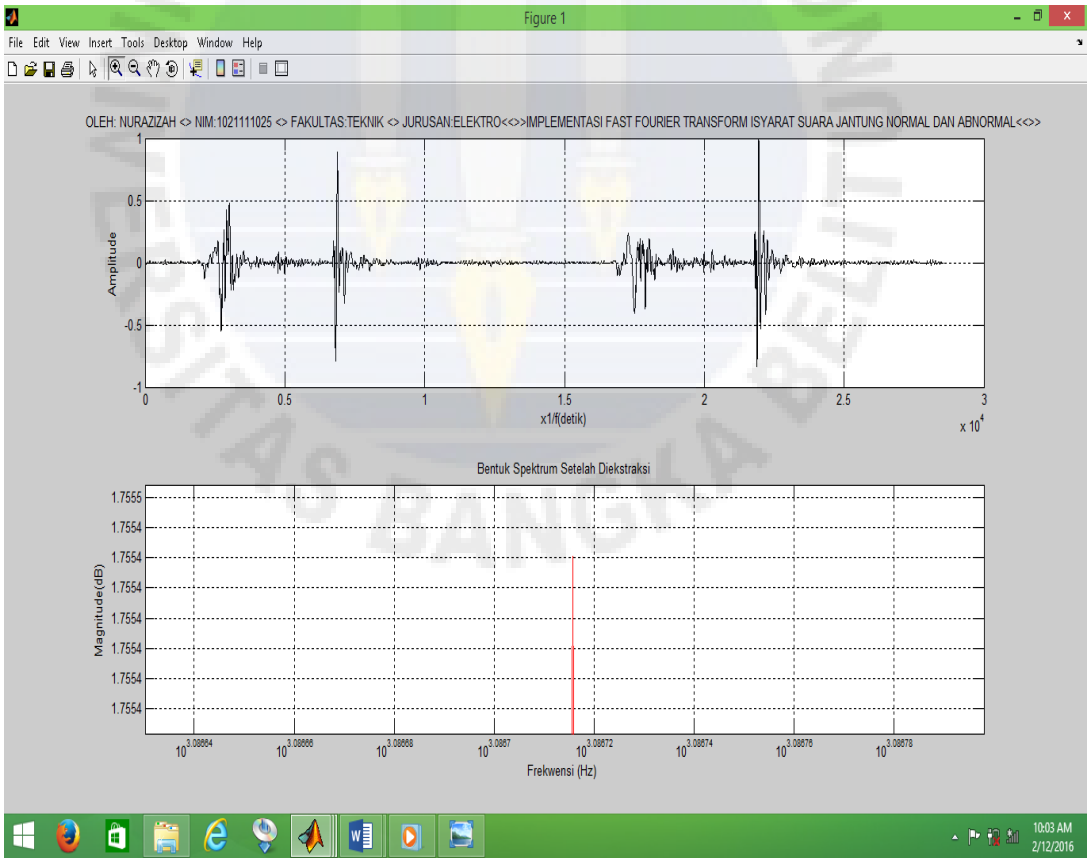
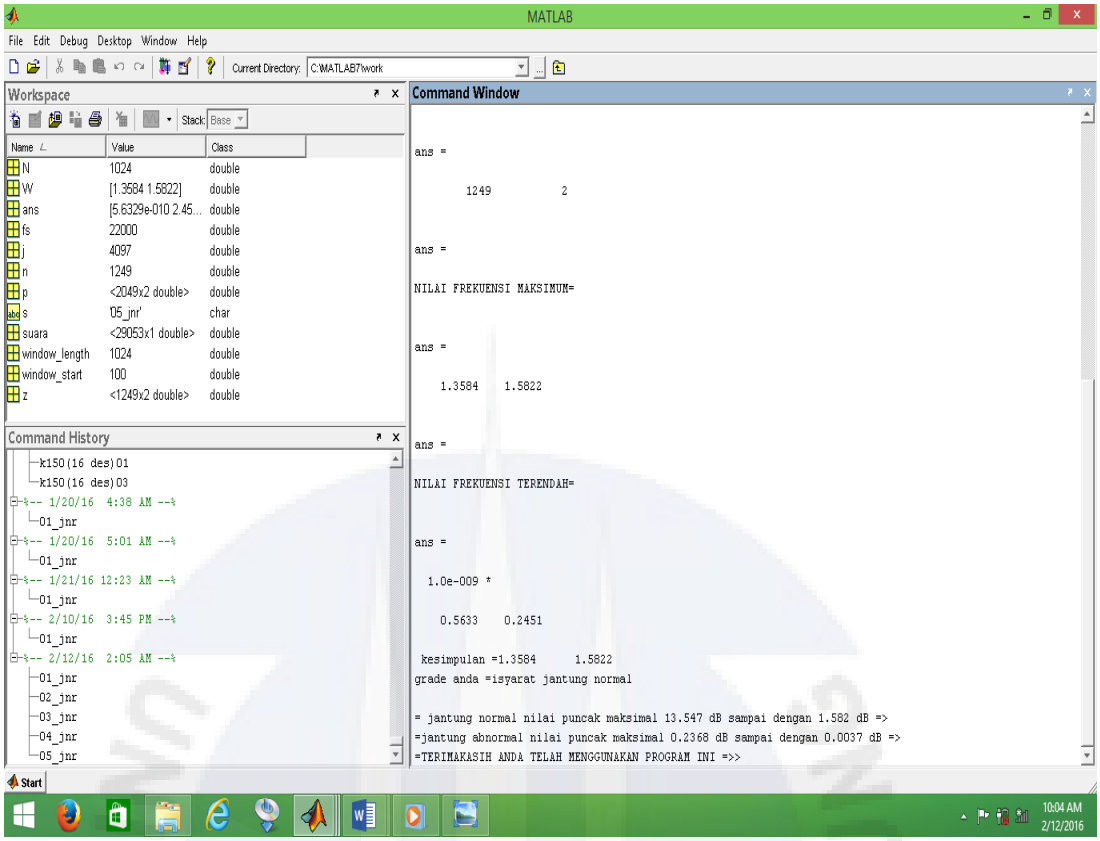


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:03 AM
2/12/2016

05_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [1.3584 1.5822] double
ans [5.6329e-010 2.45... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '05_jnr' char
suara <29053x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
k150 (16 des) 01
k150 (16 des) 03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
1.3584 1.5822
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.5633 0.2451
kesimpulan =1.3584 1.5822
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
10:04 AM
2/12/2016

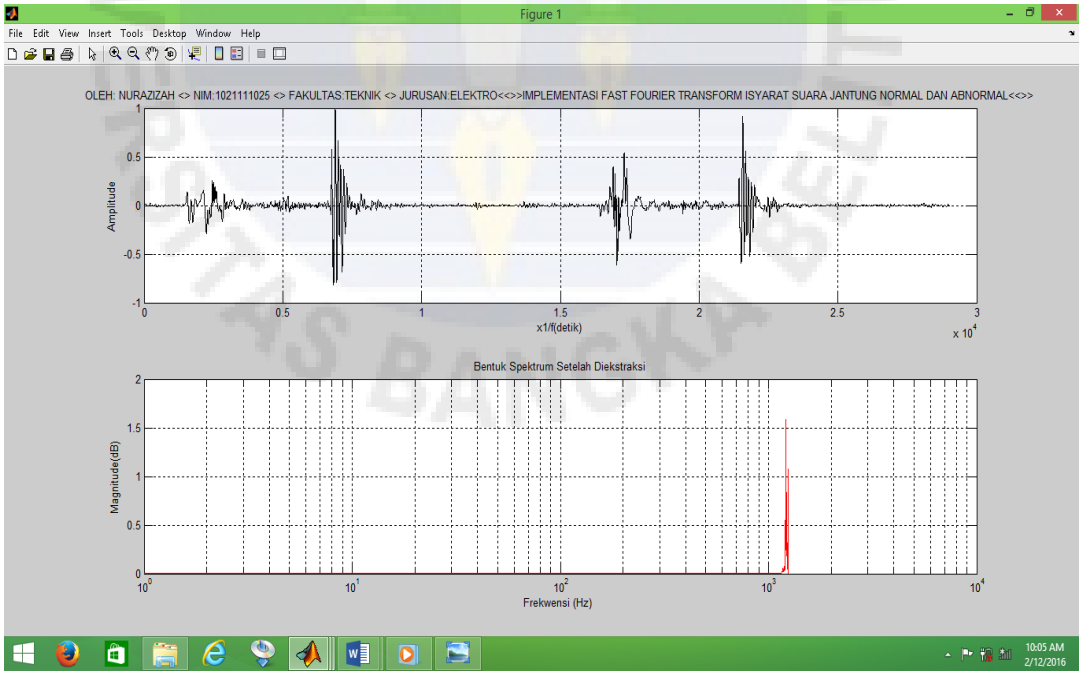


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:05 AM
2/12/2016

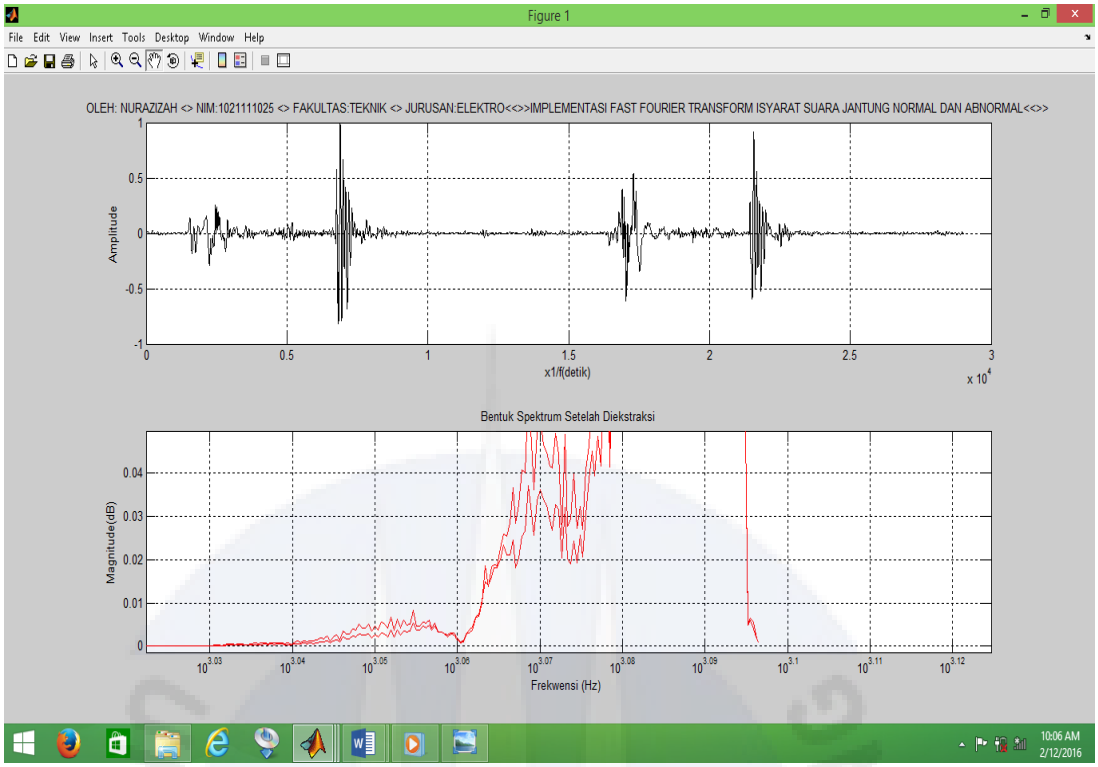


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:06 AM
2/12/2016

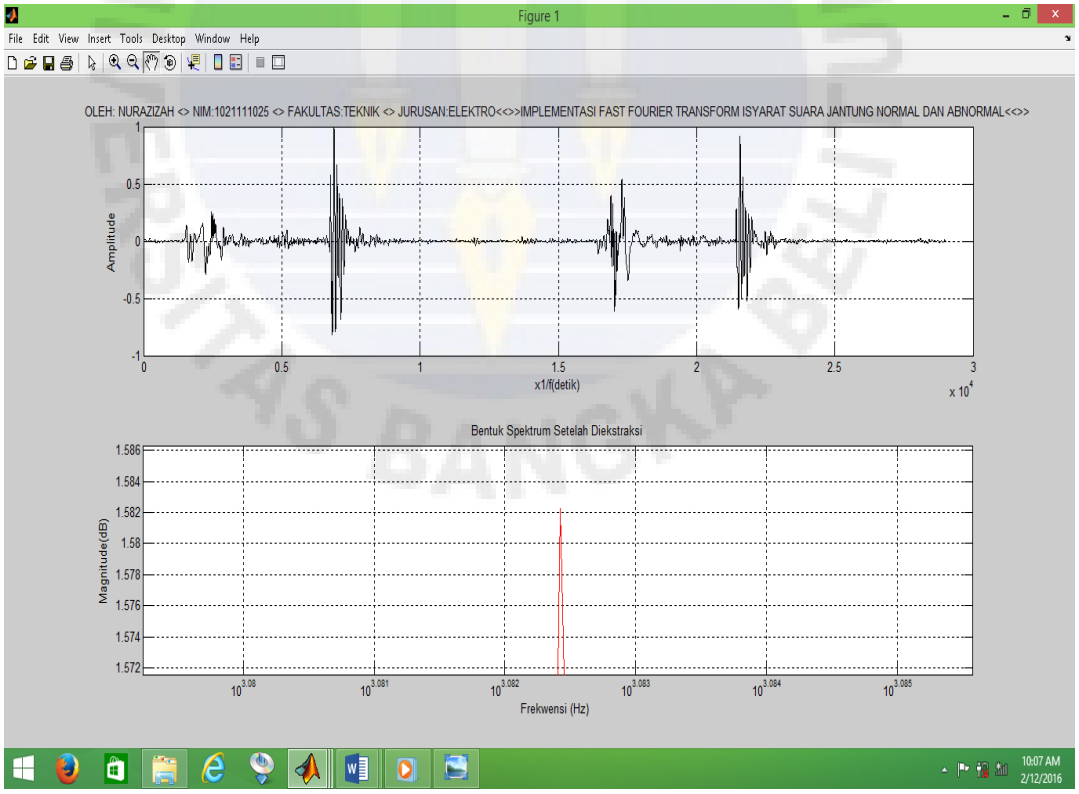
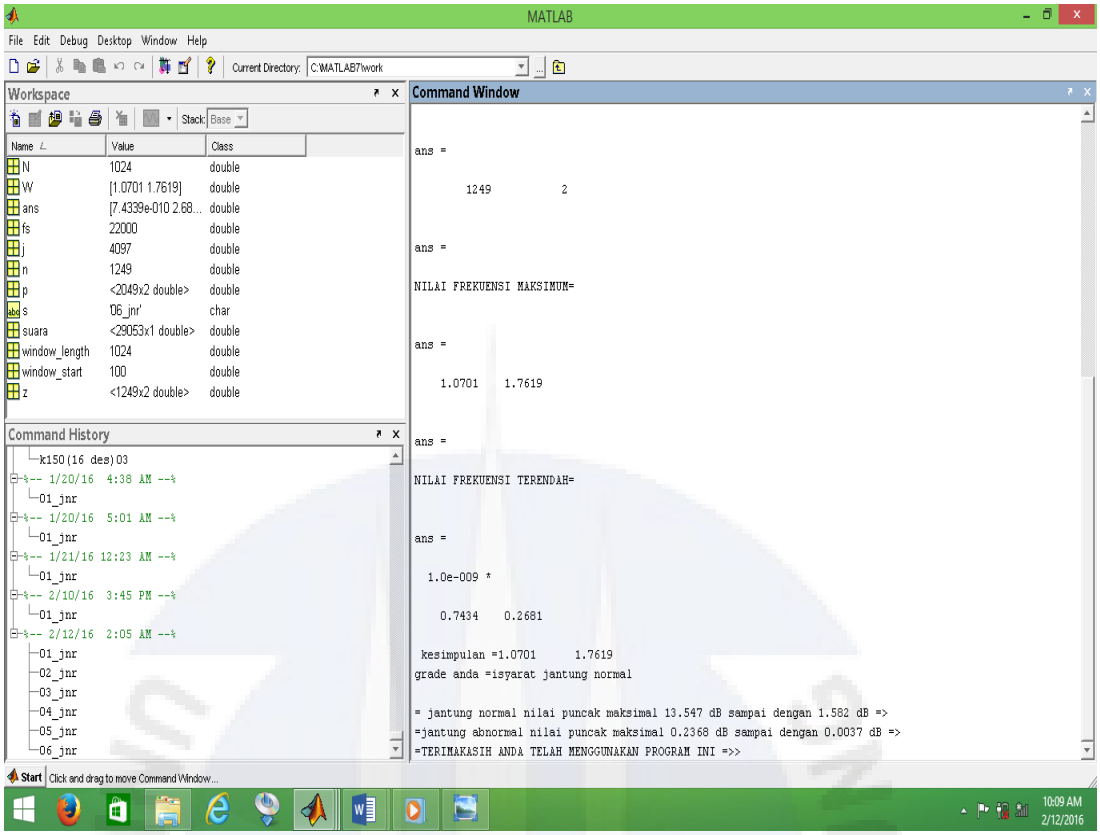


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:07 AM
2/12/2016

06_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [1.0701 1.7619] double
ans [7.4339e-010 2.68... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '06_jnr' char
suara <29053x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
k150 (16 des) 03
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
1.0701 1.7619
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.7434 0.2681
kesimpulan =1.0701 1.7619
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
Click and drag to move Command Window...
10:09 AM
2/12/2016

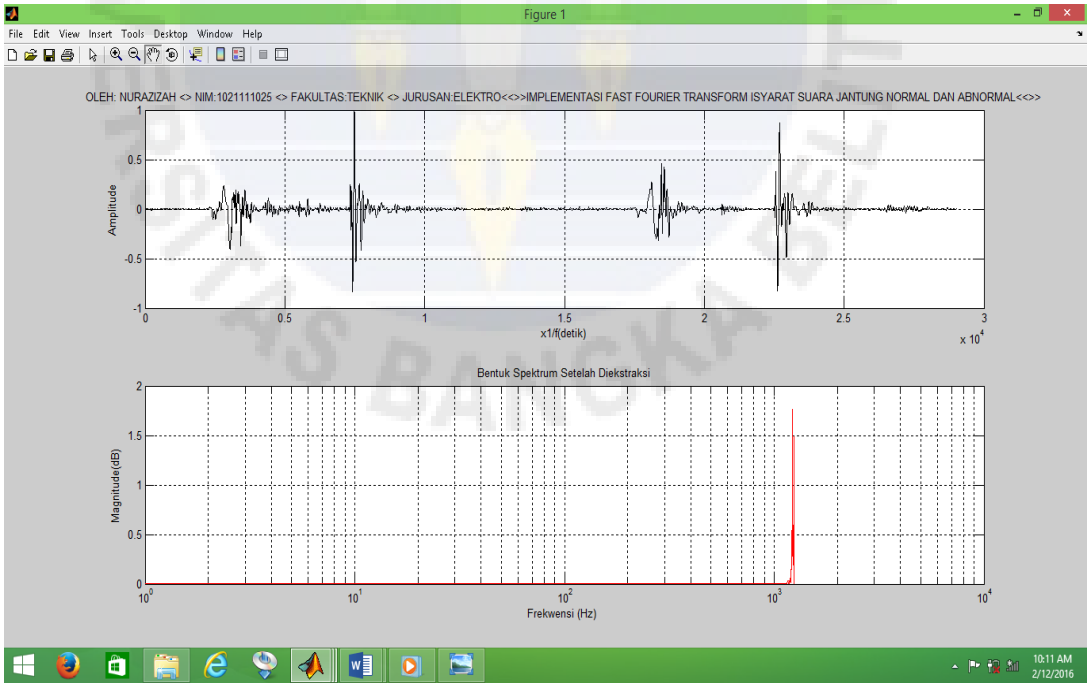


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:11 AM
2/12/2016

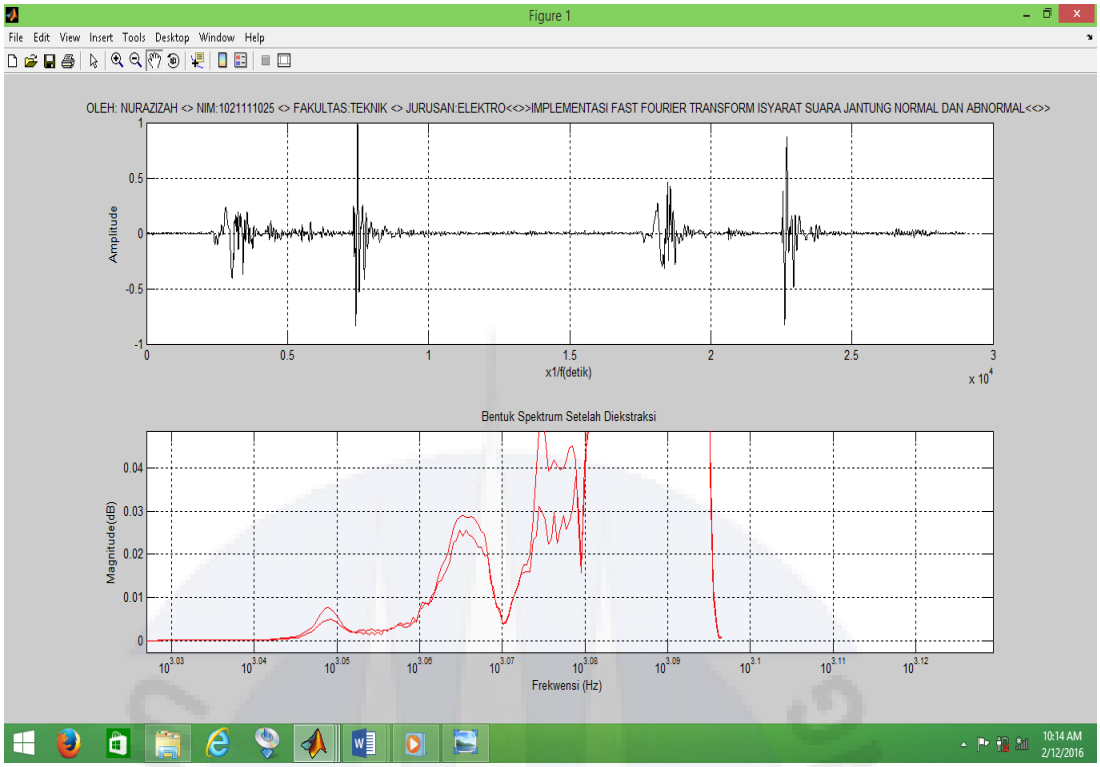


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:14 AM
2/12/2016

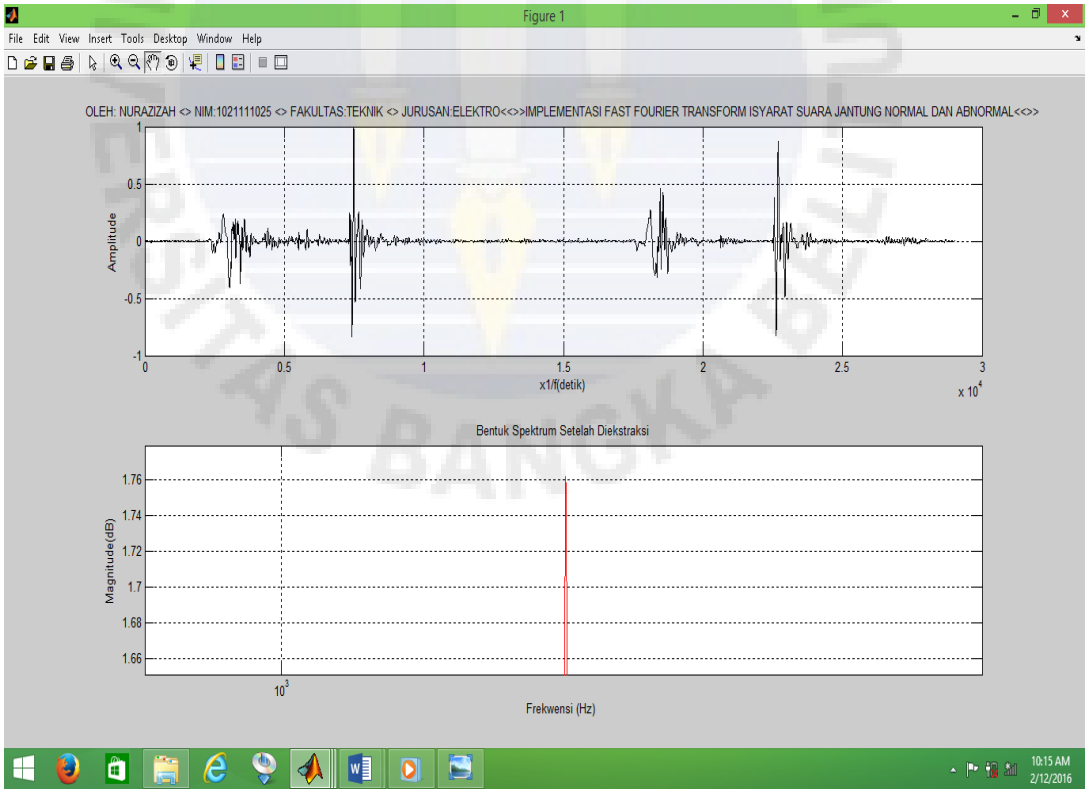
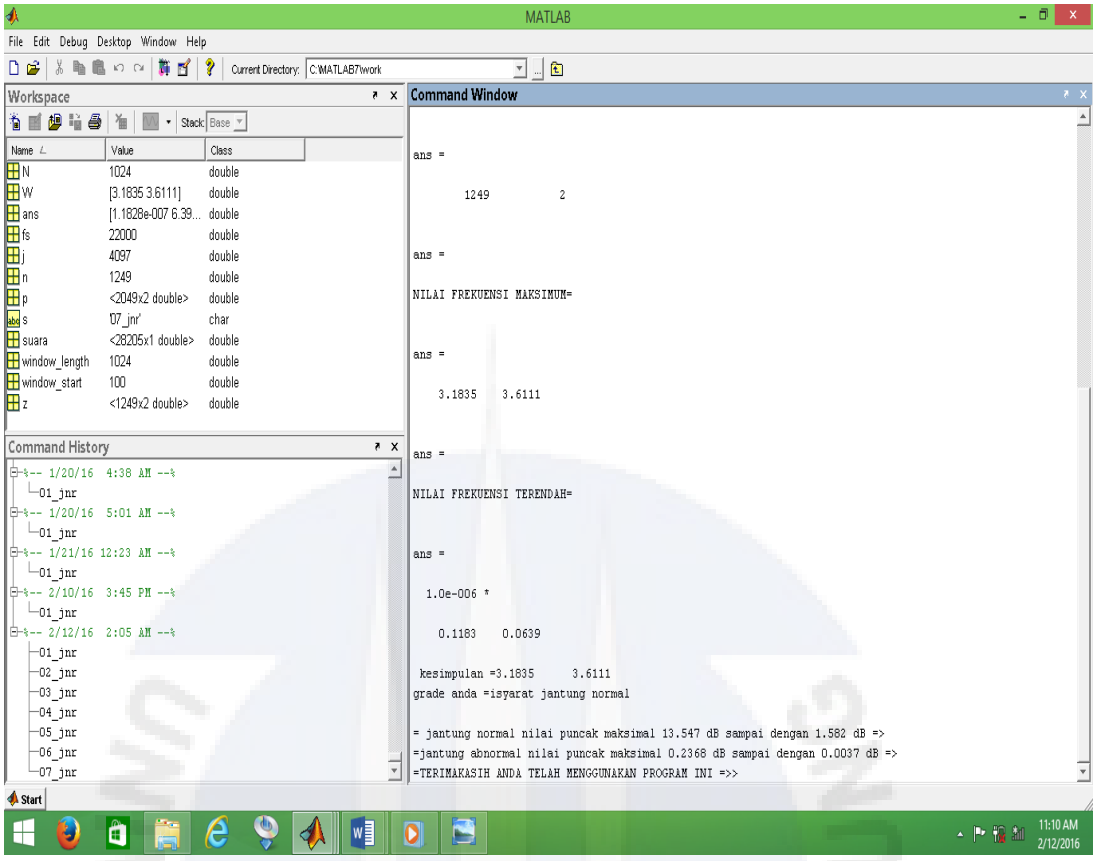


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
10:15 AM
2/12/2016

07_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [3.1835 3.6111] double
ans [1.1828e-007 6.39... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '07_jnr' char
suara <28205x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
%-- 1/20/16 4:38 AM --%
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
3.1835 3.6111
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-006 *
0.1183 0.0639
kesimpulan =3.1835 3.6111
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
11:10 AM
2/12/2016

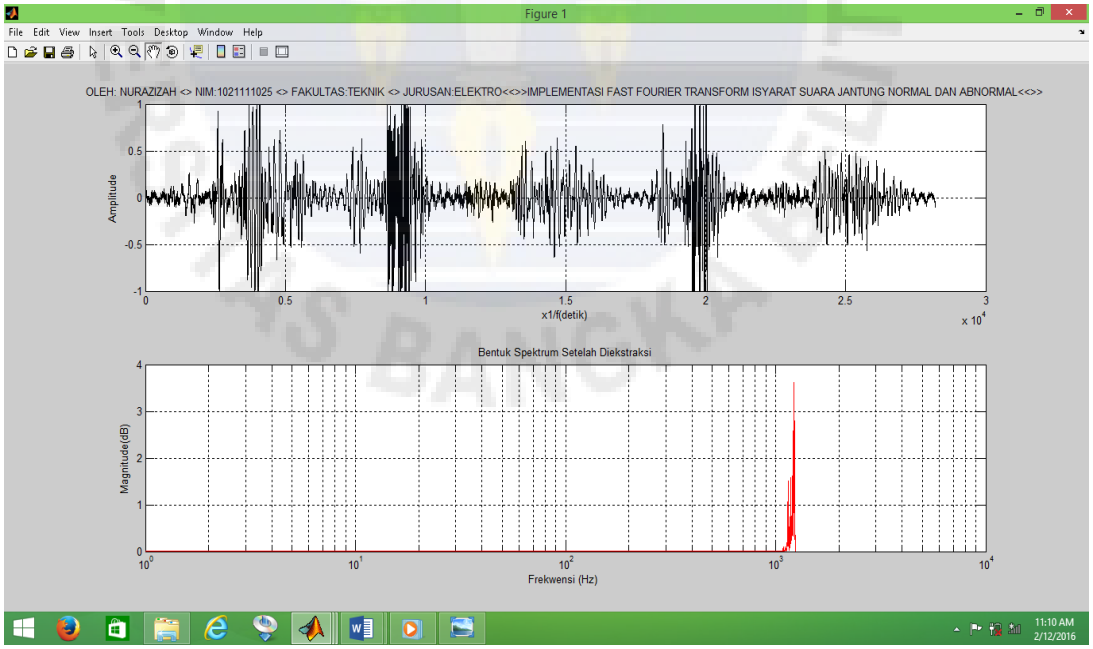


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:10 AM
2/12/2016

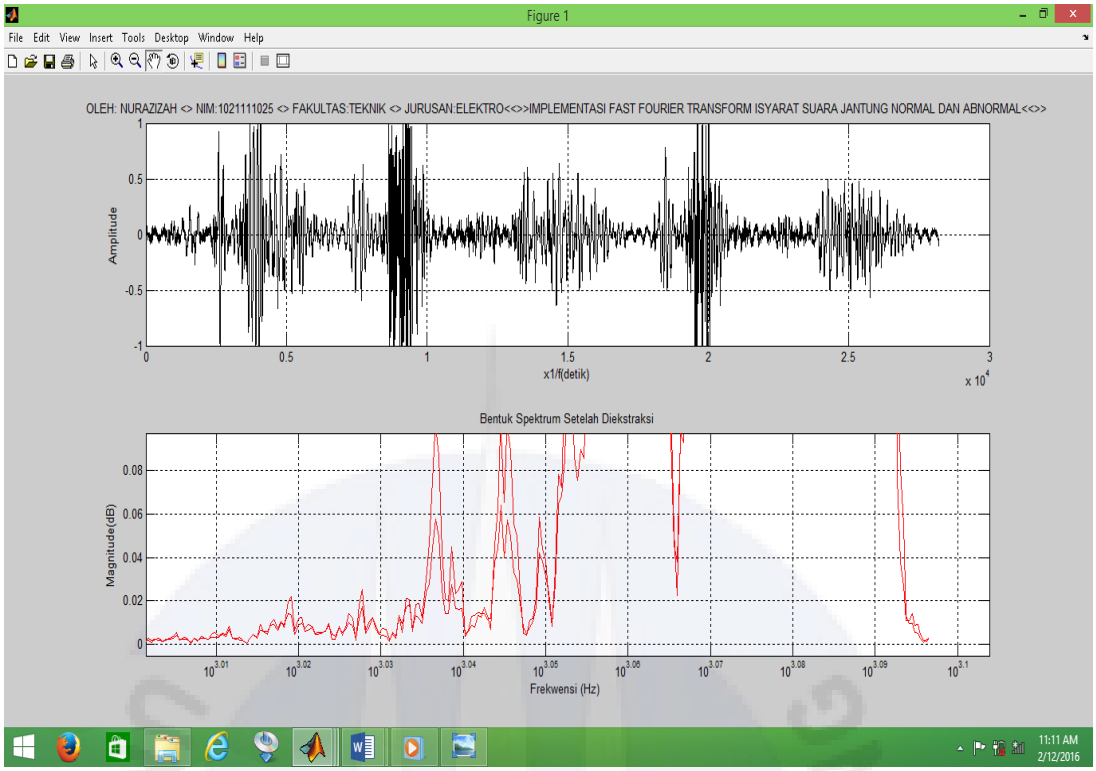


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:11 AM
2/12/2016

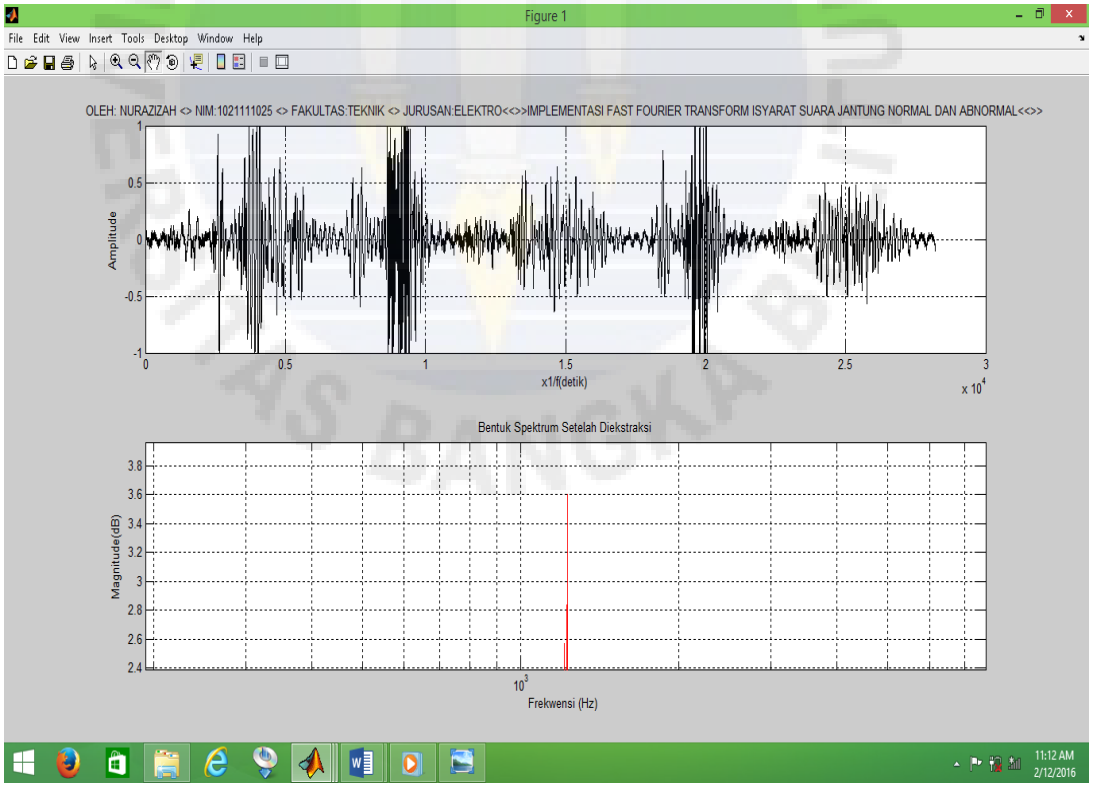
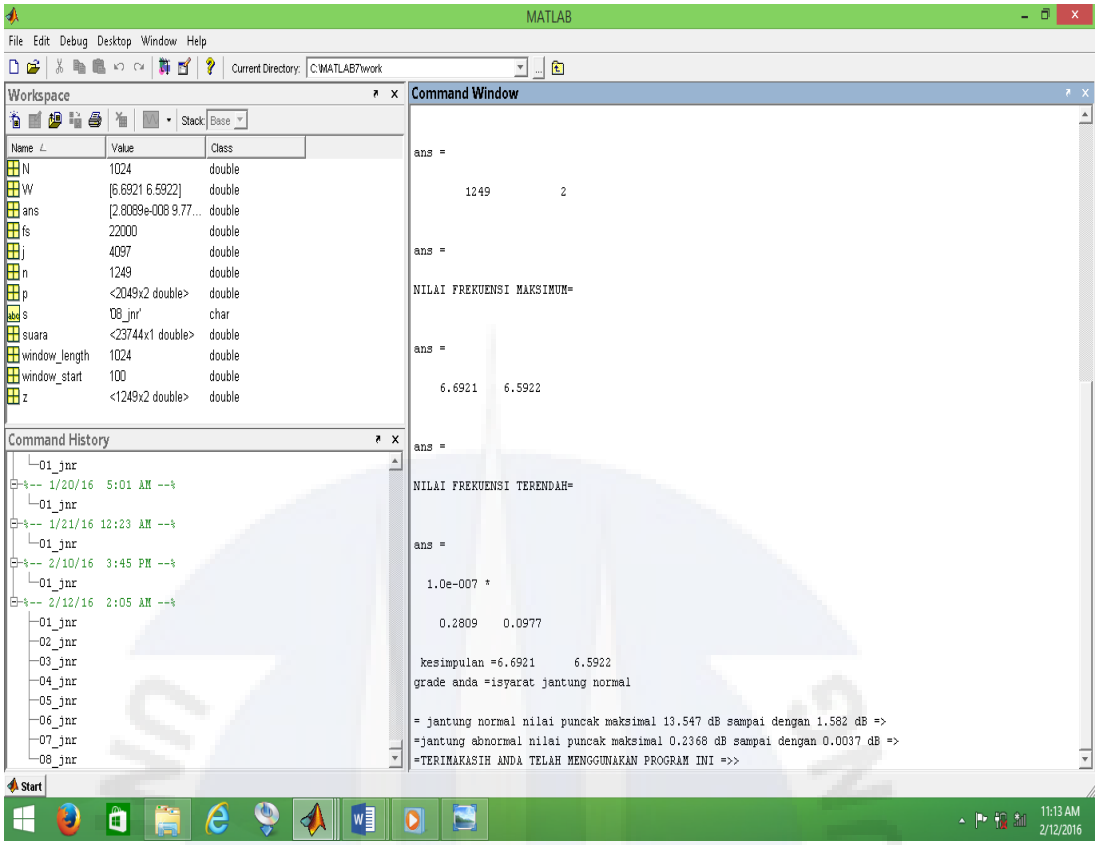


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:12 AM
2/12/2016

08_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [6.6921 6.5922] double
ans [2.8089e-008 9.77... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '08_jnr' char
suara <23744x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
6.6921 6.5922
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-007 *
0.2809 0.0977
kesimpulan =6.6921 6.5922
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
11:13 AM
2/12/2016

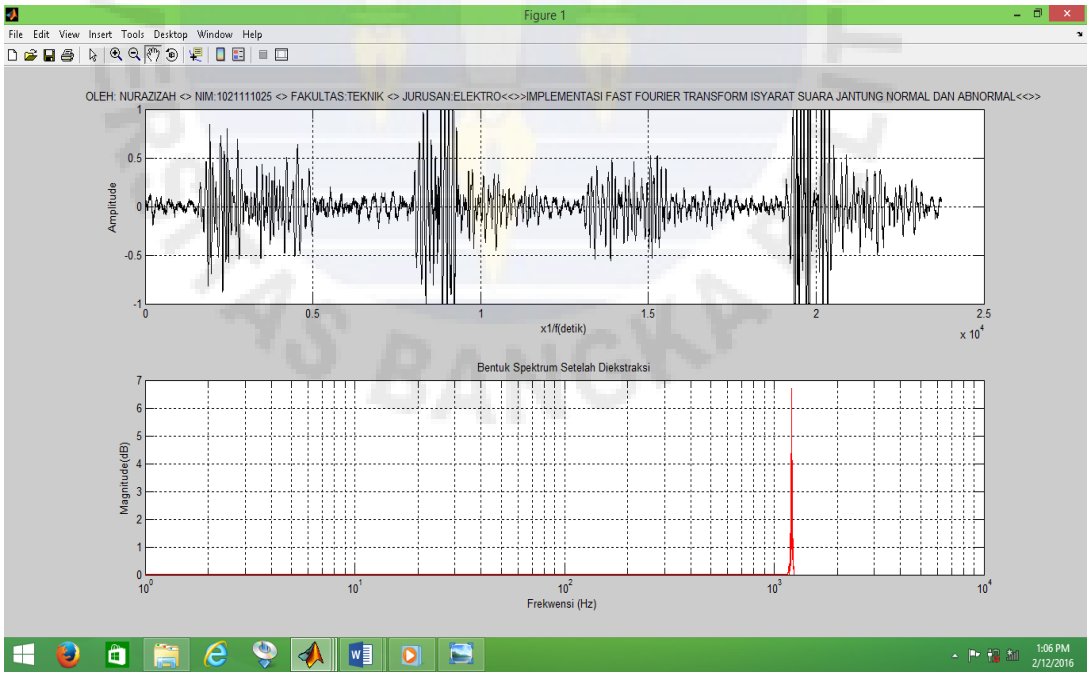


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
1:06 PM
2/12/2016

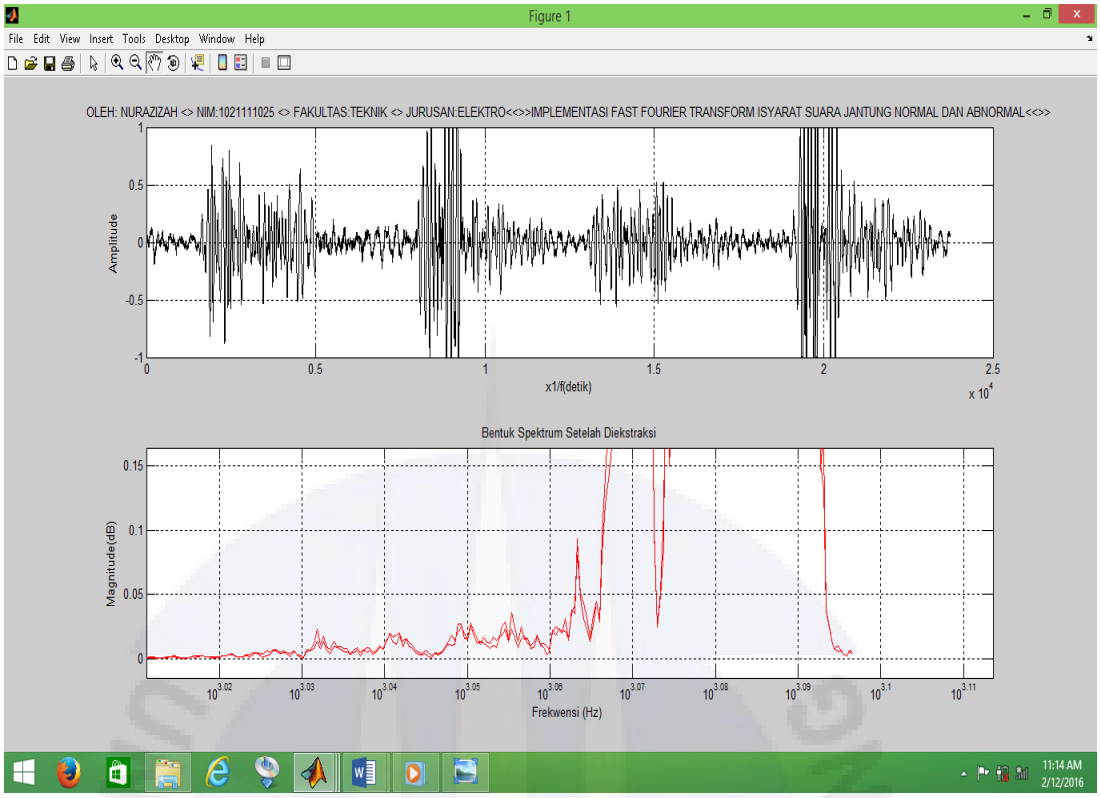


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:14 AM
2/12/2016

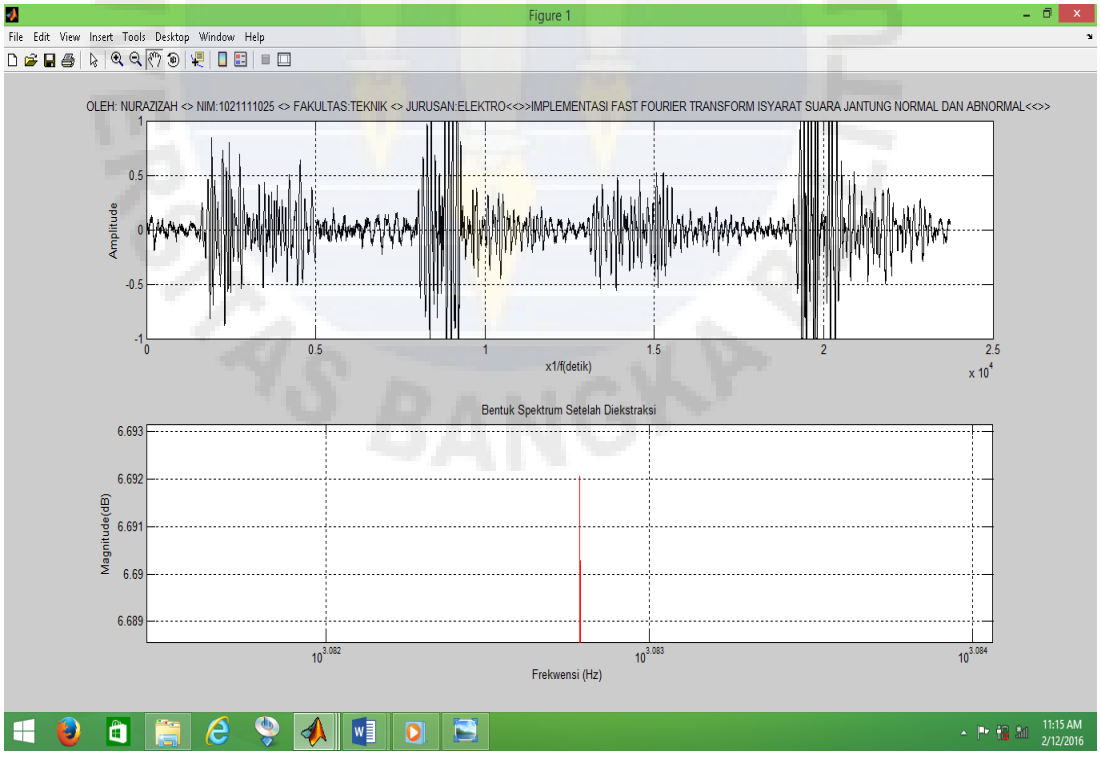
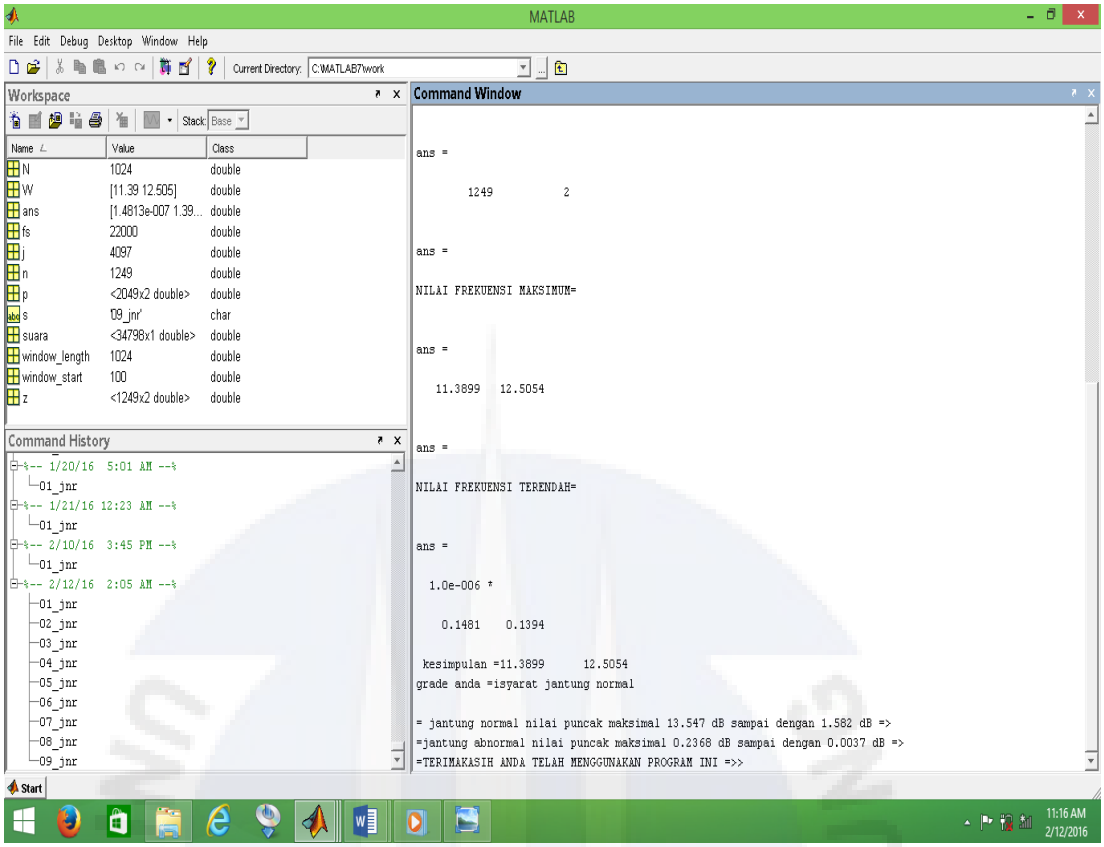


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:15 AM
2/12/2016

09_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [11.39 12.505] double
ans [1.4813e-007 1.39... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '09_jnr' char
suara <34798x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
%-- 1/20/16 5:01 AM --%
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
11.3899 12.5054
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-006 *
0.1481 0.1394
kesimpulan =11.3899 12.5054
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
11:16 AM
2/12/2016

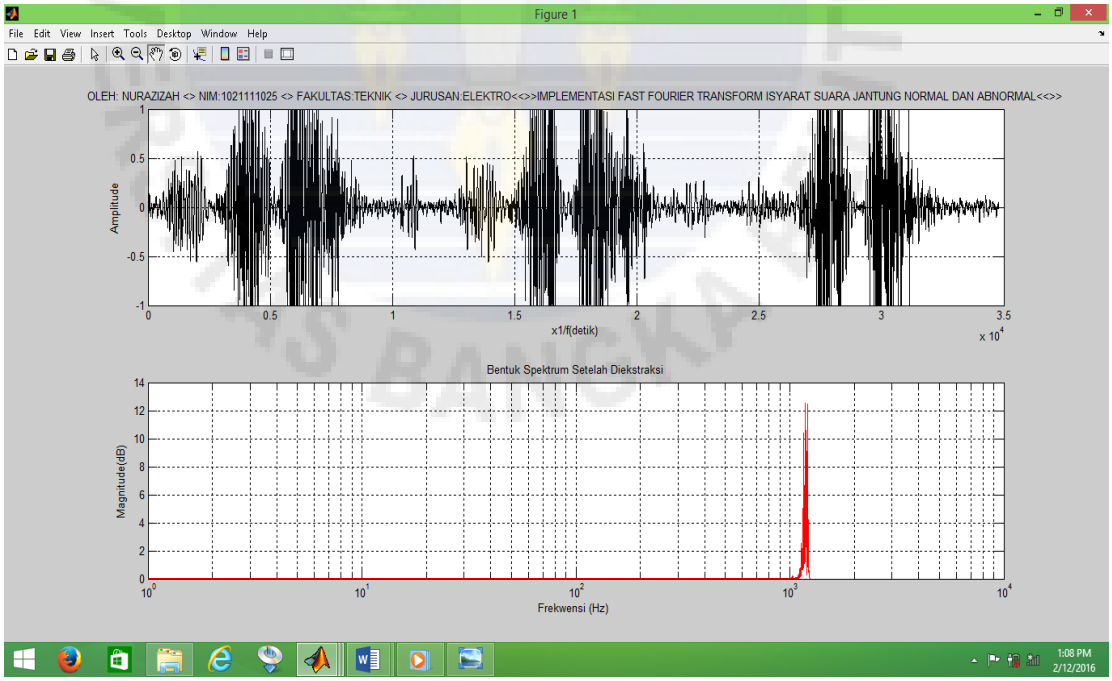


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
1:08 PM
2/12/2016

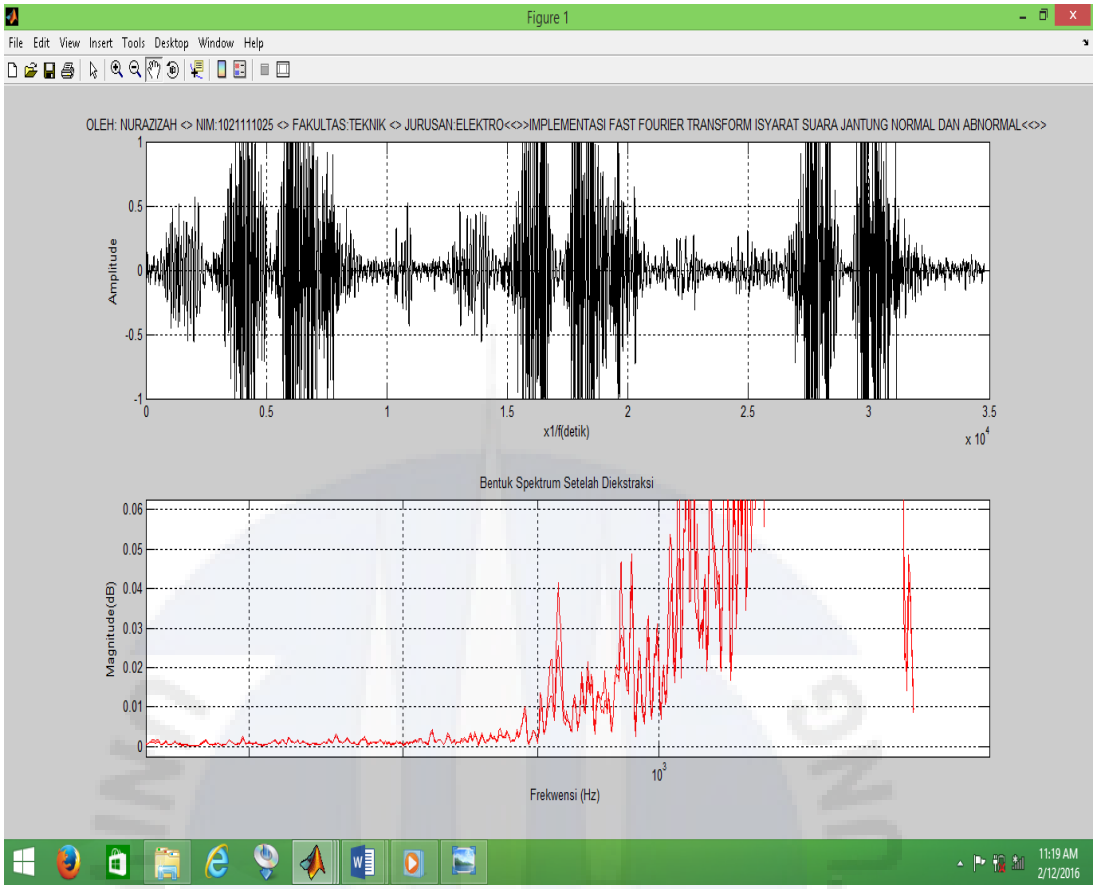


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:19 AM
2/12/2016

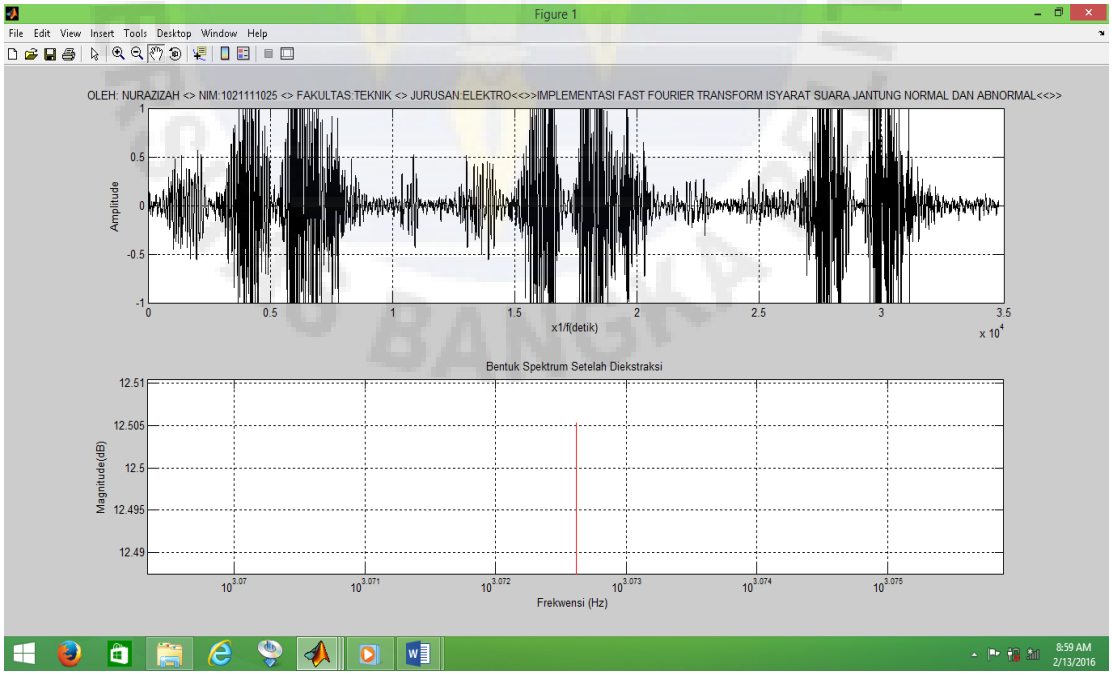
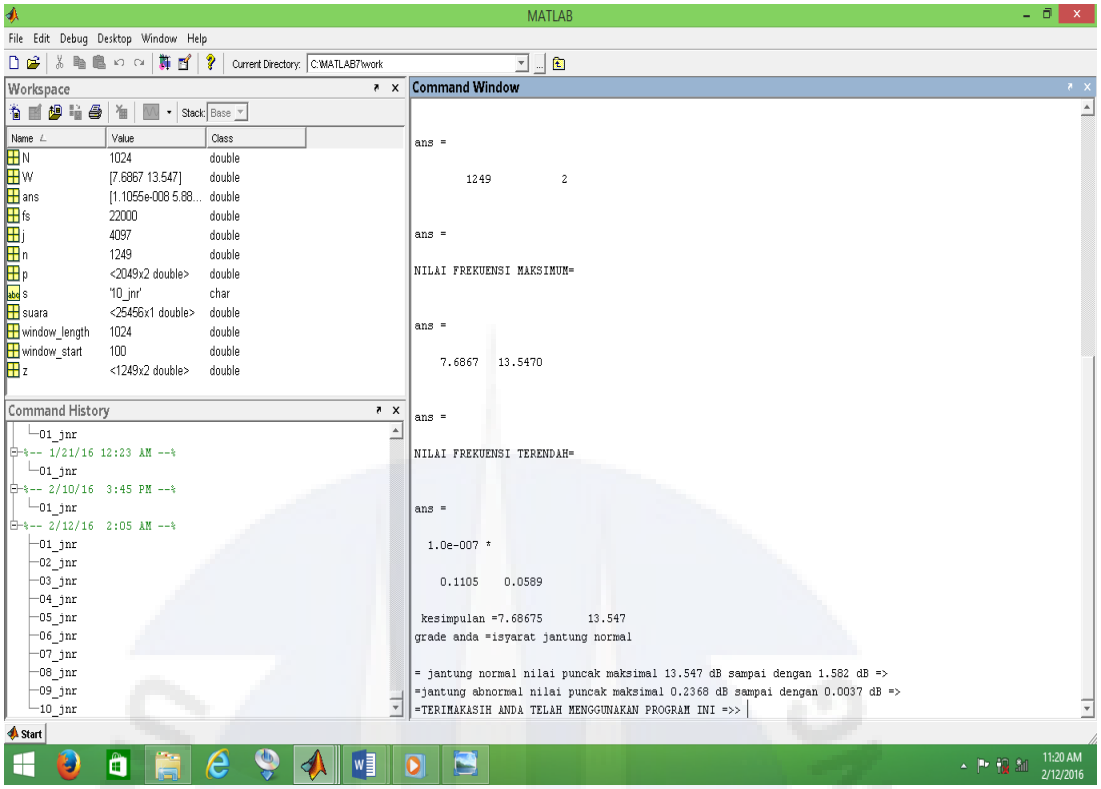


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
8:59 AM
2/13/2016

10_jnr


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [7.6867 13.547] double
ans [1.1055e-008 5.88... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '10_jnr' char
suara <25456x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
%-- 1/21/16 12:23 AM --%
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
7.6867 13.5470
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-007 *
0.1105 0.0589
kesimpulan =7.68675 13.547
grade anda =isyarat jantung normal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
11:20 AM
2/12/2016

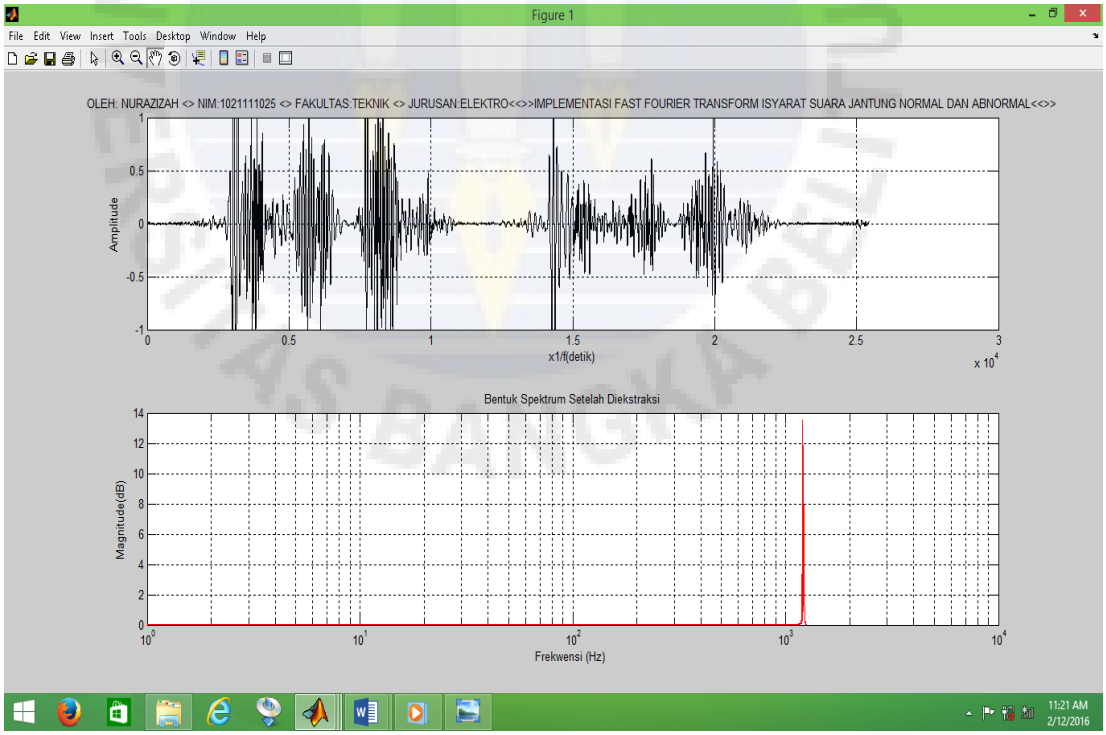


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:21 AM
2/12/2016

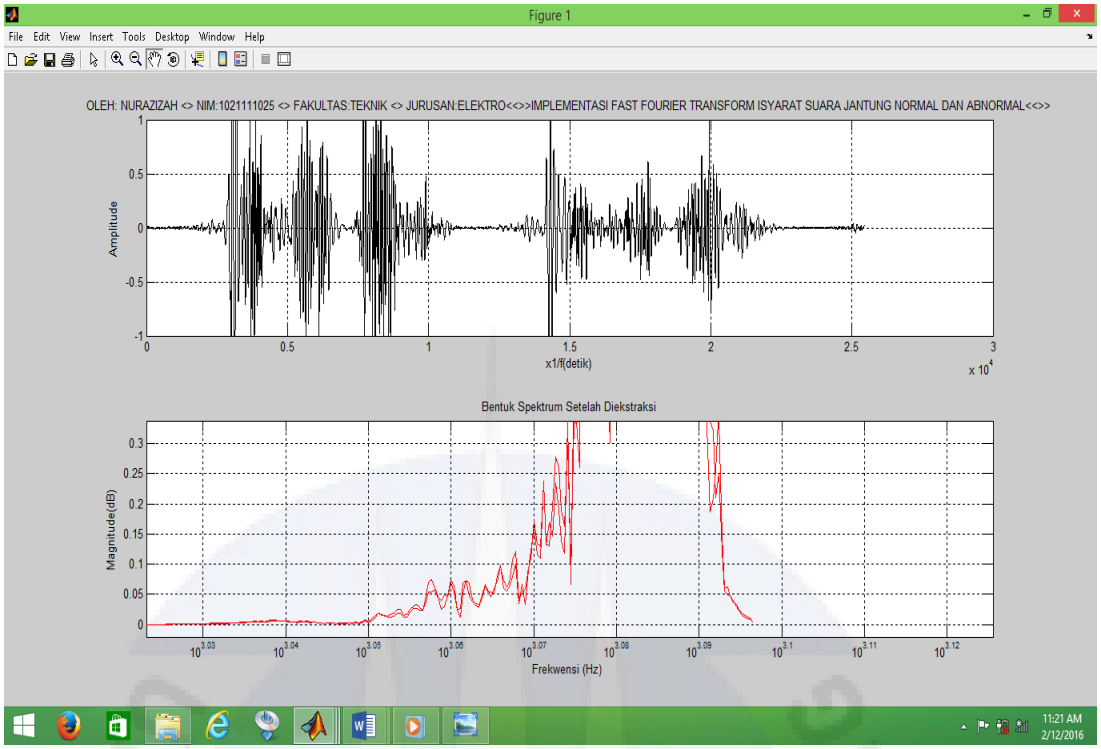


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:21 AM
2/12/2016

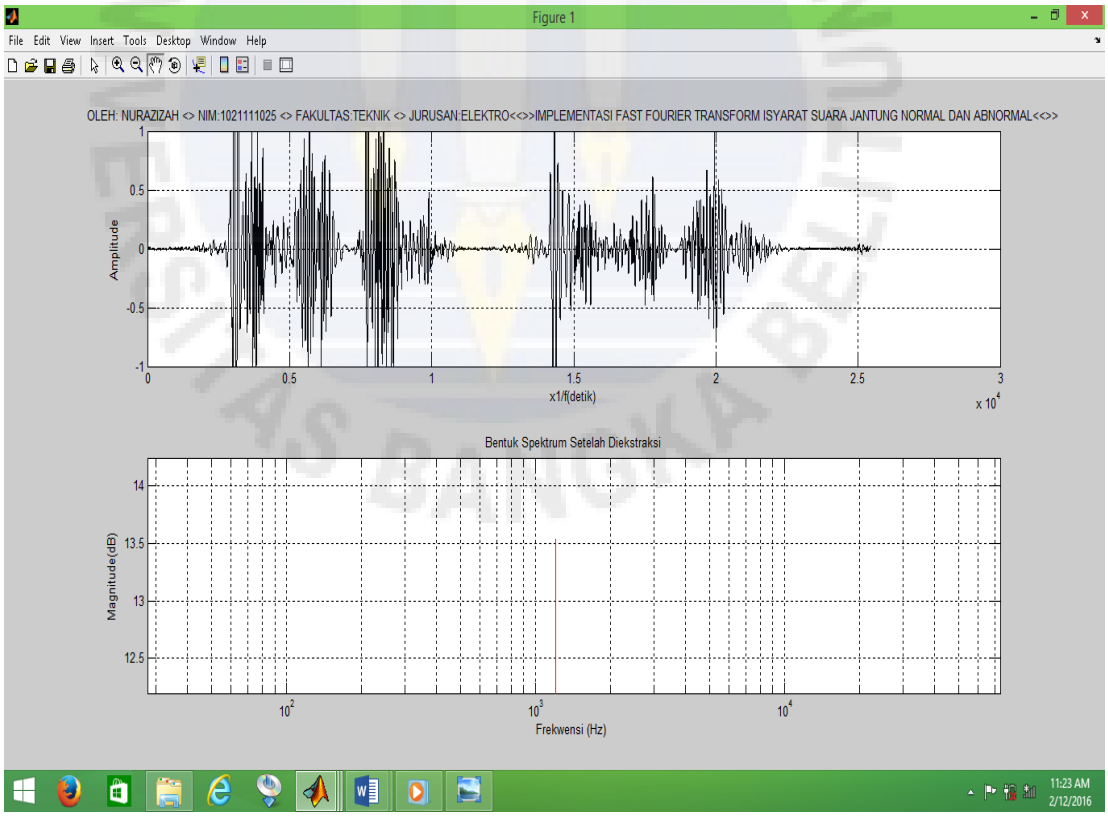
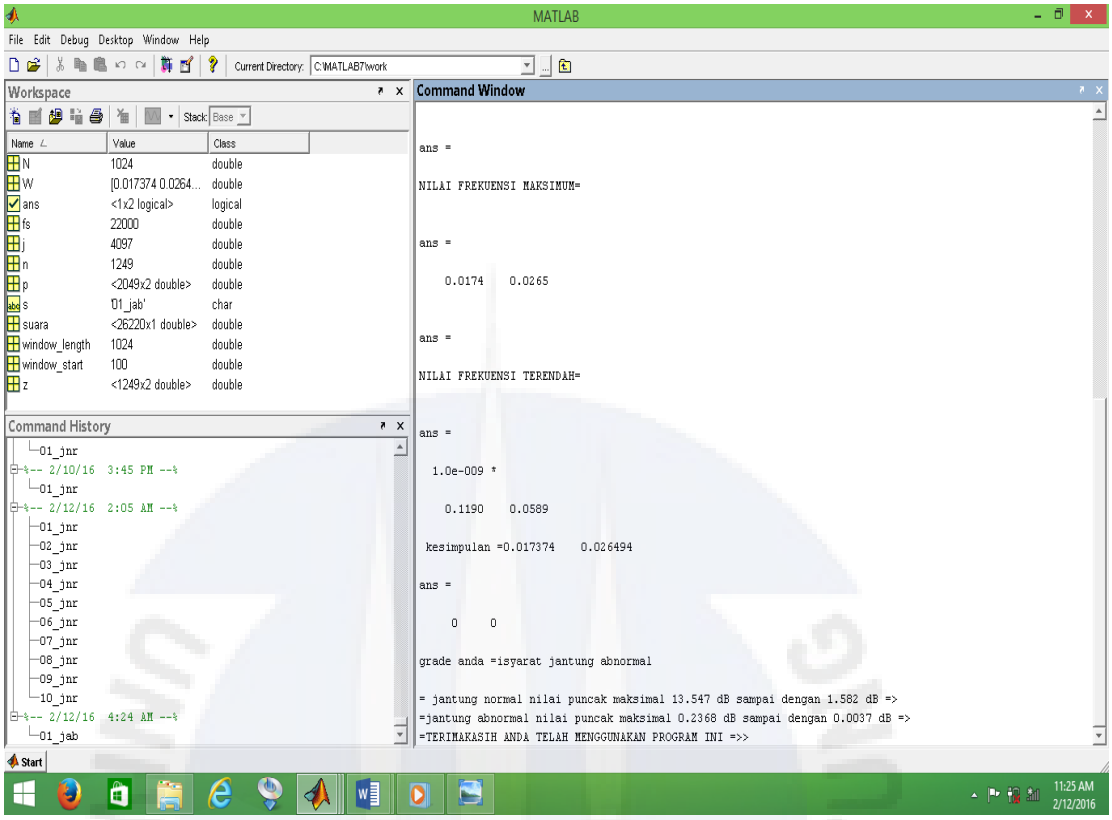


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:23 AM
2/12/2016

LAMPIRAN B

ISYARAT SUARA JANTUNG ABNORMAL

01_Jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.017374 0.0264... double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '01_jab' char
suara <26220x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0174 0.0265
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.1190 0.0589
kesimpulan =0.017374 0.026494
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
11:25 AM
2/12/2016

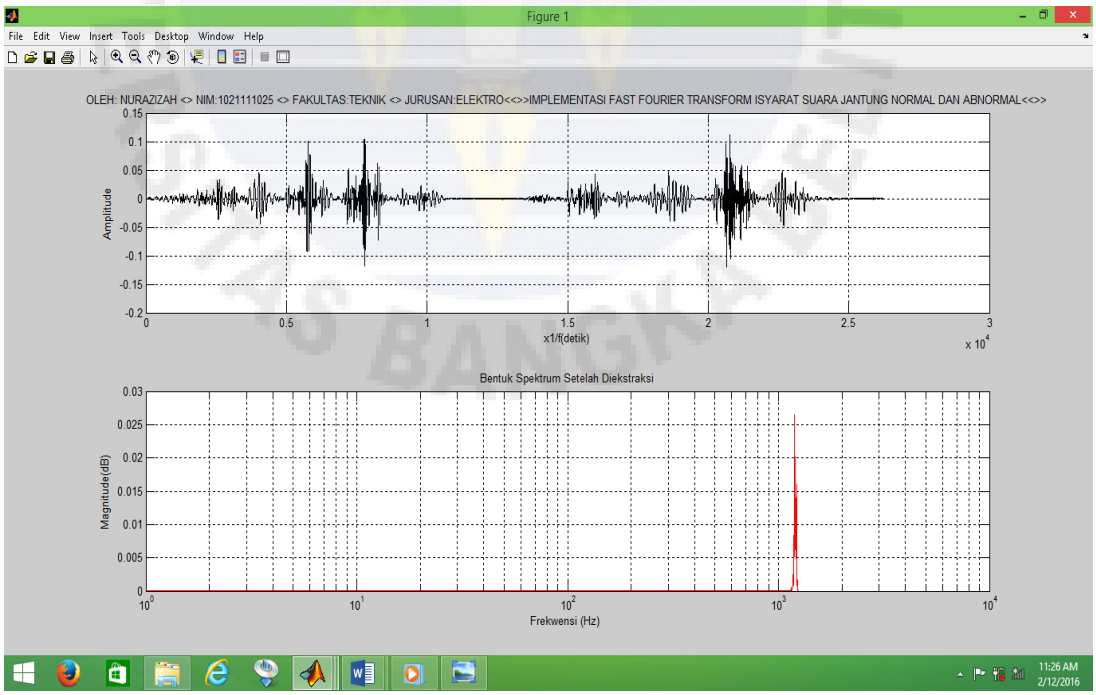


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
11:26 AM
2/12/2016

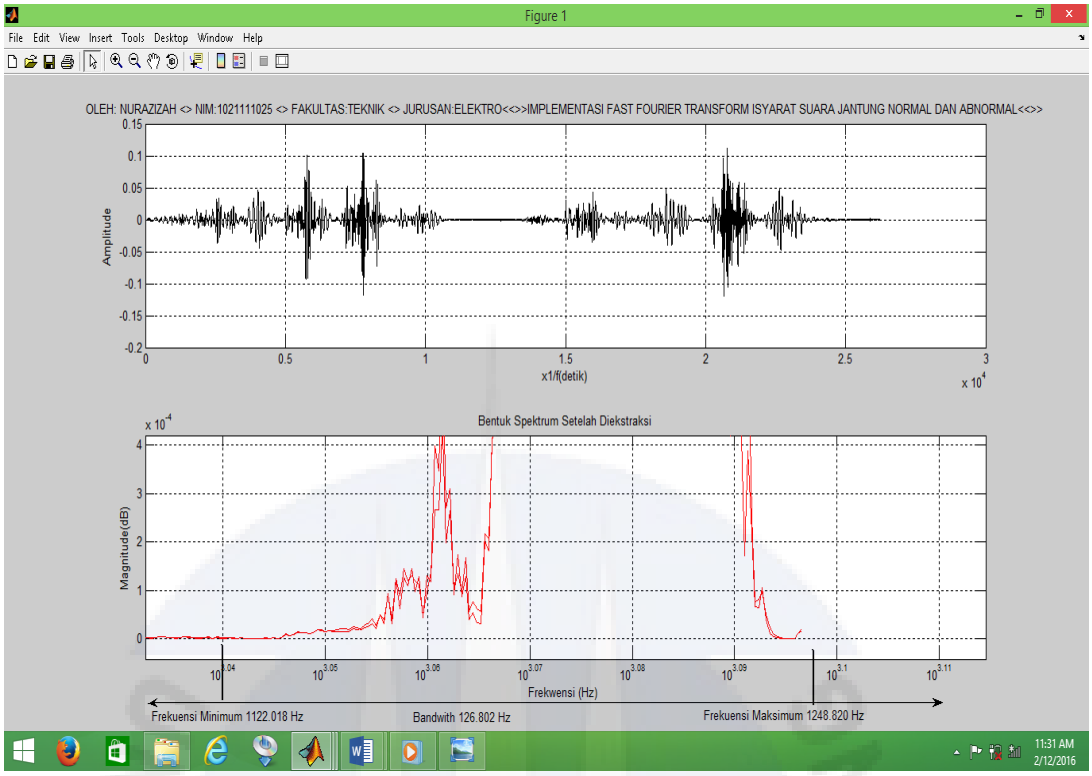


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-4
Magnitude(dB)
Frekwensi (Hz)
Frekuensi Minimum 1122.018 Hz
Bandwith 126.802 Hz
Frekuensi Maksimum 1248.820 Hz
11:31 AM
2/12/2016

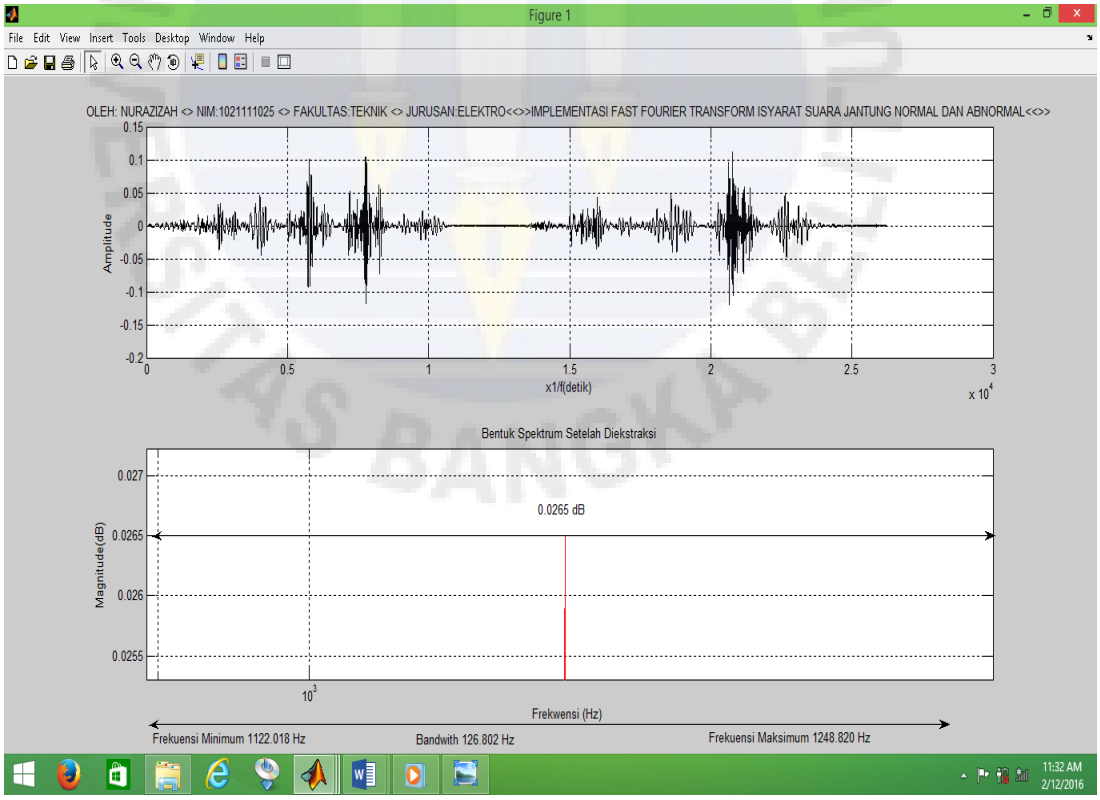
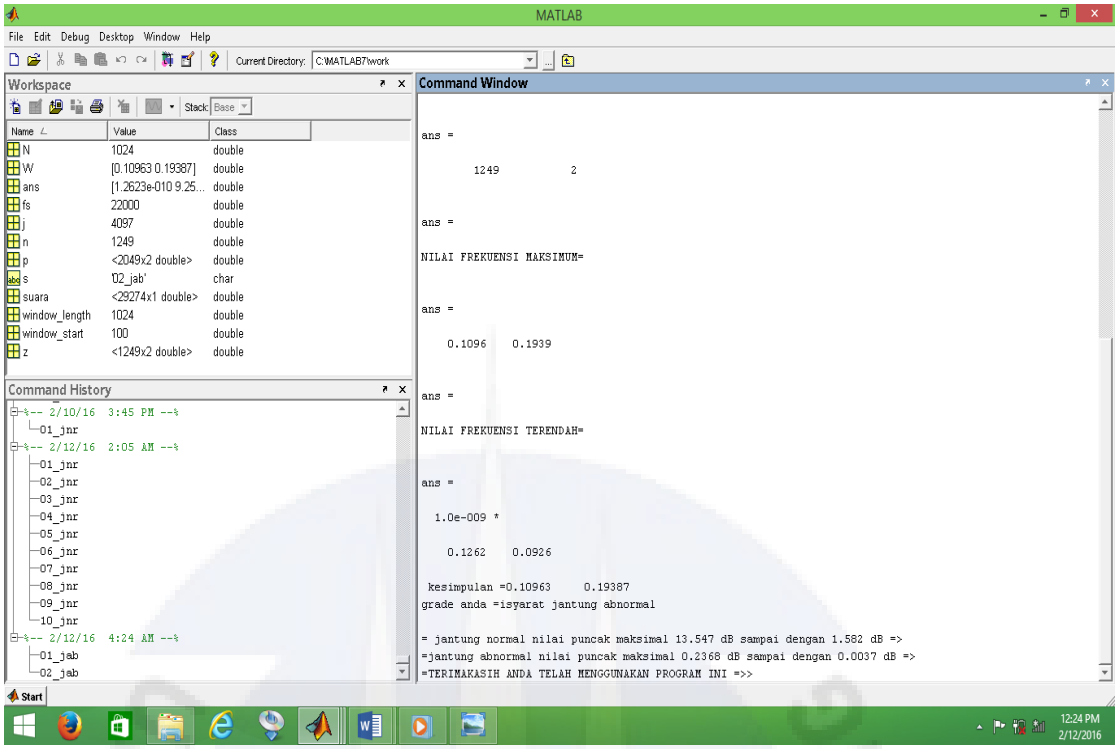


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
0.0265 dB
Magnitude(dB)
Frekwensi (Hz)
Frekuensi Minimum 1122.018 Hz
Bandwith 126.802 Hz
Frekuensi Maksimum 1248.820 Hz
11:32 AM
2/12/2016

02_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.10963 0.19387] double
ans [1.2623e-010 9.25... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '02_jab' char
suara <29274x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
%-- 2/10/16 3:45 PM --%
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.1096 0.1939
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.1262 0.0926
kesimpulan =0.10963 0.19387
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:24 PM
2/12/2016

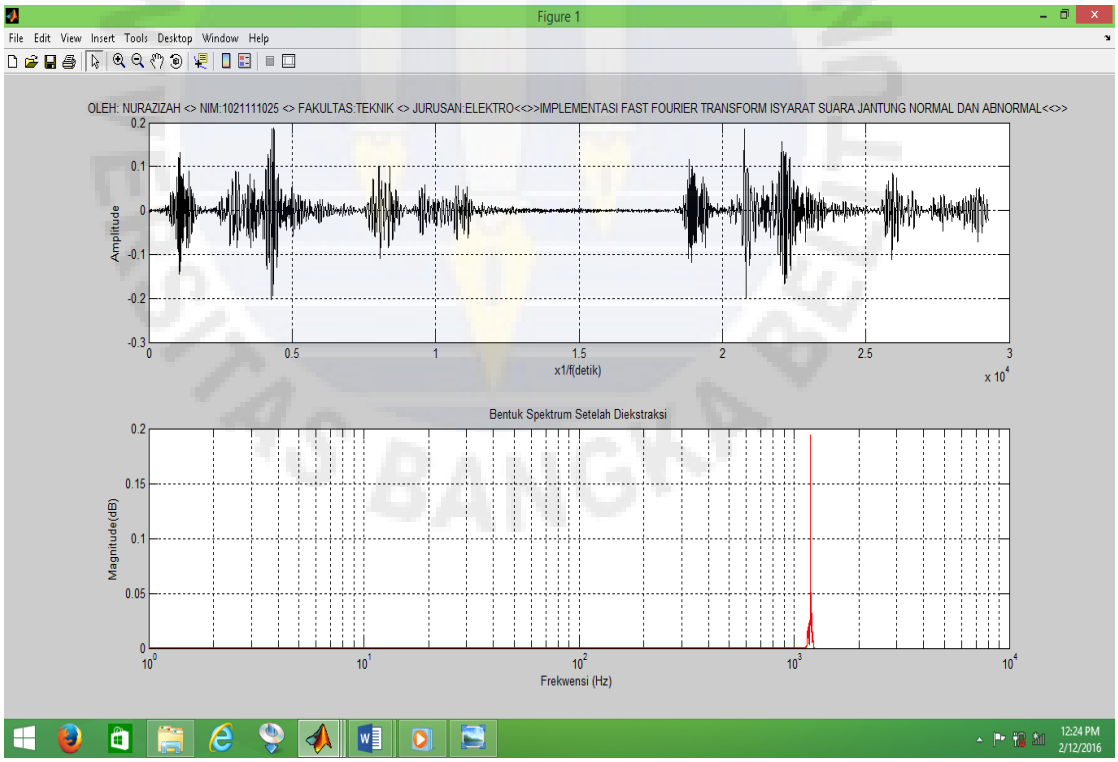


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:24 PM
2/12/2016

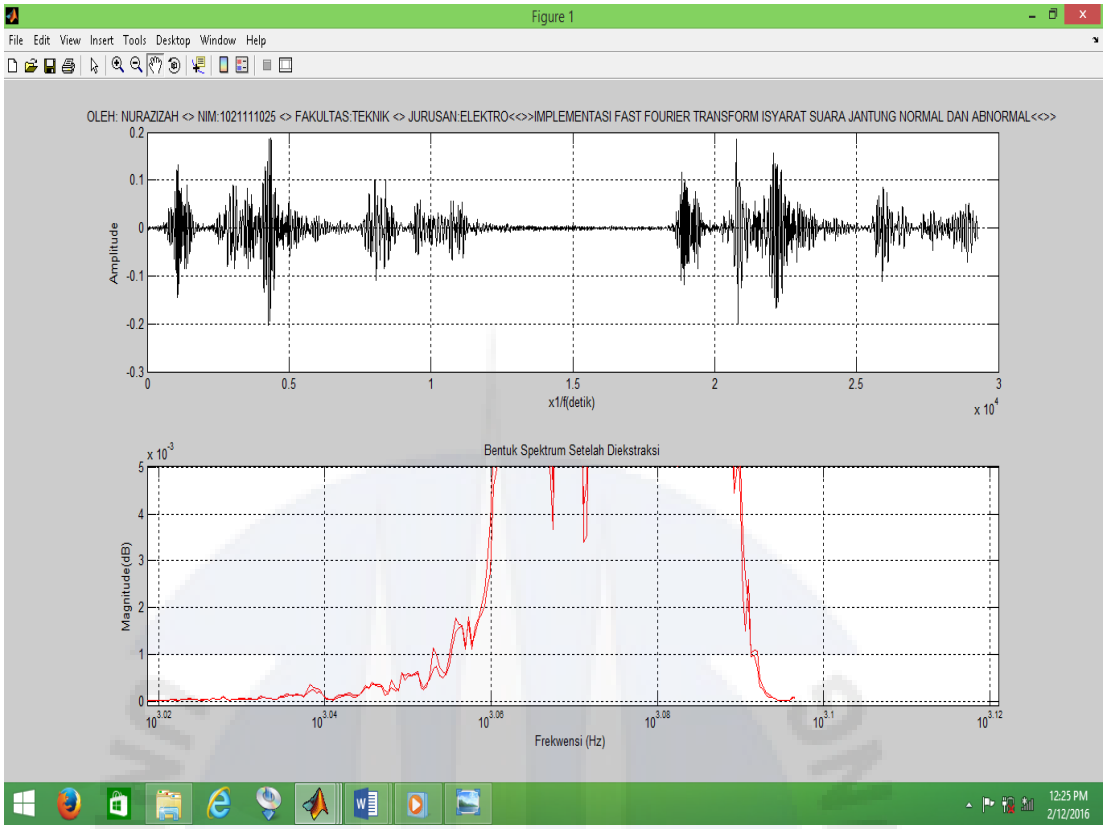


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:25 PM
2/12/2016

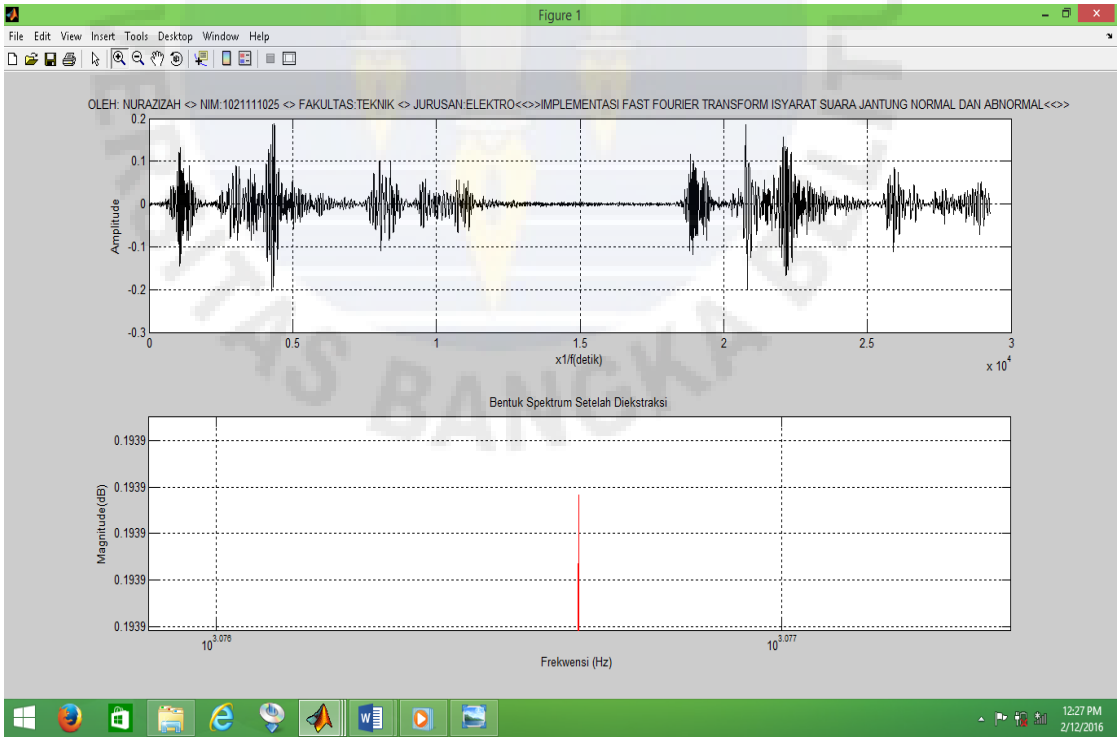
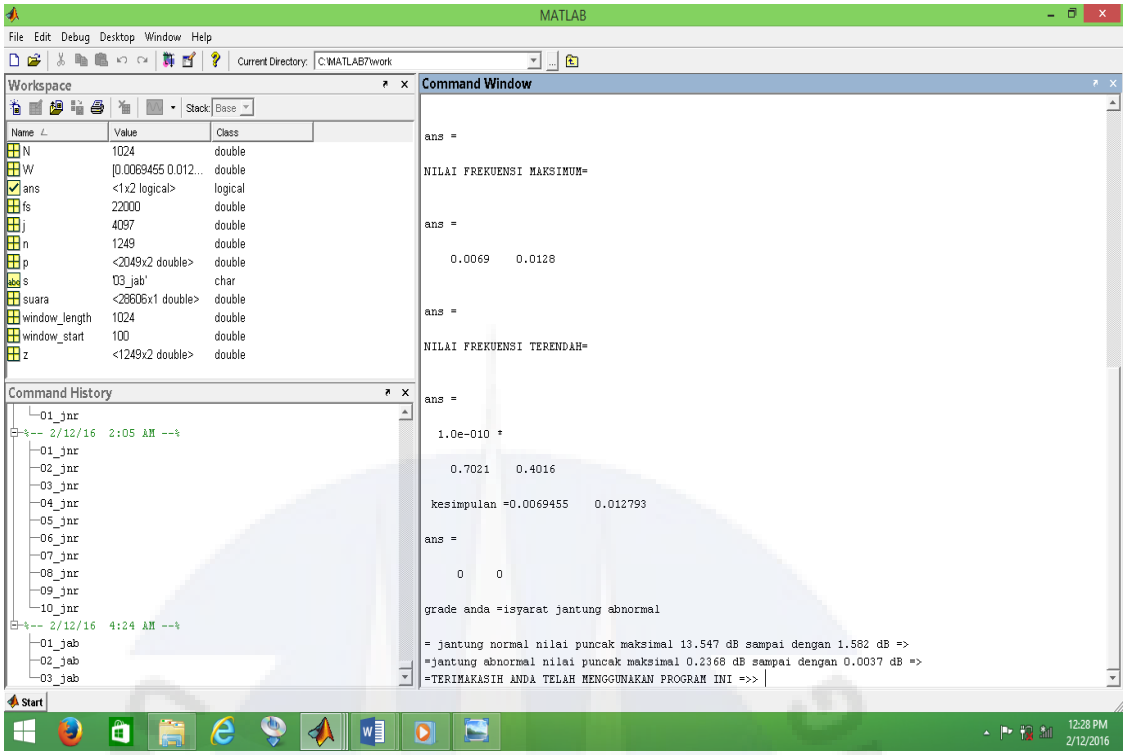


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:27 PM
2/12/2016

03_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.0069455 0.012... double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '03_jab' char
suara <28606x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0069 0.0128
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-010 *
0.7021 0.4016
kesimpulan =0.0069455 0.012793
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:28 PM
2/12/2016

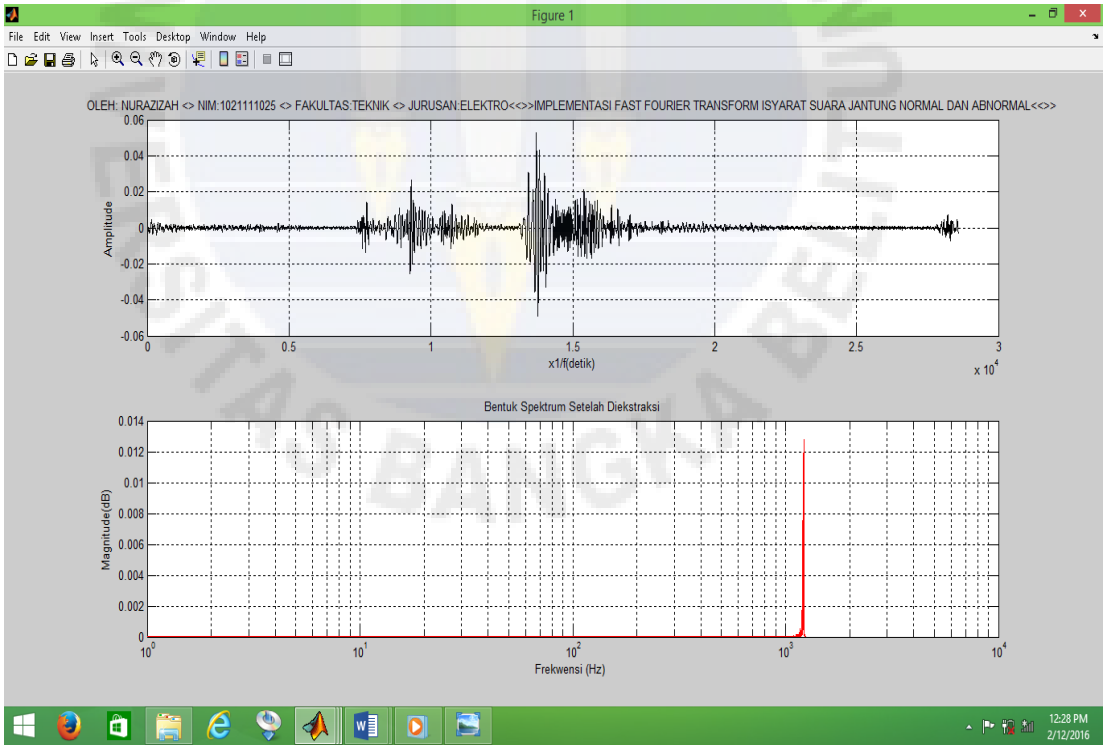


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:28 PM
2/12/2016

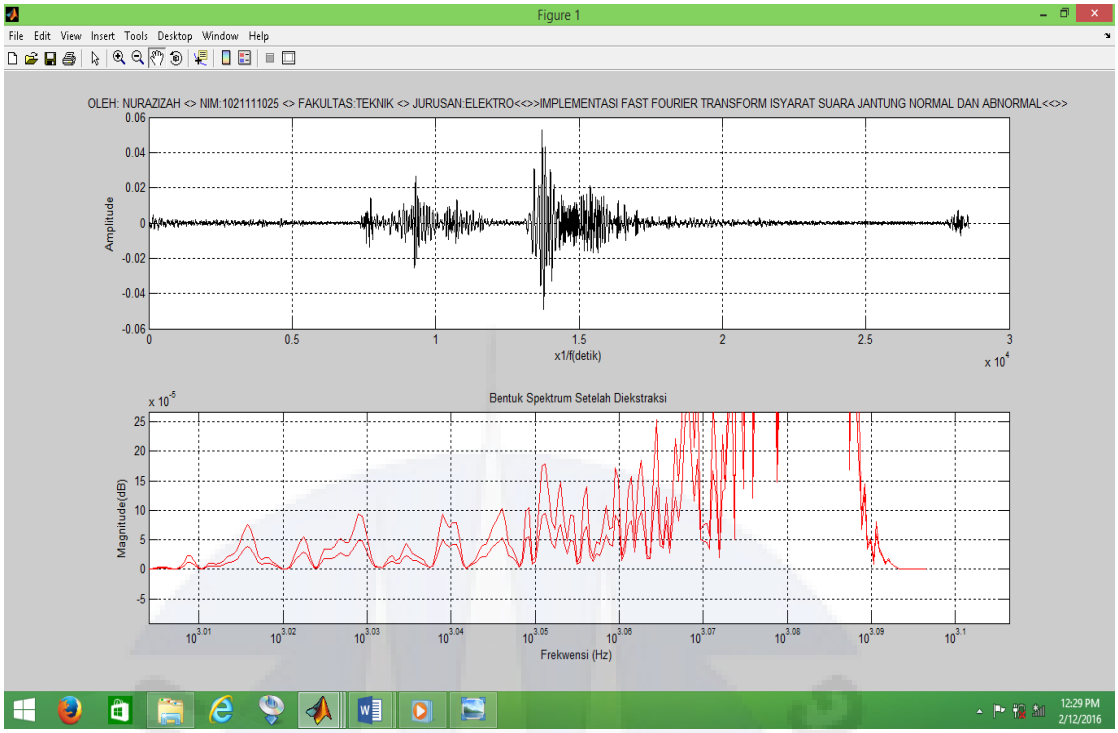


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:29 PM
2/12/2016

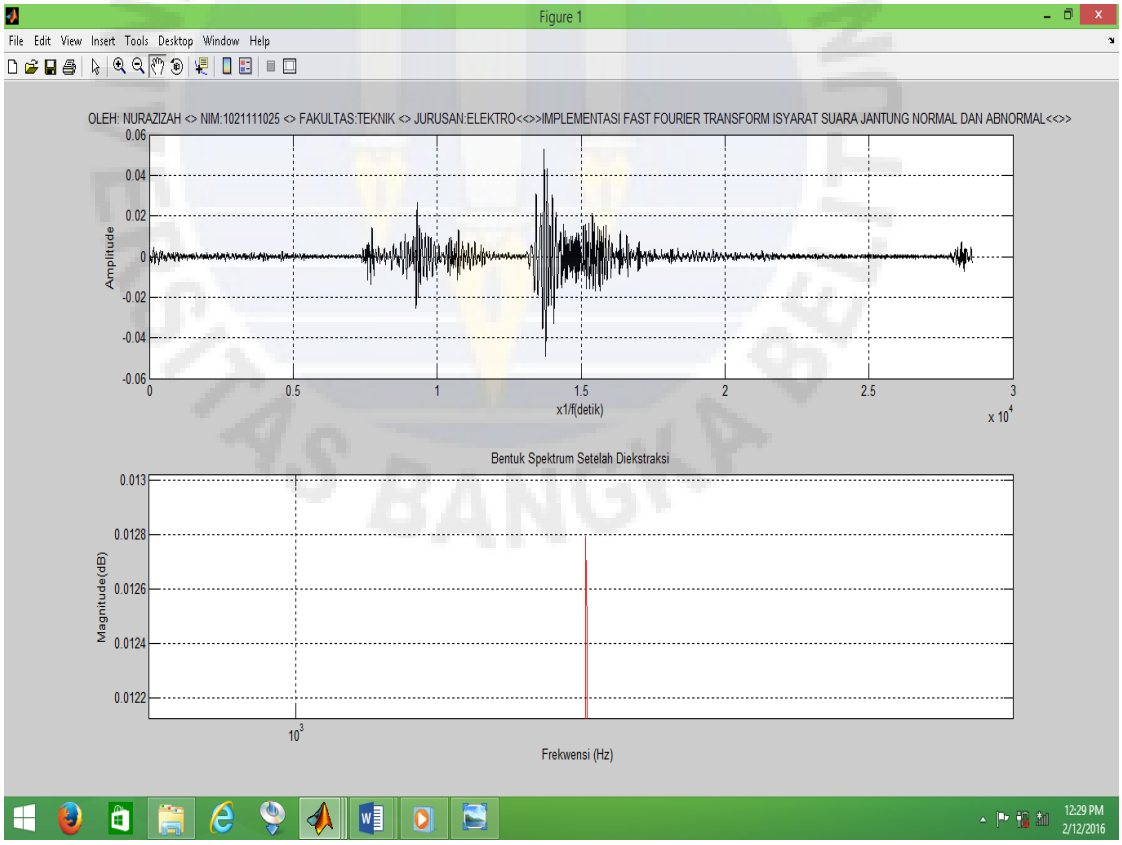
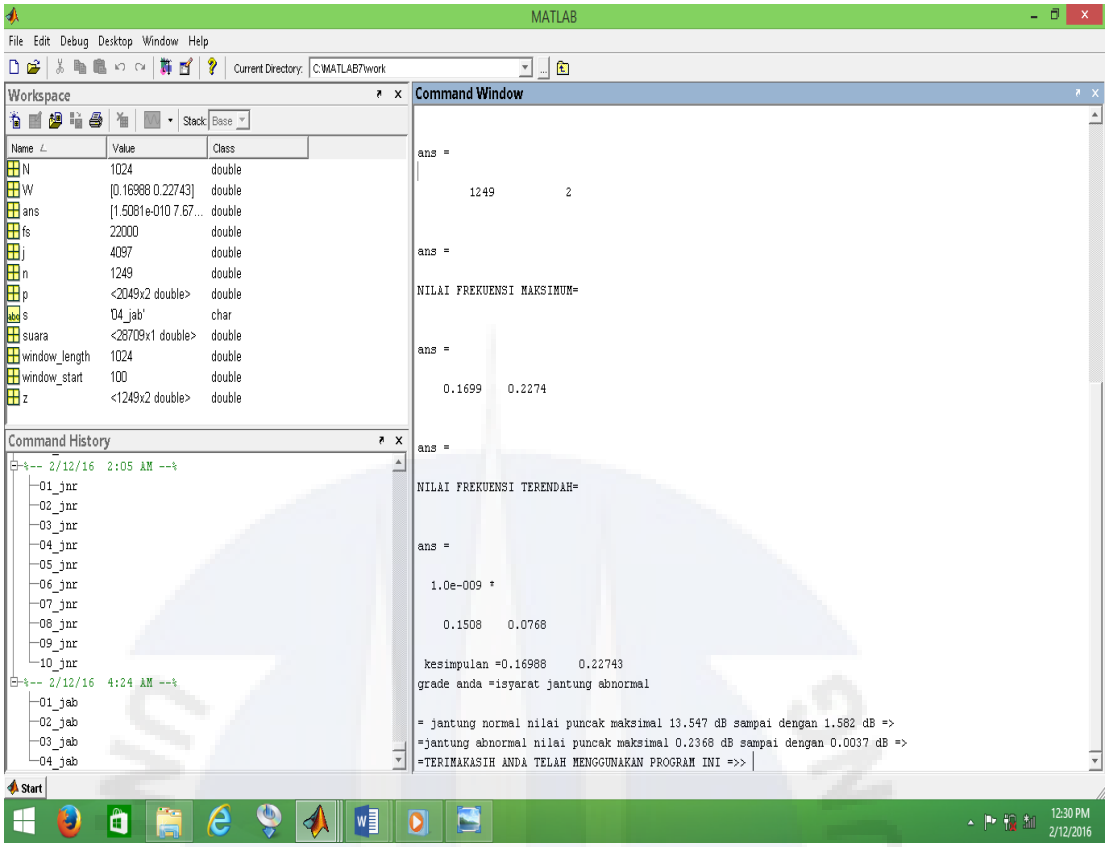


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:29 PM
2/12/2016

04_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.16988 0.22743] double
ans [1.5081e-010 7.67... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '04_jab' char
suara <28709x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
%-- 2/12/16 2:05 AM --%
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.1699 0.2274
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.1508 0.0768
kesimpulan =0.16988 0.22743
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:30 PM
2/12/2016

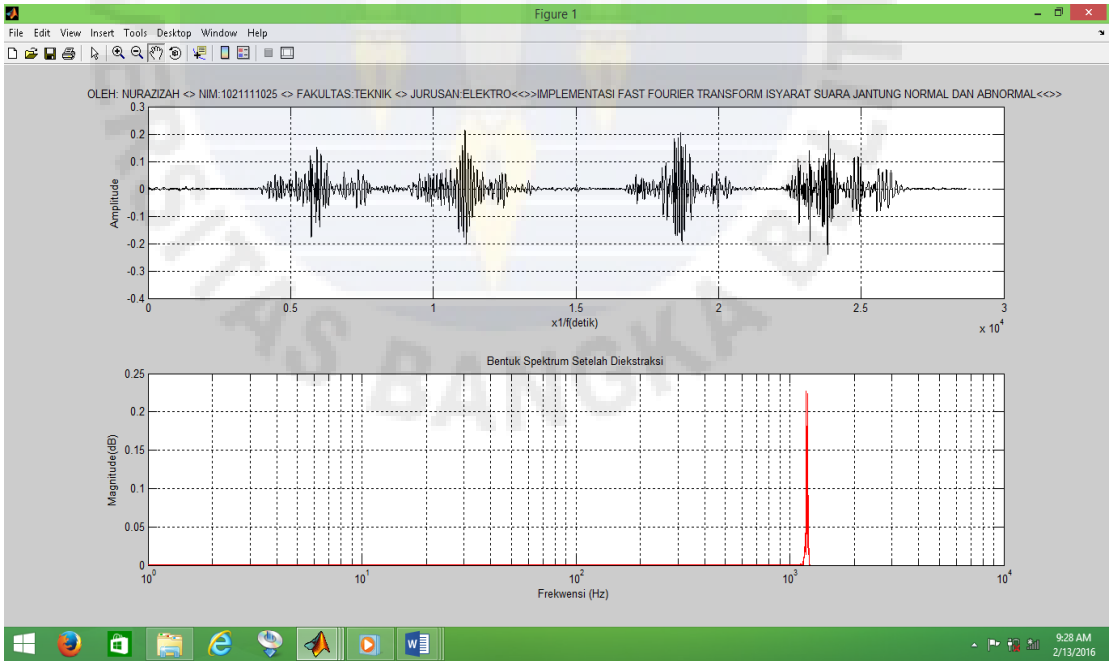


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
9:28 AM
2/13/2016

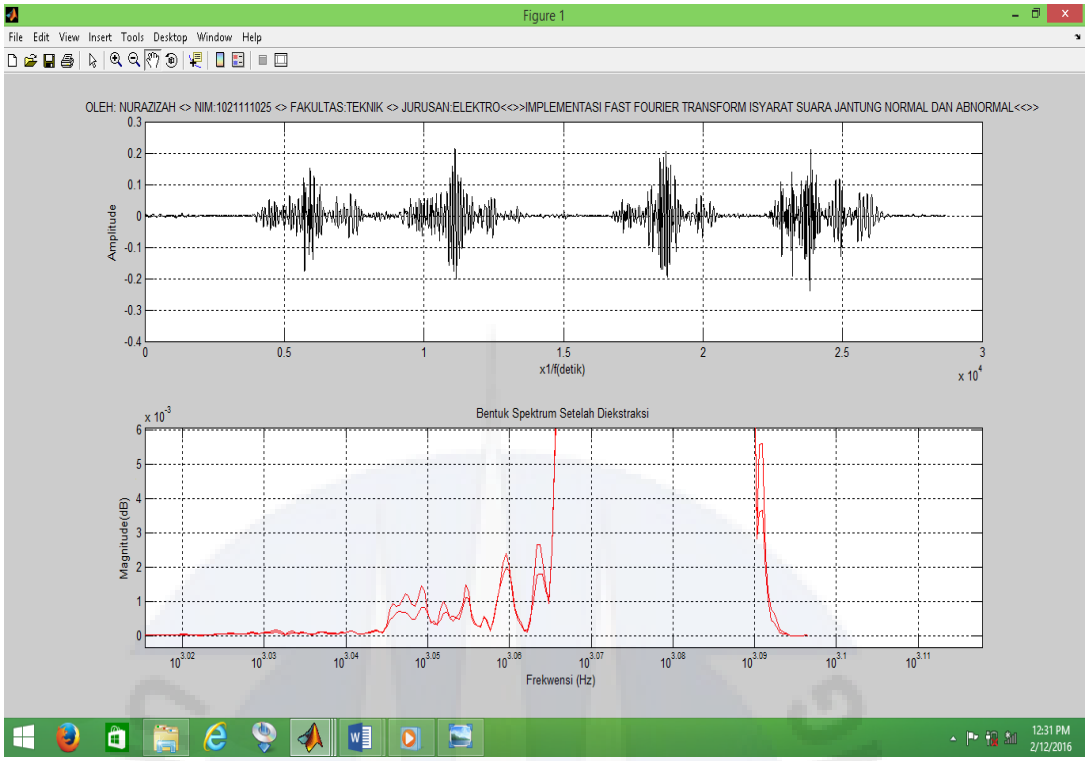


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:31 PM
2/12/2016

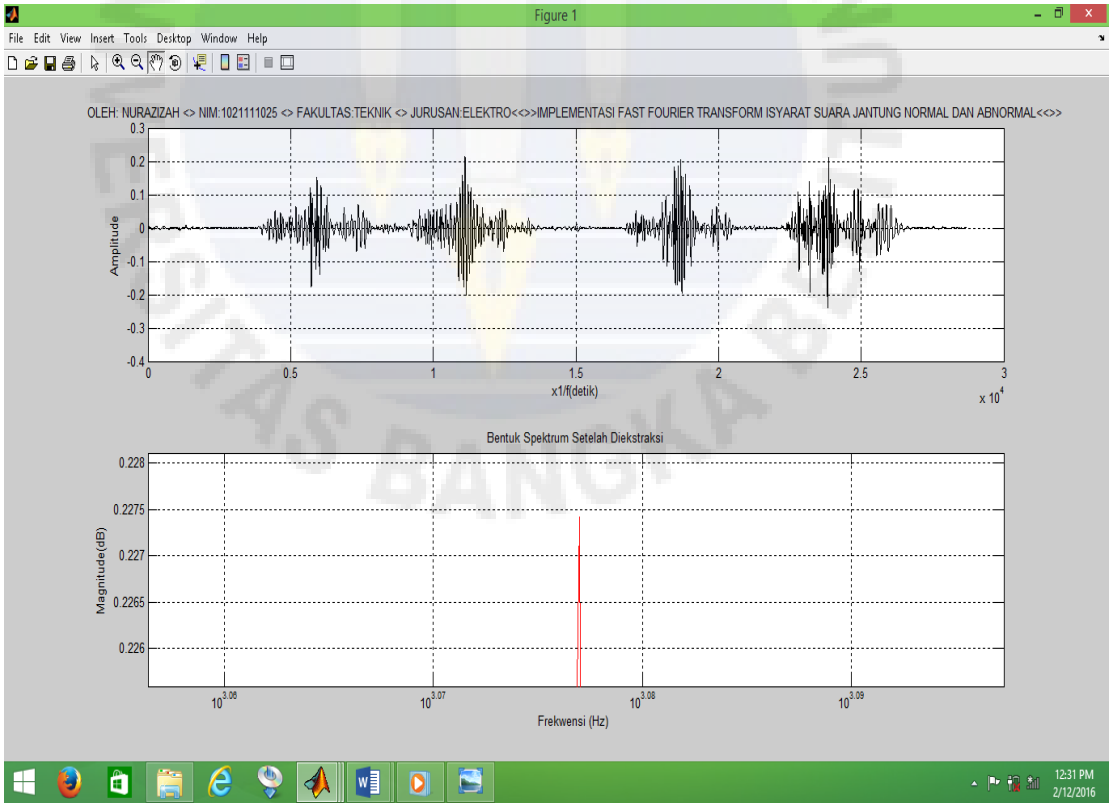
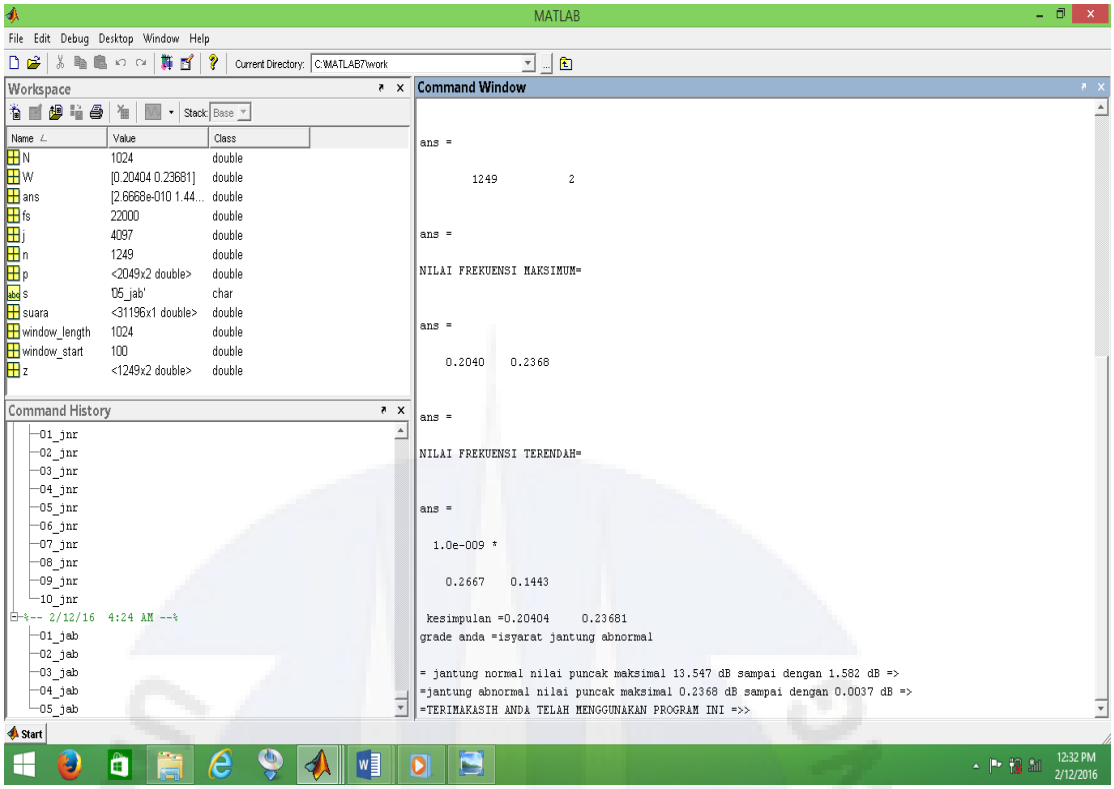


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:31 PM
2/12/2016

05_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.20404 0.23681] double
ans [2.6668e-010 1.44... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '05_jab' char
suara <31196x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
01_jnr
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.2040 0.2368
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.2667 0.1443
kesimpulan =0.20404 0.23681
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:32 PM
2/12/2016

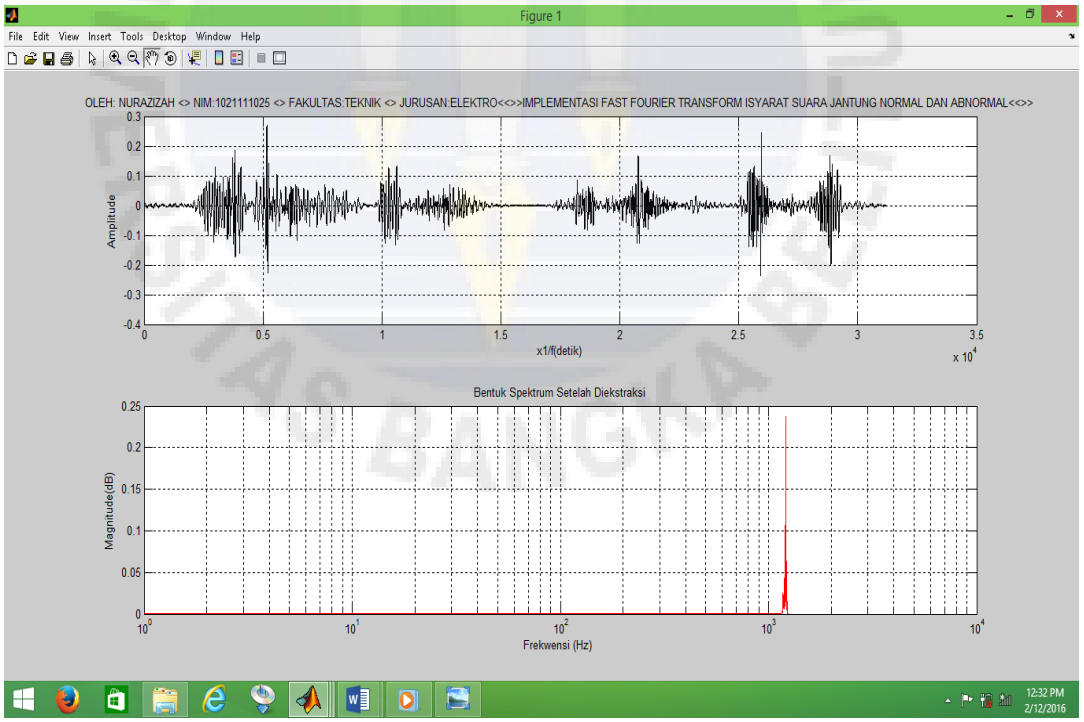


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:32 PM
2/12/2016

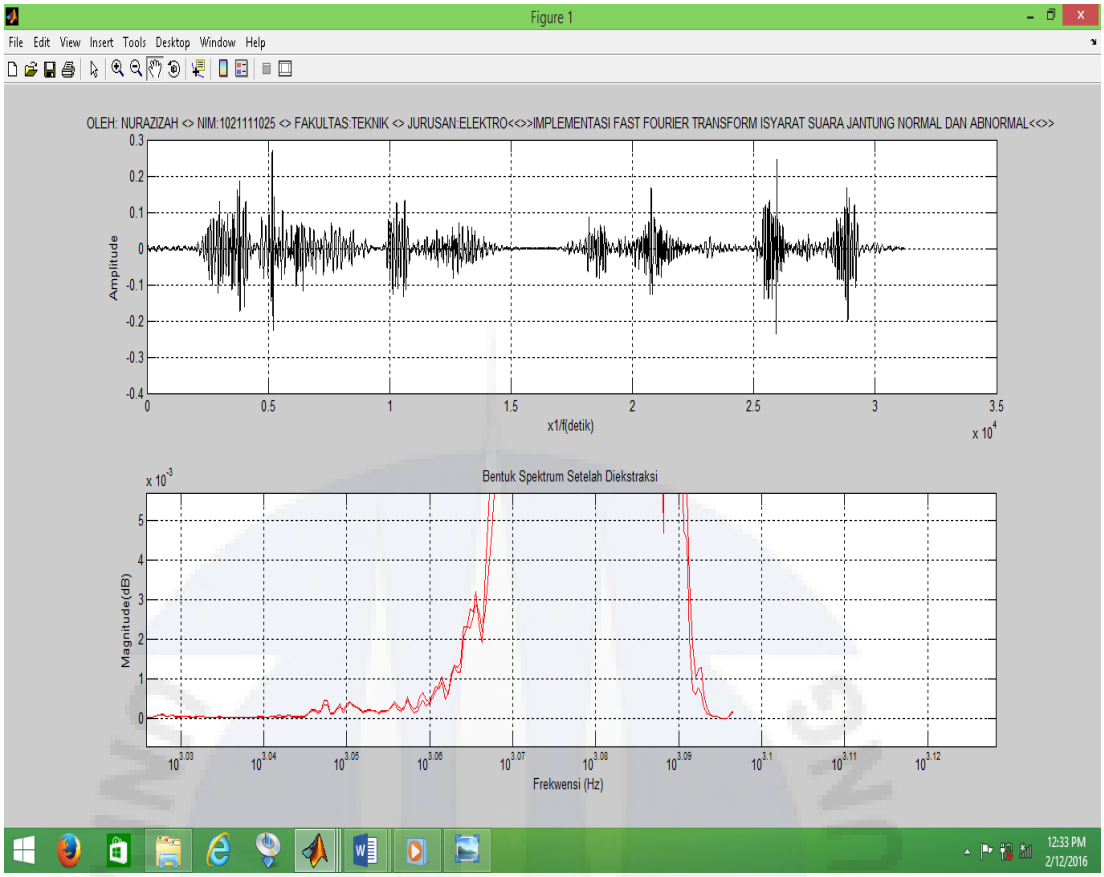


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:33 PM
2/12/2016

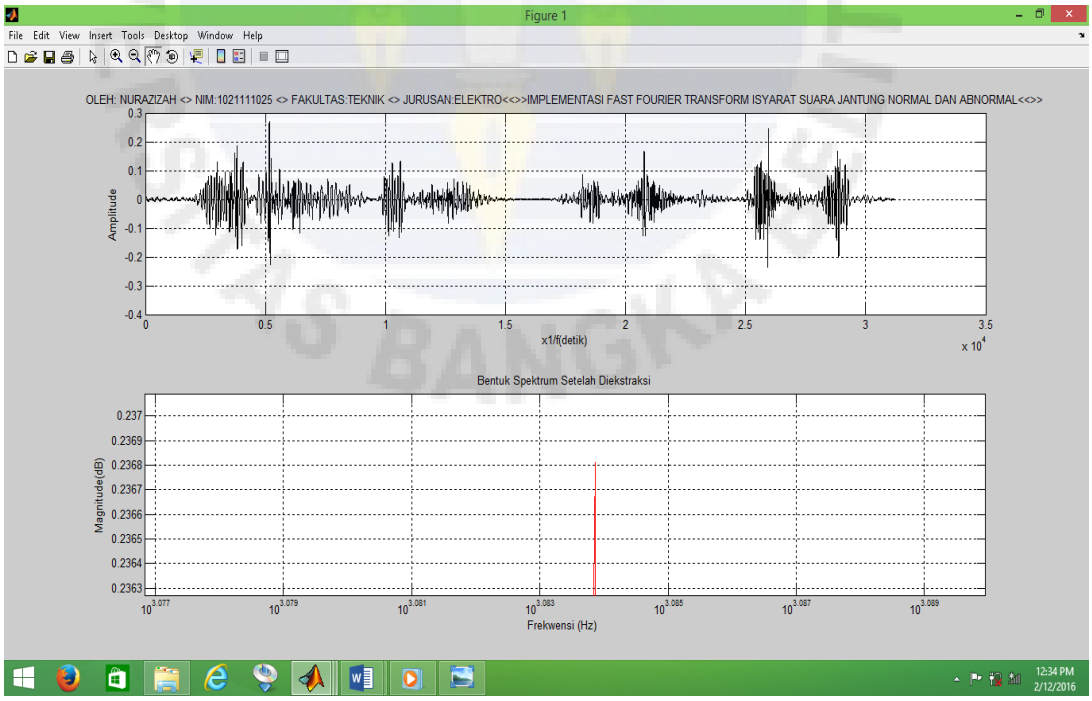
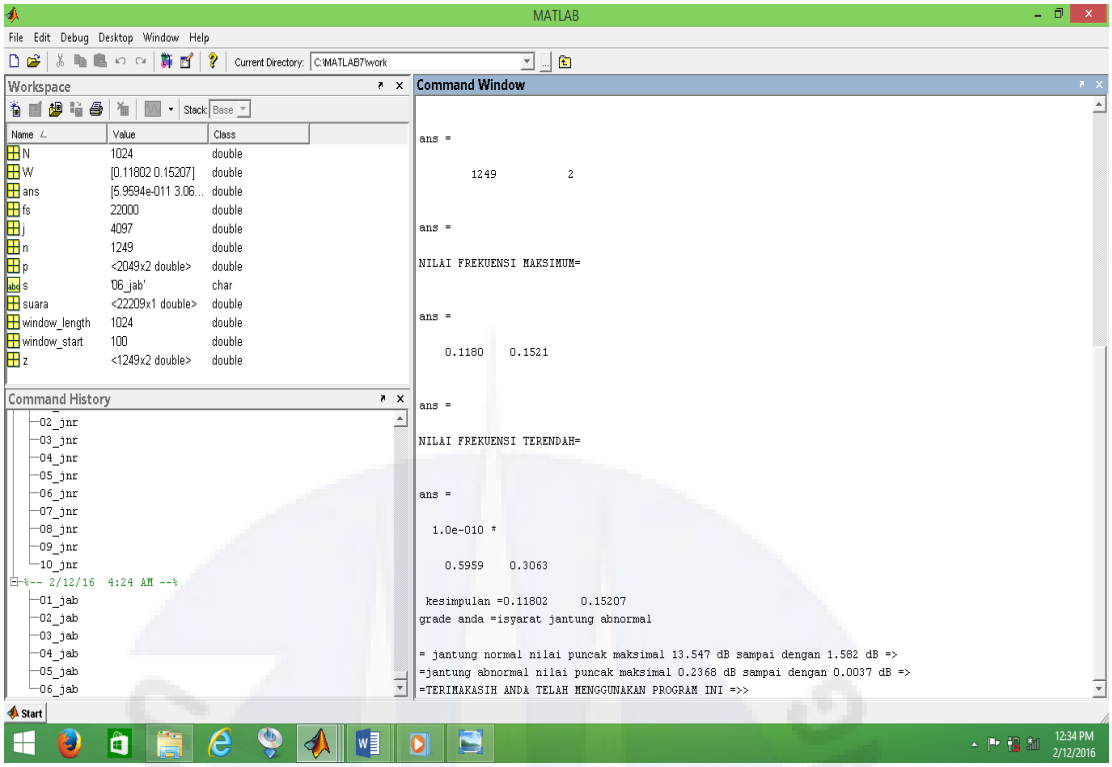


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:34 PM
2/12/2016

06_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.11802 0.15207] double
ans [5.9594e-011 3.06... double
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '06_jab' char
suara <22209x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
02_jnr
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
06_jab
Command Window
ans =
1249 2
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.1180 0.1521
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-010 *
0.5959 0.3063
kesimpulan =0.11802 0.15207
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:34 PM
2/12/2016

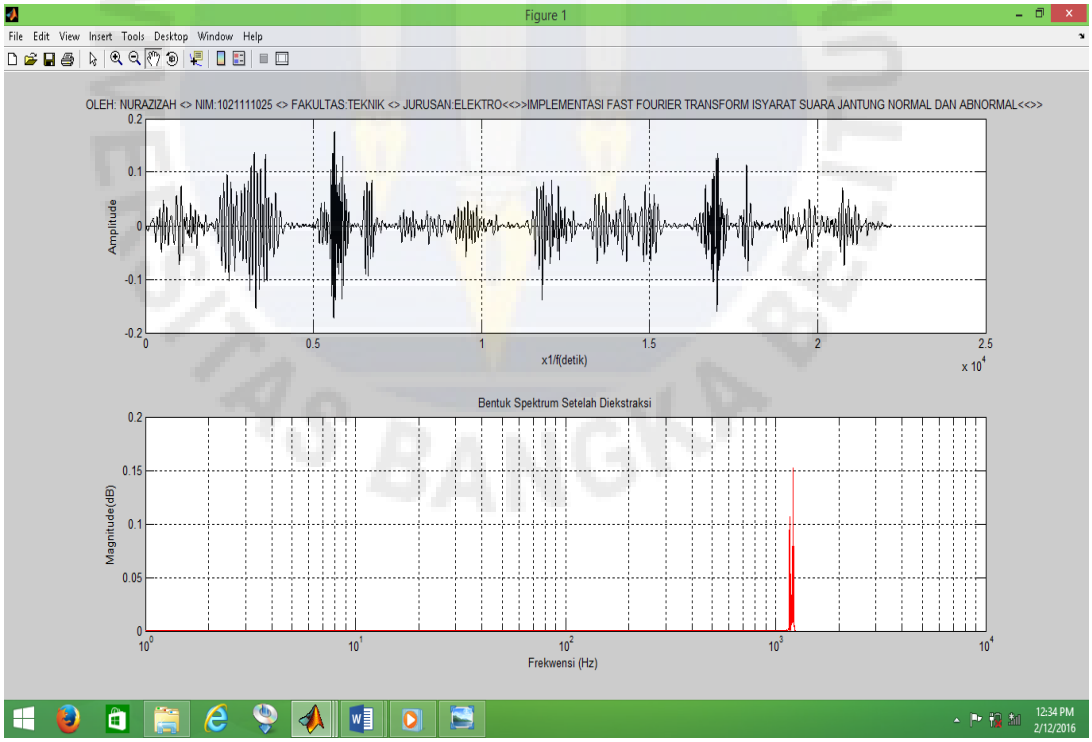


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:34 PM
2/12/2016

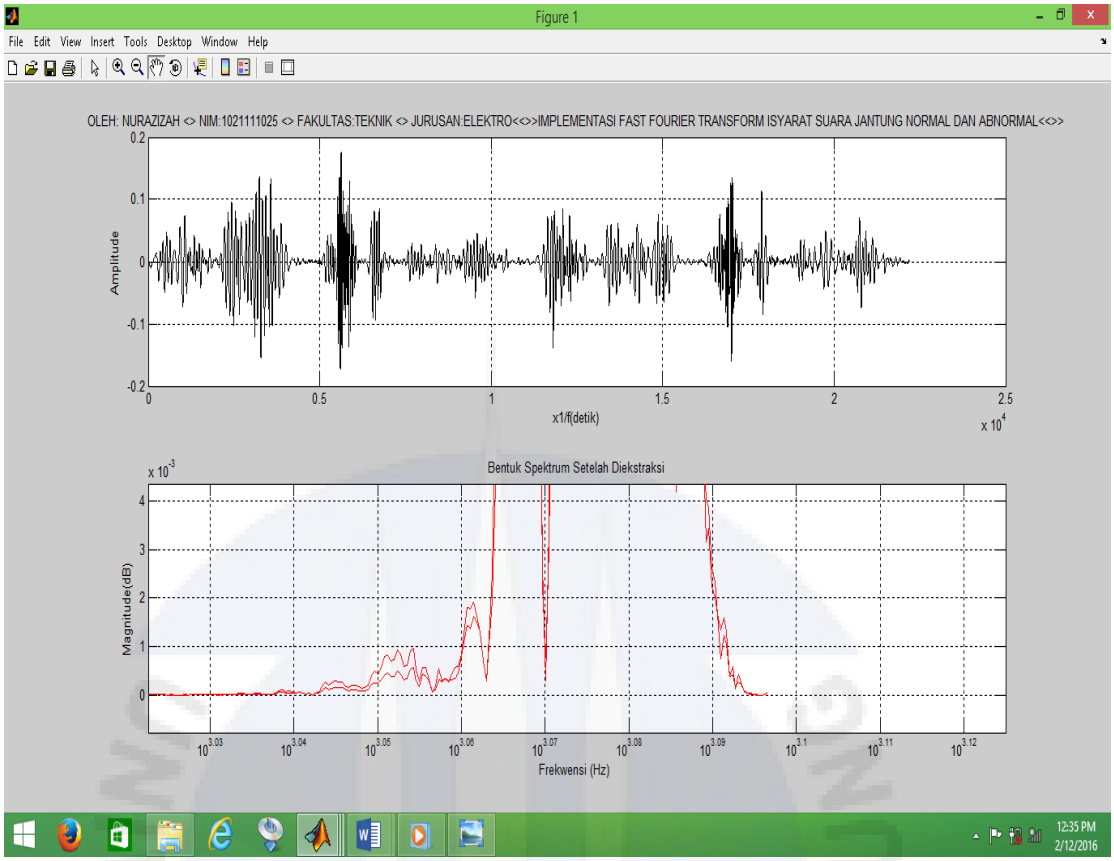


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:35 PM
2/12/2016

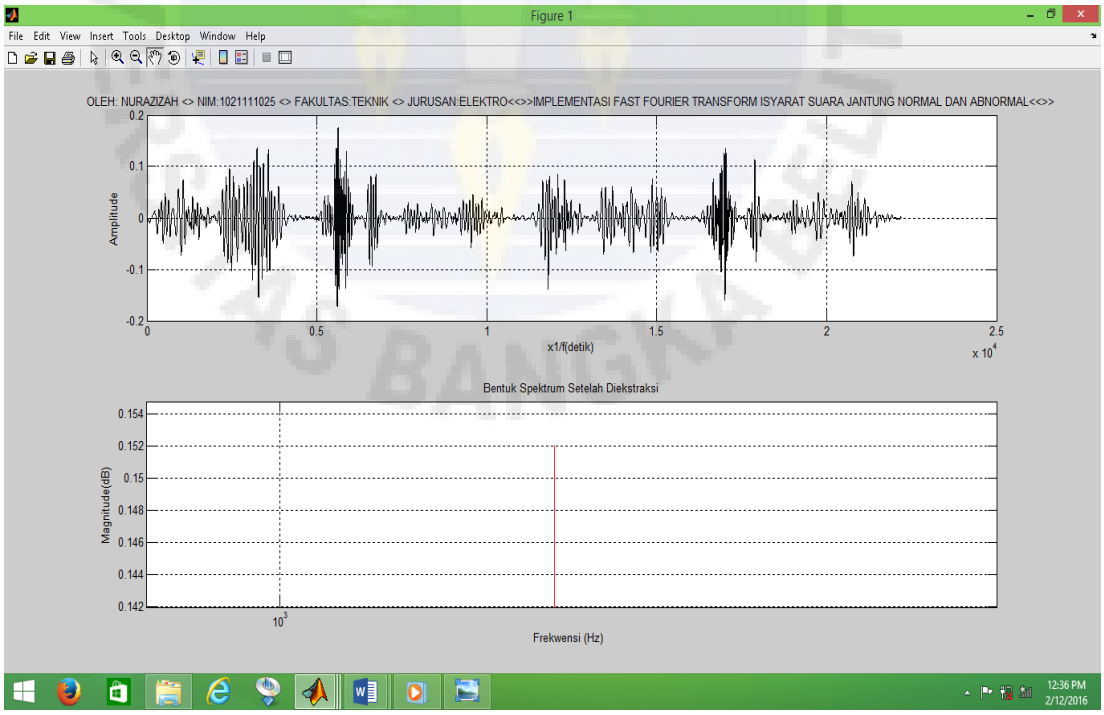
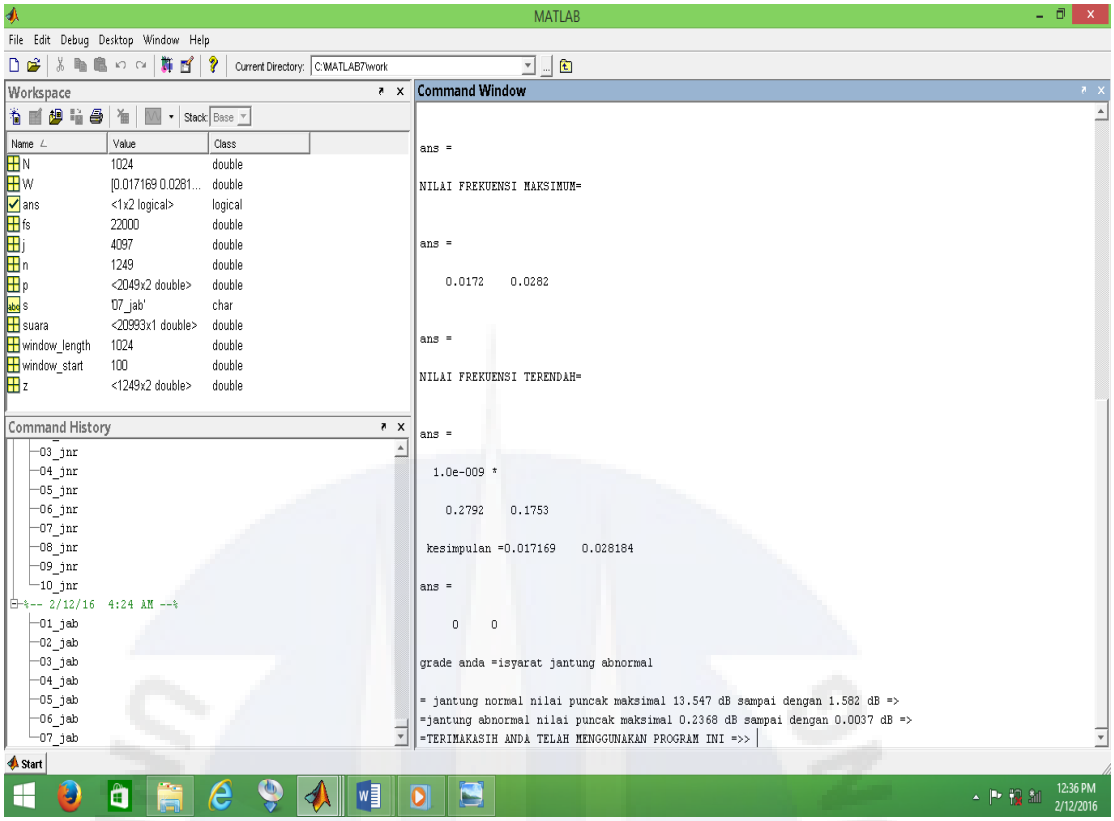


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:36 PM
2/12/2016

07_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.017169 0.0281... double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '07_jab' char
suara <20993x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
03_jnr
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
06_jab
07_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0172 0.0282
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.2792 0.1753
kesimpulan =0.017169 0.028184
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:36 PM
2/12/2016

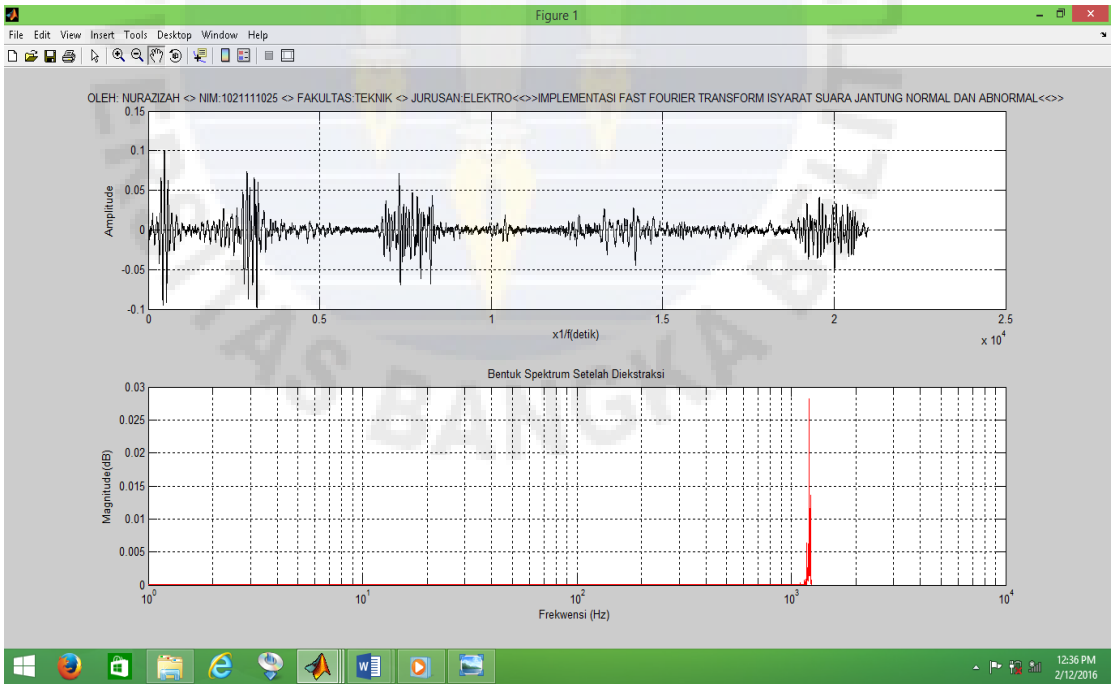


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:36 PM
2/12/2016

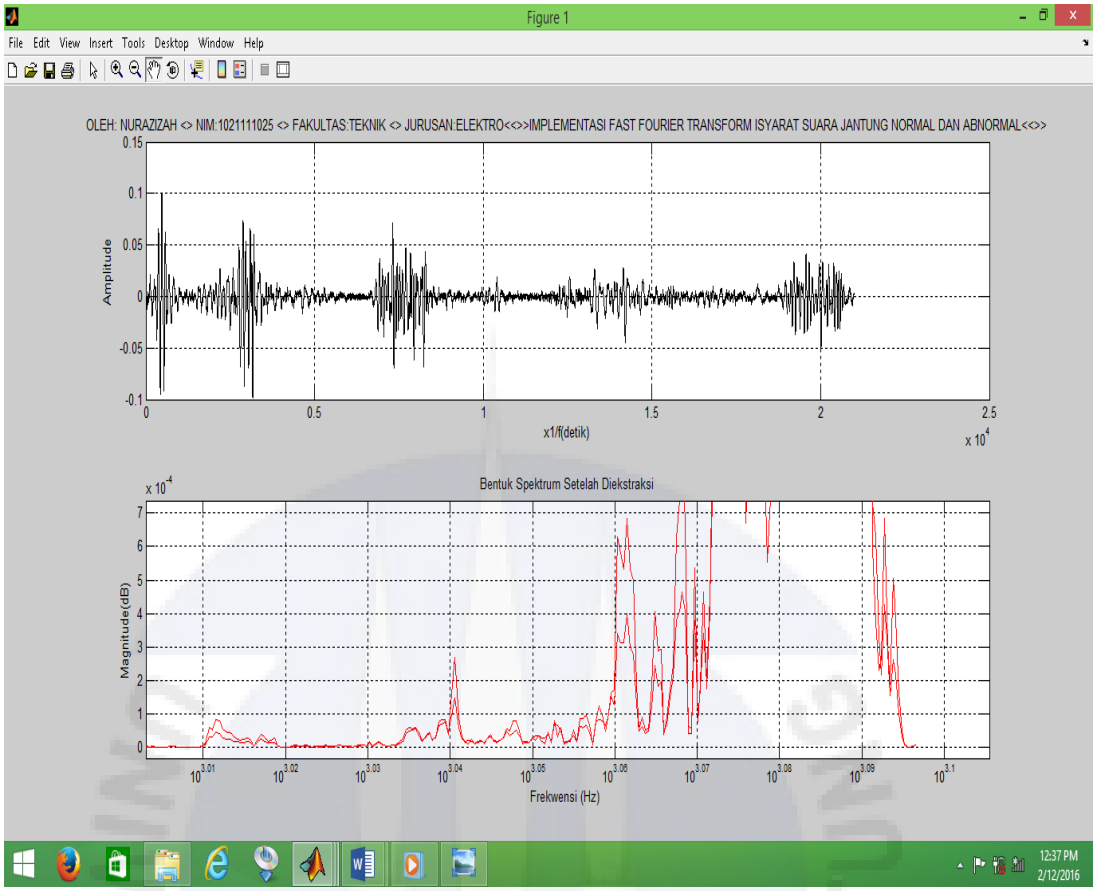


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-4
Magnitude(dB)
Frekwensi (Hz)
12:37 PM
2/12/2016

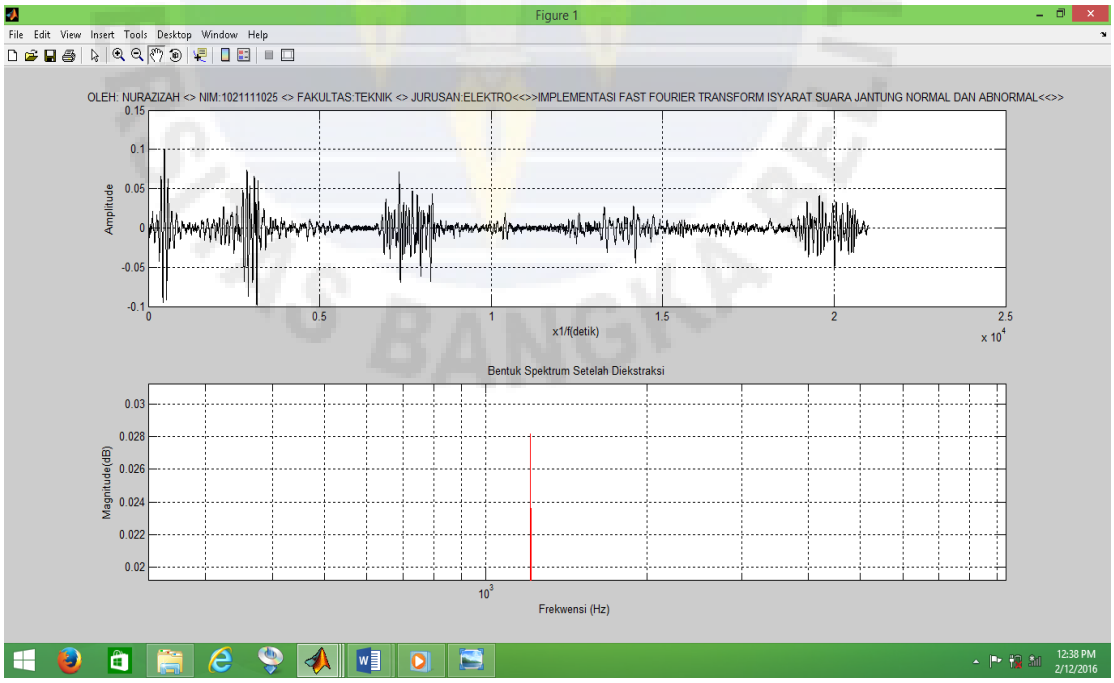
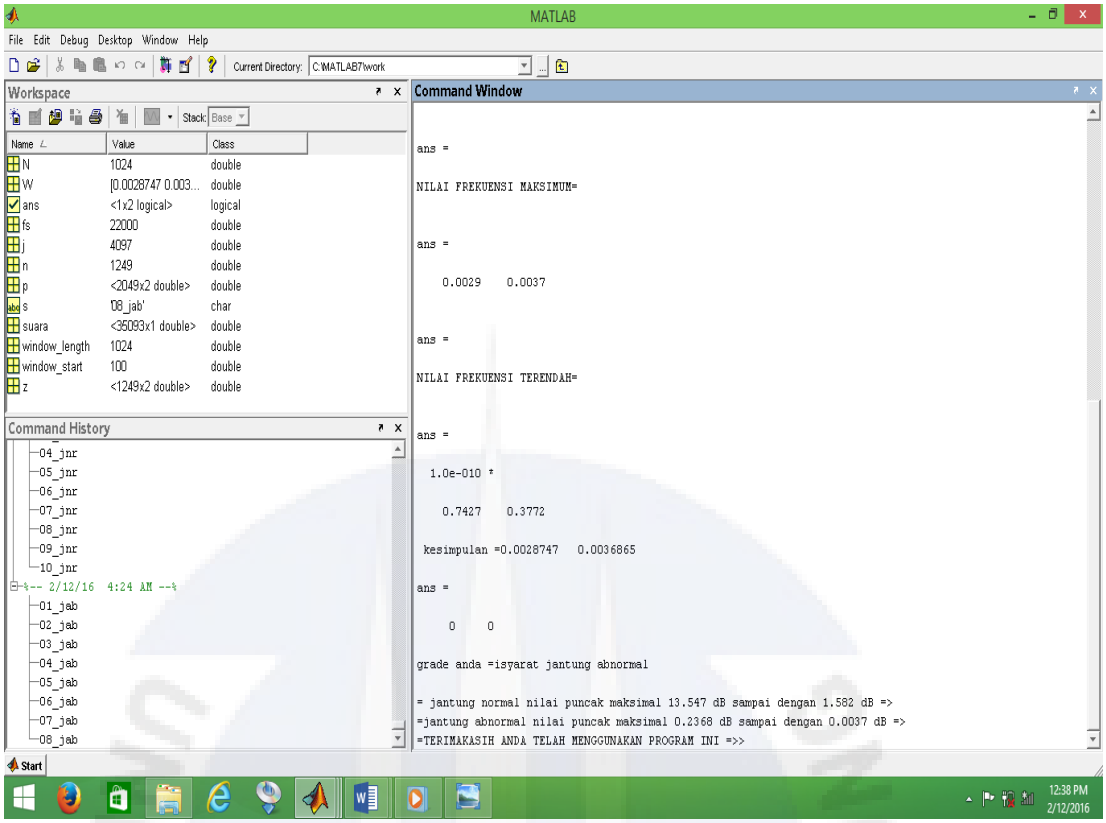


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:38 PM
2/12/2016

08_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.0028747 0.003... double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '06_jab' char
suara <35093x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
04_jnr
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
06_jab
07_jab
08_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0029 0.0037
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-010 *
0.7427 0.3772
kesimpulan =0.0028747 0.0036865
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:38 PM
2/12/2016

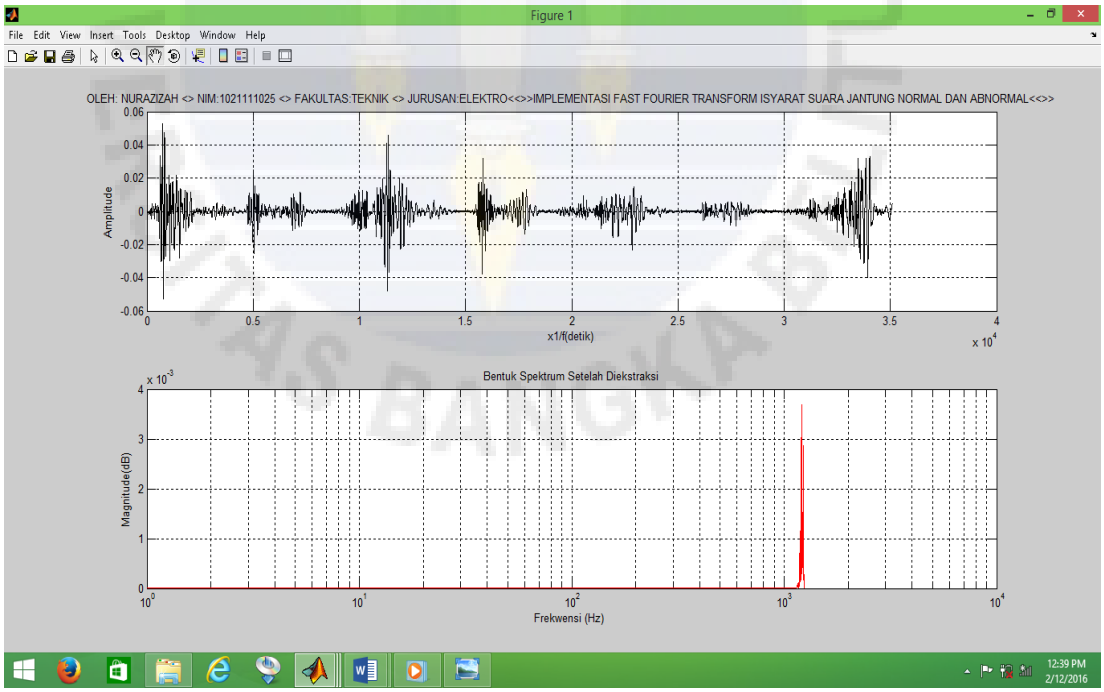


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:39 PM
2/12/2016

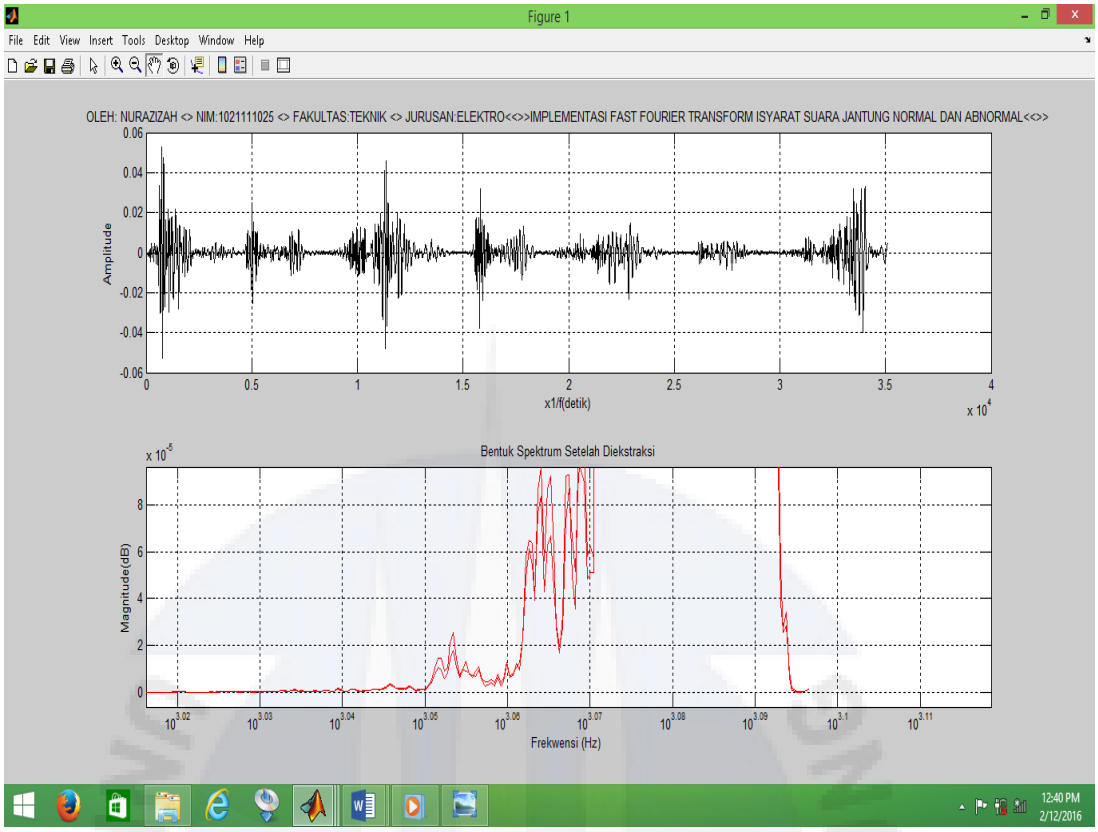


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-5
Magnitude(dB)
Frekwensi (Hz)
12:40 PM
2/12/2016

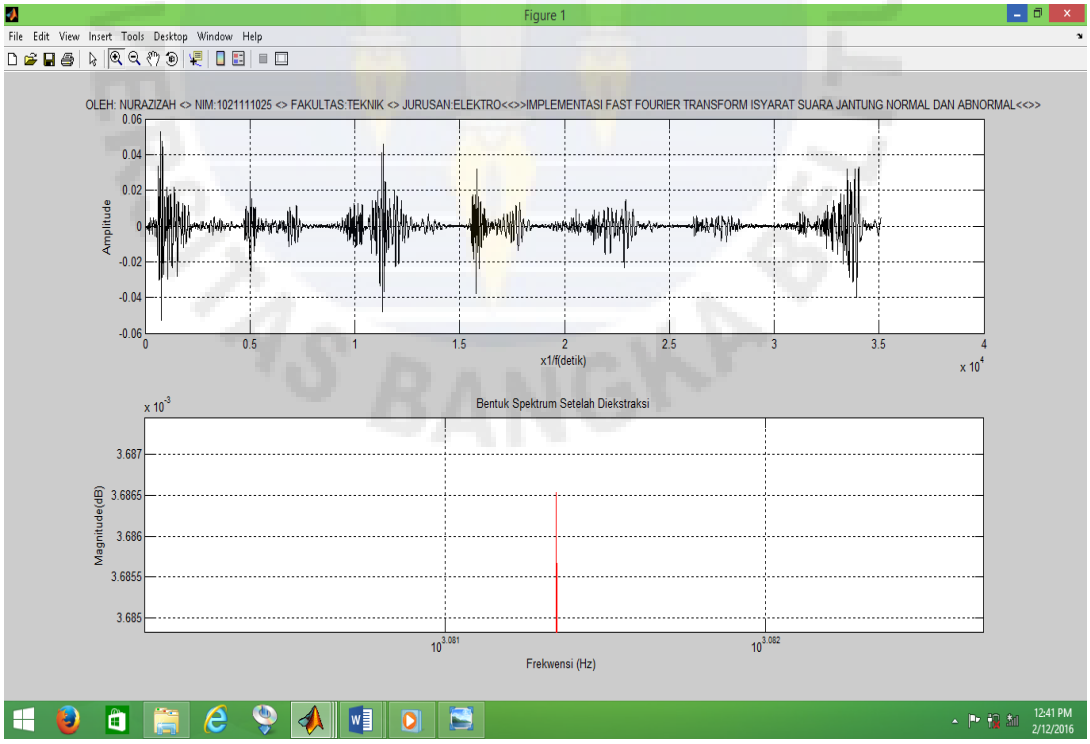
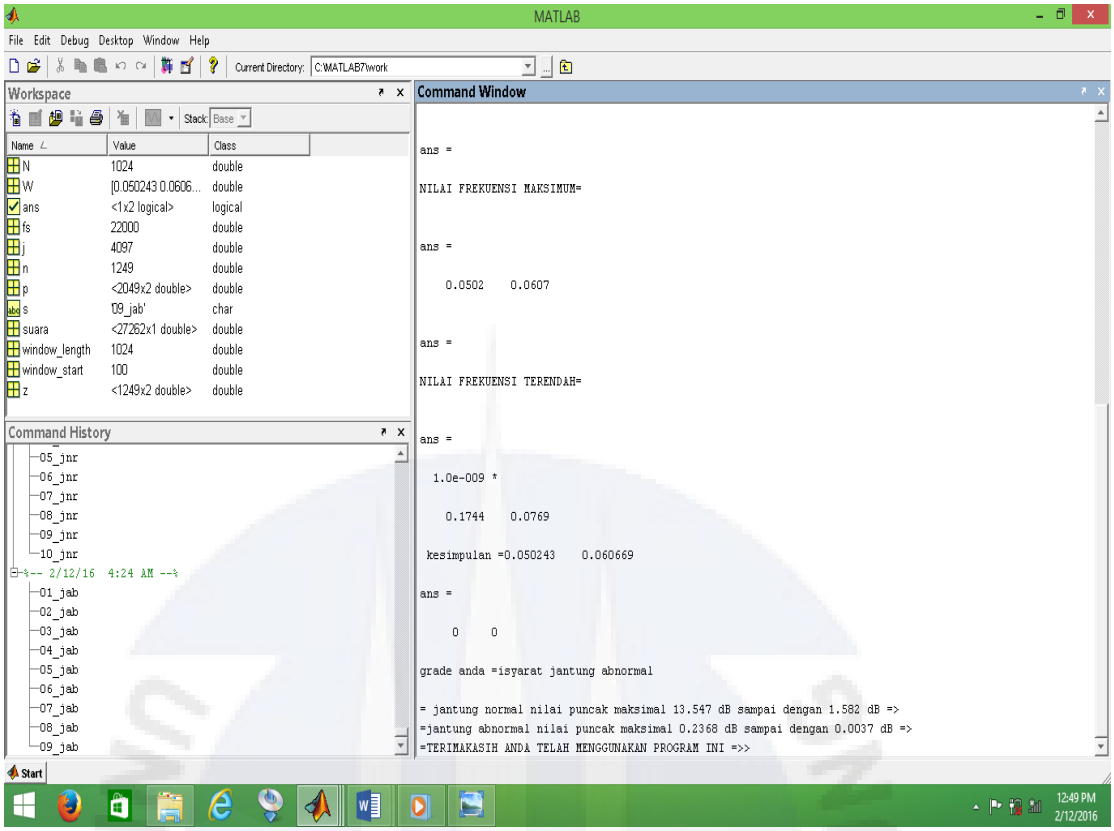


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:41 PM
2/12/2016

09_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.050243 0.0606... double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '09_jab' char
suara <27262x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
05_jnr
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
06_jab
07_jab
08_jab
09_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0502 0.0607
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.1744 0.0769
kesimpulan =0.050243 0.060669
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:49 PM
2/12/2016

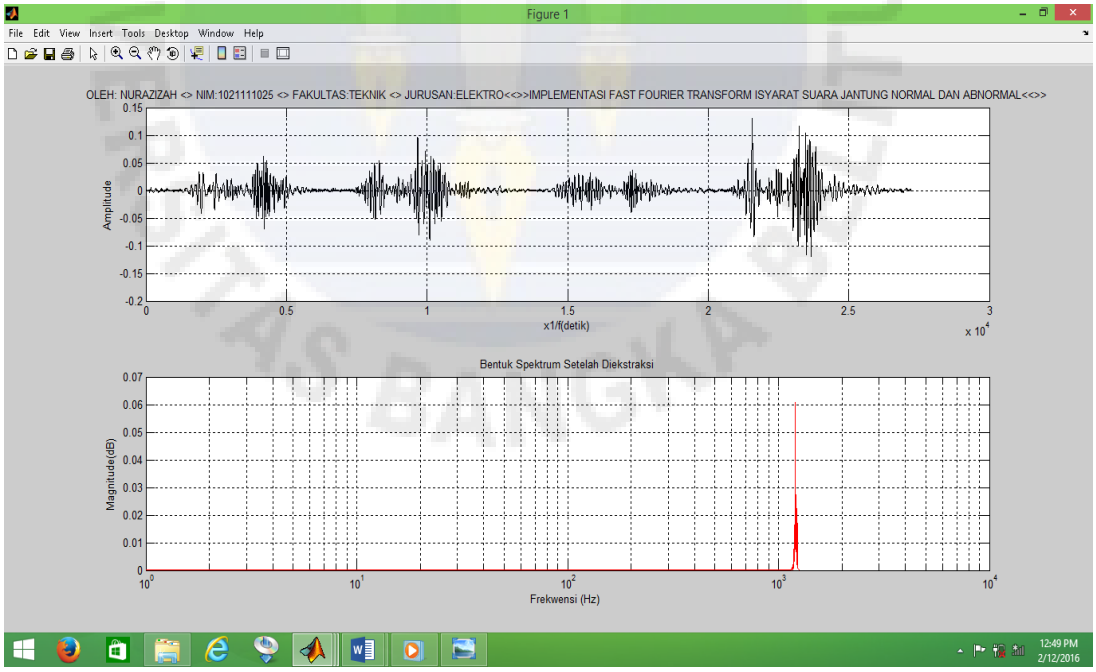


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:49 PM
2/12/2016

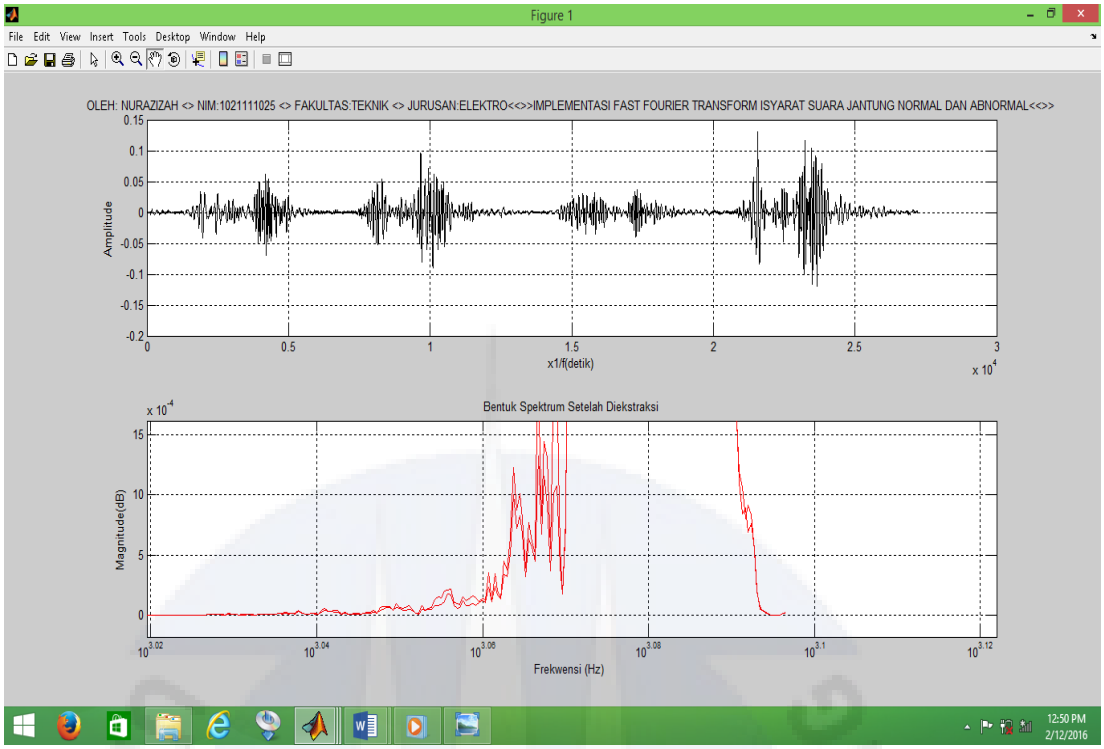


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
x 10^-4
Magnitude(dB)
Frekwensi (Hz)
12:50 PM
2/12/2016

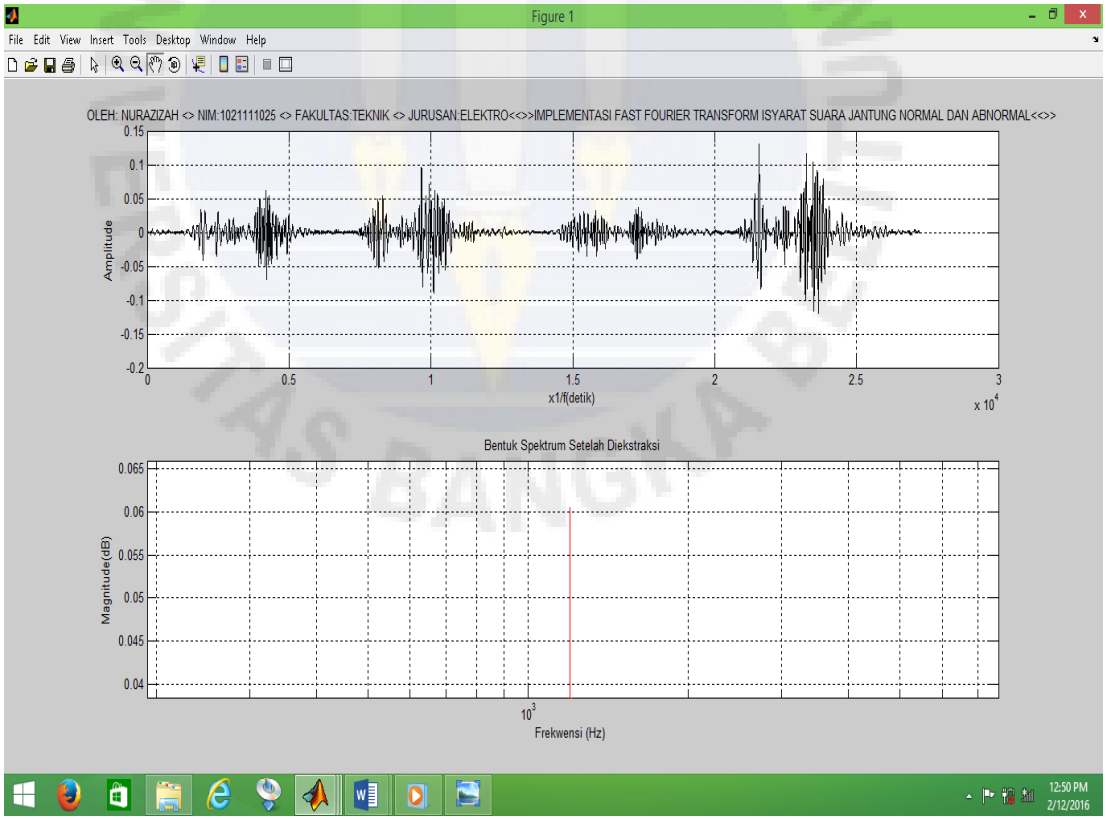
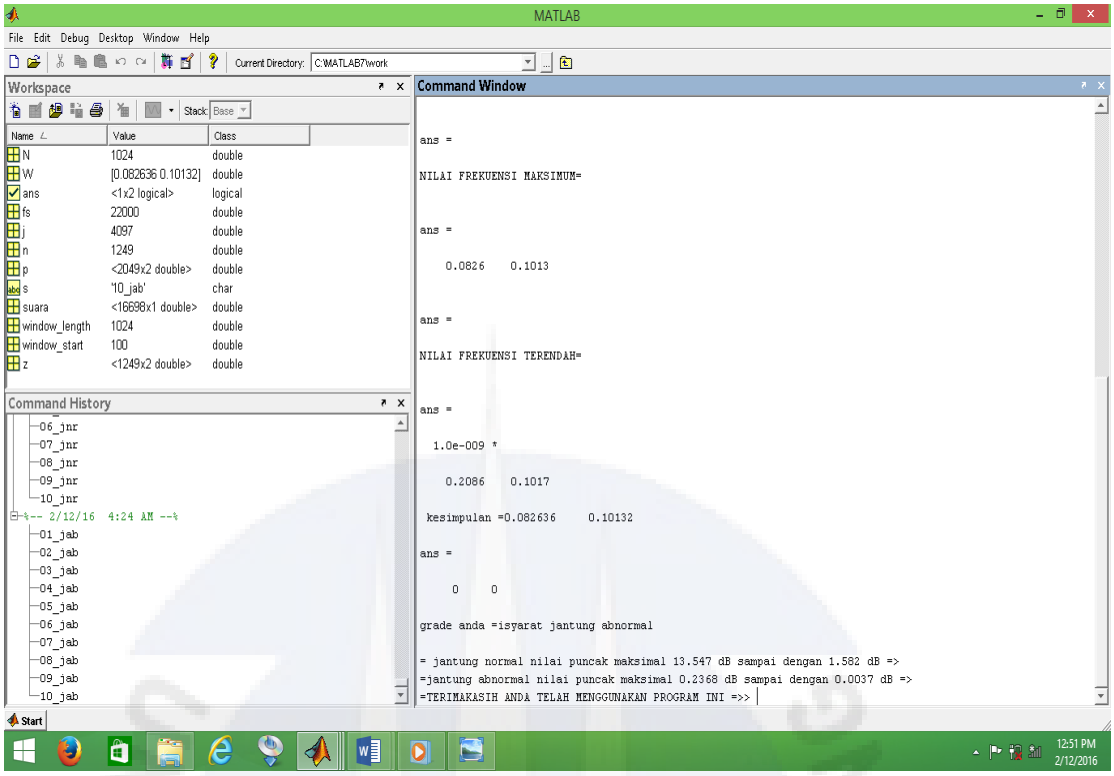


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
x 10^4
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:50 PM
2/12/2016

10_jab


MATLAB
File Edit Debug Desktop Window Help
Current Directory: C:\MATLAB7\work
Workspace
Stack: Base
Name Value Class
N 1024 double
W [0.082636 0.10132] double
ans <1x2 logical> logical
fs 22000 double
j 4097 double
n 1249 double
p <2049x2 double> double
s '10_jab' char
suara <16698x1 double> double
window_length 1024 double
window_start 100 double
z <1249x2 double> double
Command History
06_jnr
07_jnr
08_jnr
09_jnr
10_jnr
%-- 2/12/16 4:24 AM --%
01_jab
02_jab
03_jab
04_jab
05_jab
06_jab
07_jab
08_jab
09_jab
10_jab
Command Window
ans =
NILAI FREKUENSI MAKSIMUM=
ans =
0.0826 0.1013
ans =
NILAI FREKUENSI TERENDAH=
ans =
1.0e-009 *
0.2086 0.1017
kesimpulan =0.082636 0.10132
ans =
0 0
grade anda =isyarat jantung abnormal
= jantung normal nilai puncak maksimal 13.547 dB sampai dengan 1.582 dB =>
=jantung abnormal nilai puncak maksimal 0.2368 dB sampai dengan 0.0037 dB =>
=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM INI =>>
Start
12:51 PM
2/12/2016

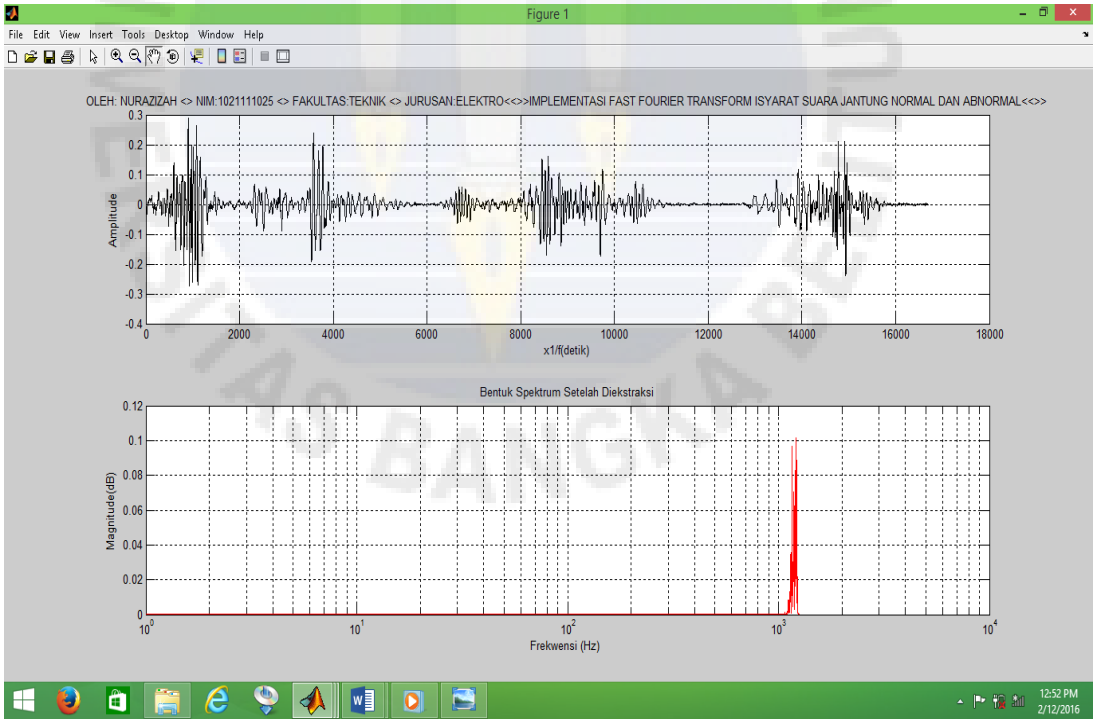


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:52 PM
2/12/2016

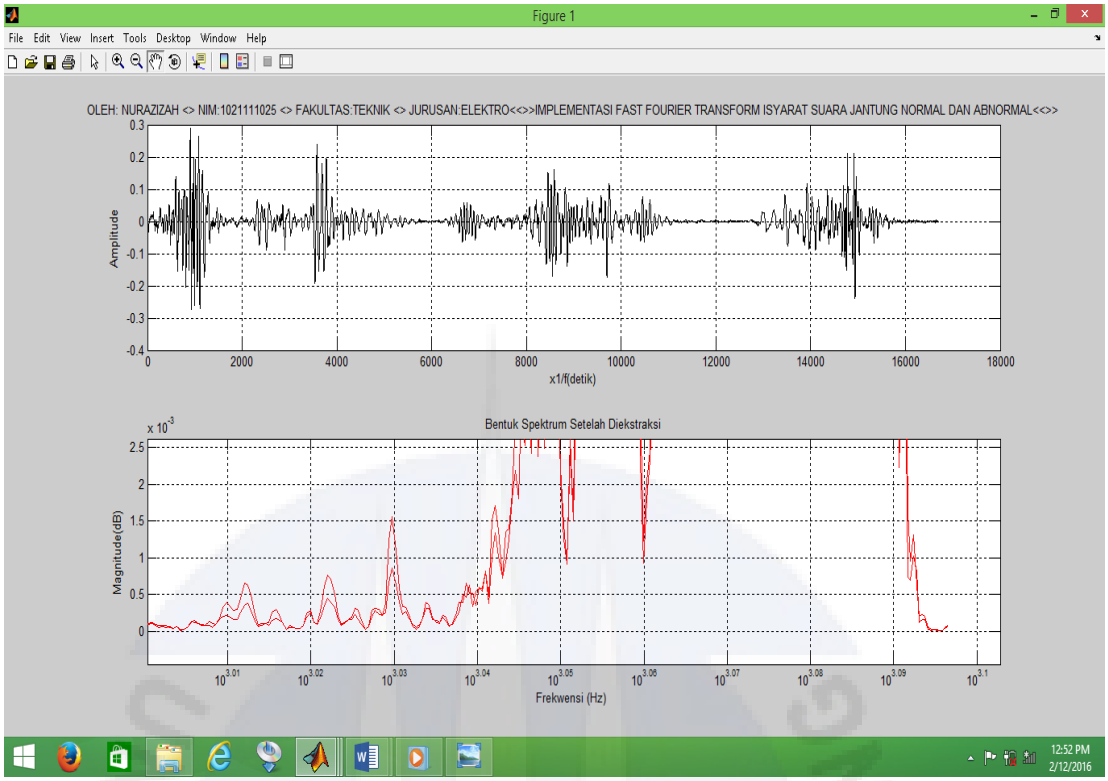


Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
x 10^-3
Magnitude(dB)
Frekwensi (Hz)
12:52 PM
2/12/2016

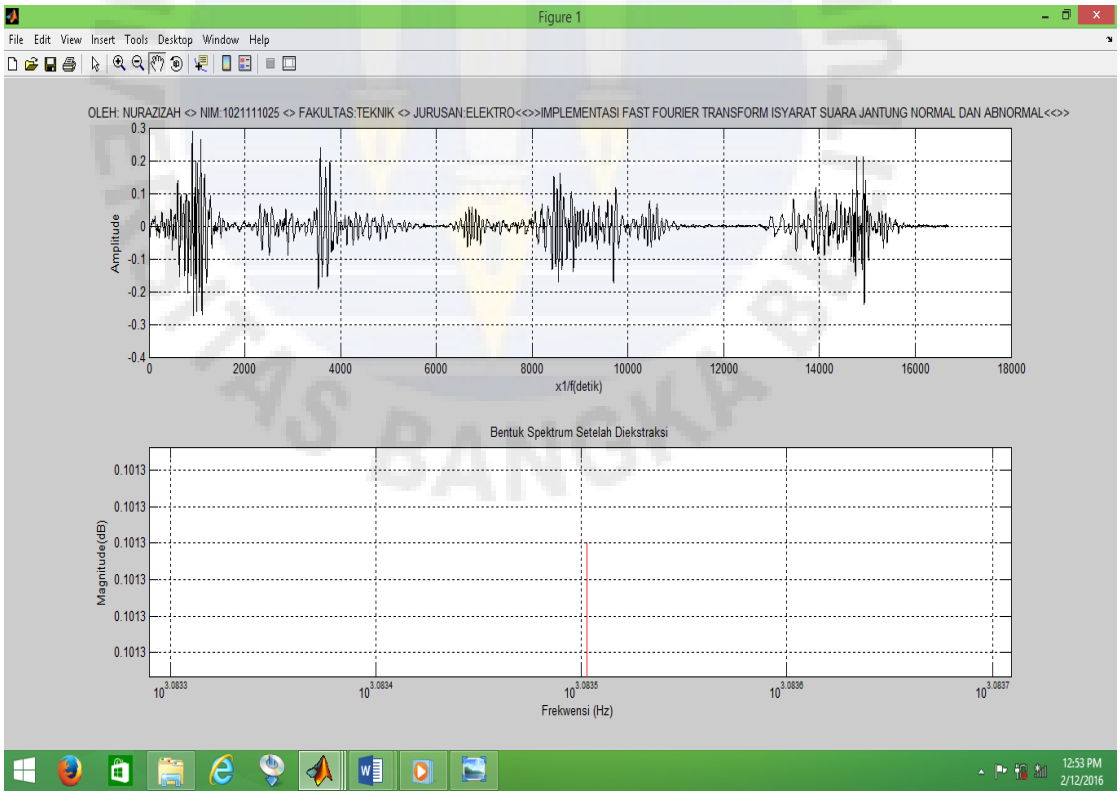
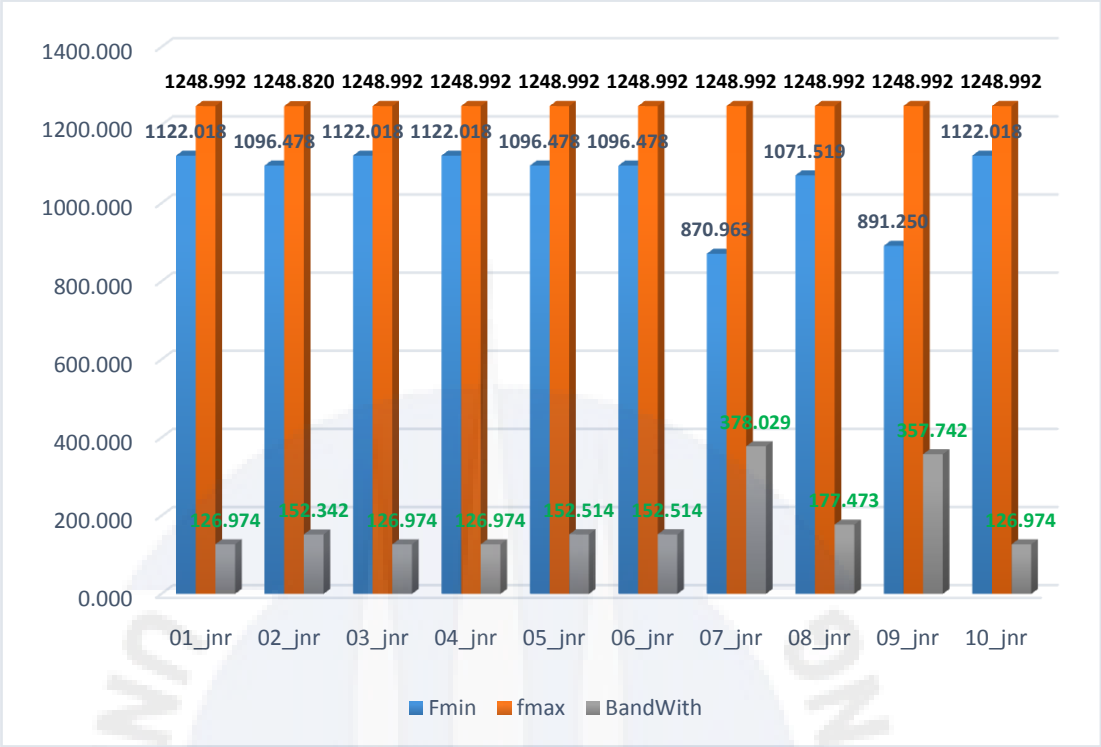


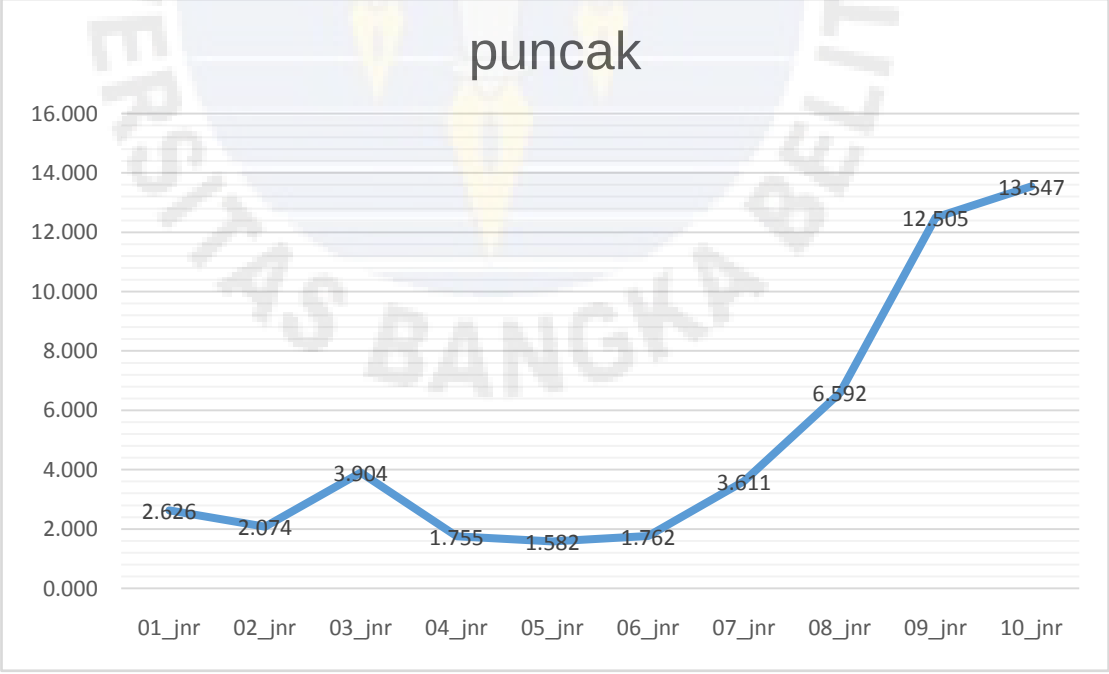
Figure 1
File Edit View Insert Tools Desktop Window Help
OLEH: NURAZIZAH <> NIM:1021111025 <> FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL<<>>
Amplitude
x1/f(detik)
Bentuk Spektrum Setelah Diekstraksi
Magnitude(dB)
Frekwensi (Hz)
12:53 PM
2/12/2016

LAMPIRAN C

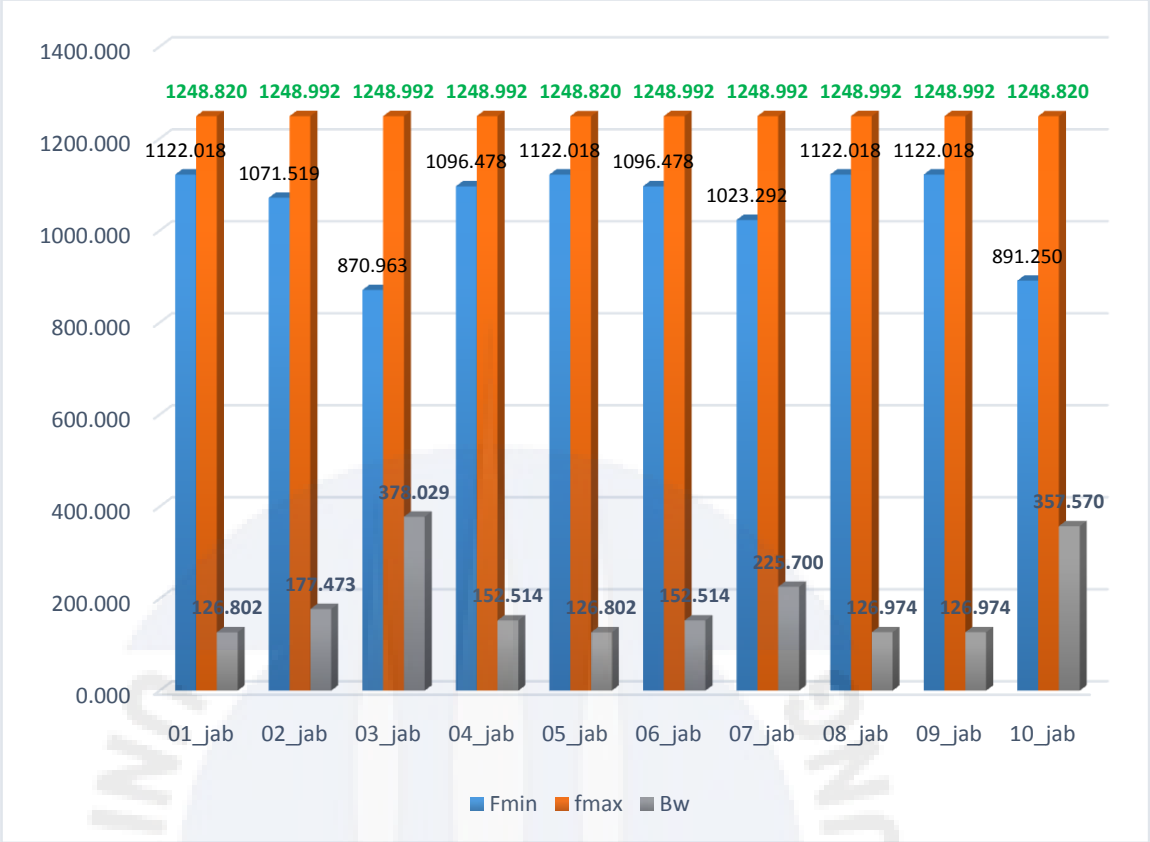
DIAGRAM NILAI SPEKTRAL ISYARAT SUARA JANTUNG NORMAL DAN ABNORMAL

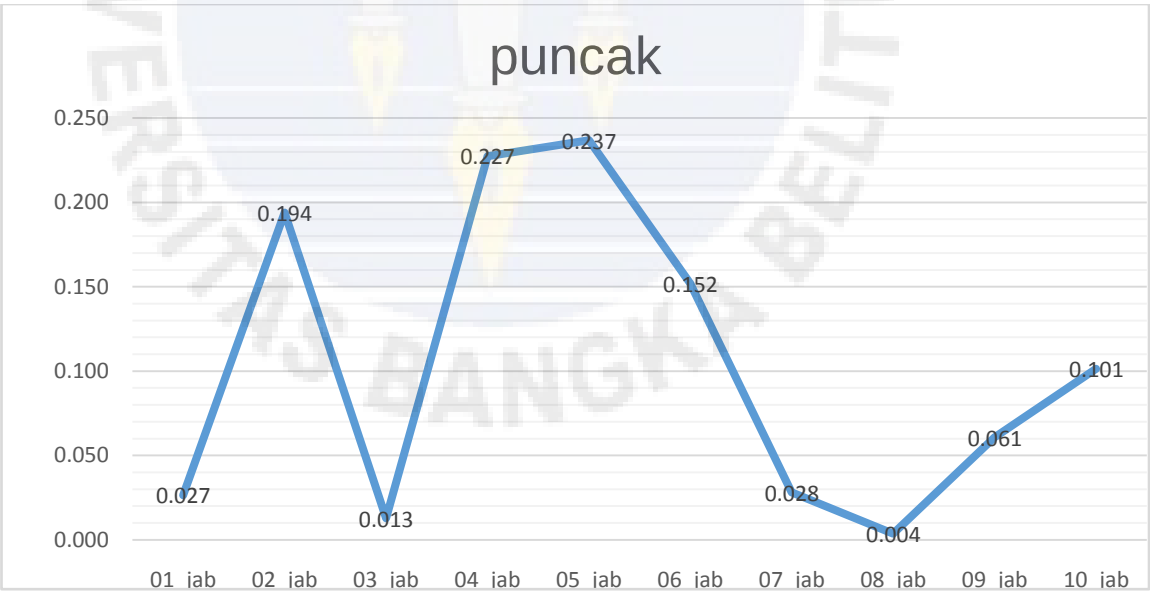
NORMAL





ABNORMAL


1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
1248.820 1248.992 1248.992 1248.992 1248.820 1248.992 1248.992 1248.992 1248.992 1248.820
1122.018 1071.519 870.963 1096.478 1122.018 1096.478 1023.292 1122.018 1122.018 891.250
126.802 171.473 378.029 152.514 126.802 152.514 225.700 126.974 126.974 357.570
01_jab 02_jab 03_jab 04_jab 05_jab 06_jab 07_jab 08_jab 09_jab 10_jab
Fmin fmax Bw


puncak
0.250
0.200
0.150
0.100
0.050
0.000
0.027 0.194 0.013 0.227 0.237 0.152 0.028 0.004 0.061 0.101
01 jab 02 jab 03 jab 04 jab 05 jab 06 jab 07 jab 08 jab 09 jab 10 jab

LAMPIRAN D

PROGRAM *FAST FOURIER TRANSFORM*

Program *Fast Fourier Transform*

```
%digunakan untuk menulis komentar yg tdk akan diproses
ketika eksekusi program

'%=<<>>==>===>=====<<<<>>>>===<<>>>=====<<<<<<<<<<>>>>>
>>>>>>======<<<>>>>========>=========>=====>======<><><
><><>'

'%Nama Program : MEMANGGIL SPEKTRUM FAST FOURIER
TRANSFORM'

'%oleh          : NURAZIZAH'

'% No.Mhs        :102 11 11 025'

'%Program ini digunakan untuk melihat bentuk sinyal
spektrum'

'%isyarat masukan untuk jantung normal dan abnormal
dengan durasi dalam detik'

'%=<<>>>==>===>====<<<<>>>>======<<<>>>=====<><><><<<<<
<<>>>>>><><><>==<<>>>=====<<>>=======<<<>>>======<<>>>
==<<><>'

clc;

clf;

window_start=100; window_length=1024; N=window_length;

addpath d:\data\

addpath d:\data1\

%spec=input('Jumlah FFT :');%Koefisien FFT=(NFFT/2)+1

%ol=input('Jumlah Overlapping :'

colormap(1-gray)

s=input('input suara :','s');

[suara]=wavread(s);

j=4097    %%spec=input('Jumlah    FFT    :');%Koefisien
FFT=(NFFT/2)+1
```

```
fs=22000

sound(suara,fs);

title('Bentuk Gelombang')

subplot(2,1,1);plot(suara,'k')

xlabel('x1/f(detik)');%untuk 1 rad/detik =1/2phi=0,159
Hz'

ylabel('Amplitude');


title('OLEH:  NURAZIZAH  <>  NIM:1021111025  <>
FAKULTAS:TEKNIK <> JURUSAN:ELEKTRO<<>>IMPLEMENTASI FAST
FOURIER TRANSFORM ISYARAT SUARA JANTUNG NORMAL DAN
ABNORMAL<<>>')

grid on

p=spectrum(suara,j,10);


z=flipud(p);

size(z)

%c=z([2 3],:)=[]

z([1:800],:)=[];%kalibrasi dilakukan dengan mengurangi
sebagian matriks z

W=z*1; %perkalian

size(W)%untuk mengetahui ukuran elemen matriks W

W;

%u=W;

%plot(W,u)


%C = textscan(str,'%f');

%W= outputSingleScan(s,[1 10]);

%M=repmat(a,[2  1])%menggandakan  baris  dan  kolom  pada
elemen matriks
```

```
%h=z([1  2  3],:)=[]%menghapus  elemen  matriks  z  pada
kolom 123

subplot(2,1,2); plot(W,'k')

'NILAI FREKUENSI MAKSIMUM='

max(p)

'NILAI FREKUENSI TERENDAH='

min(p)

%N=bar(W);

semilogx(W,'r')

%bar(W)

n=length(W);

xlabel('Frekwensi (Hz) ')

ylabel('Magnitude(dB)')

title('Bentuk Spektrum Ternormalisasi')

grid on


% =input('nilai isyarat jantung=');

W=(max(p)*1);

disp([' kesimpulan =',num2str(W)]);

if W> 15.000% mulai kondisional if dengan menggunakan
parameter  input  W  segment  if  melakukan  penyaringan
berdasarkan nilai W yang diperoleh sebelumnya.

disp('grade anda =isyarat jantung sehat');

elseif W<= 15.000 & W>1.000

disp('grade anda =isyarat jantung normal');


elseif W<=0.5000 & W>0.1000

disp ('grade anda =isyarat jantung abnormal');

else W<0.0000
```

```
    disp('grade anda =isyarat jantung abnormal')
end;
fprintf('\n=  jantung  normal  nilai  puncak  maksimal
13.547 dB sampai dengan 1.582 dB =>');


 fprintf('\n=jantung  abnormal  nilai  puncak  maksimal
0.2368 dB sampai dengan 0.0037 dB =>');


   fprintf('\n=TERIMAKASIH   ANDA   TELAH   MENGGUNAKAN
PROGRAM INI =');
```

LAMPIRAN E

PROGRAM *RECORD* MEREKAM ISYARAT SUARA JANTUNG

Program *record* untuk merekam

```
while 1

clear;

clc;

clf;

'%=================================================
====================='

'%Nama Program : PEREKAMAN ISYARAT SUARA JANTUNG NORMAL
DAN '

'%oleh         :NURAZIZAH'

'% No.Mhs       :102 1111 025'

'%Program ini digunakan untuk merekam'

'%isyarat masukan untuk jantung normal dan abnormal
dengan durasi dalam detik'

'%=================================================
====================='


'%memanggil suara'

s=input('Masukkan Nama  suara :','s');

a=input('Durasi Rekaman (detik)  :');

fs=16000;

WR=wavrecord(a*fs,fs,1);

wavwrite(WR,fs,s)

t=1:length(WR);

subplot(211)

k=t/fs;

plot(k,WR)

grid on

xlabel('Isyarat Terekamam (detik)')
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```
ylabel('amplitude')
title('     NAMA: NURAZIZAH      NIM:1021111025
FAKULTAS:TEKNIK         JURUSAN:TEKNIK ELEKTRO     ')
grid on
%memainkan hasil rekaman
wavplay(WR,fs)

%Spectrum belum dinormalisasi
ol=0;
f=1024;
p=spectrum(WR,f,ol);
('P= Koefisien FFT=(NFFT/2)+1');

('d=P maksimum');
d=max(p);
('B=P ternormalisasi') ;
%suara=L/d;
B=p/d;
M=max(B);
%suara

subplot(2,1,2);
%plot(,'b')
%plot(B,'b')
semilogx(B,'r')
n=length(B);
xlabel('Frekwensi (Hz) ')
ylabel('Magnitude')
title('Bentuk Spektrum Ternormalisasi')
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grid on

fprintf('\n=============================================
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fprintf('\n=TERIMAKASIH ANDA TELAH MENGGUNAKAN PROGRAM
INI =');

fprintf('\n=Tekan ENTER Untuk Melanjutkan, dan  0 untuk
mengakhiri  =\n');

fprintf('\n=============================================
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kont = input( ' STOP:' );

if kont == 0, break; end

end

clf;
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LAMPIRAN F

PERHITUNGAN NFFT 8

Dik:

X(n)={ 0, 1, 2, 3, 4 ,5 6,7}

N=8

X(0)=$\sum_{n=0}^{N-1} X(n)\, e^{-j\,2\pi u\,(x)/N}$

Untuk u =0

X(0)=$\sum_{n=0}^{N-1} X(n)$

X(0)=$\sum_{n=0}^{8-1} X(n)\, e^{-j\,2\pi\,(0)/8}$

X(0) =$\sum_{n=0}^{8-1} X(n)\, e^{0}$

X(0)= [x(0) + x (1) +x (2) + x(3) + x(4) + x(5) +x(6) +x (7)]

X(0) = 28

Untuk u=1

X(1)= $\sum_{n=0}^{N-1} X(n)$

X(1)= X(0)=$\sum_{n=0}^{N-1} X(n) \cos\frac{2\pi(1)x}{8}$ - Jsin $2\pi(1)x/8$

X(1)= $\sum_{n=0}^{8-1} X(n) \cos\frac{2\pi x}{8}$ - Jsin $2\pi x/8$

X(1)= $\sum_{n=0}^{8-1} X(n) \cos\frac{\pi x}{4}$ - Jsin $\pi x/4$

X(1)= [0(cos$\frac{\pi\,(0)}{4}$ - Jsin $\pi\,(0)/4$] + [1(cos$\frac{\pi\,(1)}{4}$ - Jsin $\pi\,(1)/4$] +[2(cos$\frac{\pi\,(2)}{4}$ -

Jsin $\pi\,(2)/4$] +[3(cos$\frac{\pi\,(3)}{4}$ - Jsin $\pi\,(3)/4$] +[4(cos$\frac{\pi\,(4)}{4}$ - Jsin $\pi\,(4)/4$]

+[5(cos$\frac{\pi\,(5)}{4}$ - Jsin $\pi\,(5)/4$] +[6(cos$\frac{\pi\,(6)}{4}$ - Jsin $\pi\,(6)/4$] +[7(cos$\frac{\pi\,(7)}{4}$ -

Jsin $\pi\,(7)/4$]

X(1)= [0(cos 0 –J sin 0)] + [1(cos 720 –J sin 720)] +[2(cos 90 –J sin 90)]+ [3(cos 135 –

Jsin 135)] +[4(cos 180 –J sin 180)]+ [5(cos 225 –J sin 225)]+ [6(cos 270 –J sin

270)]+ [7(cos 315 –J sin 315)]

X(1)= [0(1-J0)]+ [1(1-J0)]+ [2(0-J1)]+ [3(−$\frac{\sqrt{2}}{2}$(J$\frac{\sqrt{2}}{2}$)]+ [4(-1-J0)]+ [5(−$\frac{\sqrt{2}}{2}$ (-

J($\frac{\sqrt{2}}{2}$))] + [6(0 -(-J1))]+ [7(($\frac{\sqrt{2}}{2}$(-J($\frac{\sqrt{2}}{2}$)]

X(1) = [1-$\frac{3}{2}\sqrt{2}$ - 4-$\frac{5}{2}\sqrt{2}$+$\frac{7}{2}\sqrt{2}$]+[2J- $\frac{3}{2}\sqrt{2}$ J -$\frac{5}{2}\sqrt{2}$ J +$\frac{7}{2}\sqrt{2}$ J]

X(1) = [-3-$\frac{1}{2}\sqrt{2}$] + [2 J- $\frac{1}{2}\sqrt{2}$]

X(1)= 3,707 +1,293 J

Untuk u=2

X(2) = $\sum_{n=0}^{N-1} X(n) \cos \frac{2\pi(2)x}{8}$ - Jsin $2\pi(2)x/8$

X(2)=$\sum_{n=0}^{8-1} X(n) \cos \frac{4\pi x}{8}$ - Jsin $4\pi x/8$

X(2)=$\sum_{n=0}^{8-1} X(n) \cos \frac{\pi x}{2}$ - Jsin $\pi x/2$

X(2)= $\sum_{n=0}^{8-1}$ [0(cos $\frac{\pi\ (0)}{2}$) - Jsin $\pi\ (0)/2$]+[1(cos $\frac{\pi\ (1)}{2}$) - Jsin $\pi\ (1)/2$]

+[2(cos $\frac{\pi\ (2)}{2}$) - Jsin $\pi\ (2)/2$]+[3(cos $\frac{\pi\ (3)}{2}$) - Jsin $\pi\ (3)/2$]

+[4(cos $\frac{\pi\ (4)}{2}$) - Jsin $\pi\ (4)/2$]+ [5(cos $\frac{\pi\ (5)}{2}$) - Jsin $\pi\ (5)/2$]

+[6(cos $\frac{\pi\ (6)}{2}$) - Jsin $\pi\ (6)/2$]+ [7(cos $\frac{\pi\ (7)}{2}$) - Jsin $\pi\ (7)/2$]

X(2)= [0(1-J0)] +[1(0-1J)]+[-2(-1-J0)]+[3(0- (-J1) + [4(1- (-J0)+ [5(0- (J1)+ [6(-1- (J0)+ [7(0- (-J1)]

X(2) =[-2+4+6] +[-J+3J-5J-7J]

X(2) = 8- 10J

Untuk u=3

X(3) = $\sum_{n=0}^{N-1} X(n) \cos \frac{6\pi x}{8}$ - Jsin $6\pi x/8$

X(3)=$\sum_{n=0}^{8-1} X(n) \cos \frac{3\pi x}{4}$ - Jsin $3\pi x/4$

X(3)=$\sum_{n=0}^{8-1}$ [0(cos $\frac{3\pi\ (0)}{4}$ - Jsin $3\pi\ (0)/4$] + [1(cos $\frac{3\pi\ (2)}{4}$ - Jsin $3\pi\ (2)/4$]

+[3(cos $\frac{3\pi\ (3)}{4}$ - Jsin $3\pi\ (3)/4$] + {4(cos $\frac{3\pi\ (4)}{4}$ - Jsin $3\pi\ (4)/4$] +

[5(cos $\frac{3\pi\ (5)}{4}$ - Jsin $3\pi\ (5)/4$] +[6(cos $\frac{3\pi\ (6)}{4}$ - Jsin $3\pi\ (6)/4$] +

[7(cos $\frac{3\pi\ (7)}{4}$ - Jsin $3\pi\ (7)/4$

X(3) = [0(1-J0)] +[1(- $\frac{\sqrt{2}}{2}$- (J$\frac{\sqrt{2}}{2}$))]+ [2(0 – (-J1))]+[3($\frac{\sqrt{2}}{2}$- (J$\frac{\sqrt{2}}{2}$+ [4(-1- (J0)+

[5($\frac{\sqrt{2}}{2}$- (-J$\frac{\sqrt{2}}{2}$)+ [6(0- (J1)+ [7(-$\frac{\sqrt{2}}{2}$- (-$\frac{\sqrt{2}}{2}$)]

X(3) =[-$\frac{1}{2}\sqrt{2}$ + $\frac{3}{2}\sqrt{2}$ - 4 +$\frac{5}{2}\sqrt{2}$ -$\frac{7}{2}\sqrt{2}$] +[-$\frac{1}{2}\sqrt{2}J$ +2 J- $\frac{3}{2}\sqrt{2}J$-$\frac{5}{2}\sqrt{2}J$ + $\frac{7}{2}\sqrt{2}J$]

X(3) = [-4] + [2J -$\frac{2}{2}\sqrt{2}J$

X(3) =[-4] + 0,586 J

X(3) = - 3,414 J

Untuk u= 4

X(4) = $\sum_{n=0}^{N-1} X(n) \cos\frac{2\pi(4)x}{8}$ - Jsin $2\pi(4)x/8$

X(4)=$\sum_{n=0}^{8-1} X(n) \cos\frac{8\pi x}{8}$ - Jsin $\pi\ 8/8$

X(4)=$\sum_{n=0}^{8-1} X(n)$ [(cos πx - Jsin πx]

X(4)=[0 (cos π (0) - Jsin π (0)] +[1(cos π (1) - Jsin π (1)]
+[2(cos π (2) -

Jsin π (2)]+[3(cos π (3) –

Jsin π (3)]+ [4(cos π (4) – J sin π (4)] +[5(cos π (5) - Jsin π (5)]

+[6 (cos π (6) - Jsin π (6)] +[7 (cos π (7) - Jsin π 7]

X(4) =[0(1-0J)] + [1(-1-J0)] + [2(1-0J)] + [3(-1-0J)] + [4(1-0J)] + [5(-1-0J)]

+[6(1-0J)] + [7(-1-J0)]

X(4) = [-1 +2-3+4-5+6-7] +[0J]

X(4) = -4

Untuk u=5

X(5) =$\sum_{n=0}^{N-1} X(n) \cos\frac{2\pi(5)x}{8}$ - Jsin $2\pi(5)x/8$

X(5)=$\sum_{n=0}^{8-1} X(n) \cos\frac{10\pi}{8}x$ - Jsin $\pi\ (10)x/8$

X(5)=$\sum_{n=0}^{8-1} X(n)$ [0(cos$\frac{10\pi}{8}$(0) - sin π (10)(0)/8] + [1(cos$\frac{10\pi}{8}$(1) -

$\sin \pi\,(10)(1)/8]$+ $[2(\cos \frac{10\pi}{8}(2) - \sin \pi\,(10)(2)/8]$

+ $[3(\cos \frac{10\pi}{8}(3)$ - $\sin \pi\,(10)(3)/8\,]$ +$[4(\cos \frac{10\pi}{8}(4)$ - $\sin \pi\,(10)(4)8]$

+$[5(\cos \frac{10\pi}{8}(5)$ - $\sin \pi\,(10)(5)/8]$+$[6(\cos \frac{10\pi}{8}(6)$ -

$\sin \pi\,(10)(6)8]$+ $[7(\cos \frac{10\pi}{8}(7)$ - $\sin \pi\,(10)(7)/8]$

X(5) = [0(1-0J)] + [1(-$\frac{\sqrt{2}}{2}$ –(-$\frac{\sqrt{2}}{2}$ J)] + [2 (0-1J) +[3($\frac{\sqrt{2}}{2}$ – (-$\frac{\sqrt{2}}{2}$ J] +[4(-1-0J)] +

5[$\frac{\sqrt{2}}{2}$-$\frac{\sqrt{2}}{2}J$] + [6(0-(-1J)] + [7(-$\frac{\sqrt{2}}{2}$ -$\frac{\sqrt{2}}{2}$ J)] *Type equation here.*

X(5) = [-$\frac{1}{2}\sqrt{2}$ + $\frac{3}{2}\sqrt{2}$ - 4 +$\frac{5}{2}\sqrt{2}$ -$\frac{7}{2}\sqrt{2}$] + [$\frac{1}{2}\sqrt{2}J$ + $\frac{3}{2}\sqrt{2}J$ -$\frac{5}{2}\sqrt{2}J$ + $\frac{7}{2}\sqrt{2}J$]

X(5) = 0 + [$-\frac{8}{2}\sqrt{2}J$

X(5) = - $4\sqrt{2}J$

X(5) = 5,656 J

Untuk u=6

X(6) = $\sum_{n=0}^{N-1} X(n) \cos \frac{2\pi(6)x}{8}$ - Jsin $2\pi(6)x/8$

X(6)=$\sum_{n=0}^{8-1} X(n) \cos \frac{12\pi}{8}x$ - Jsin $\pi\,(12)x/8$

X(6) = $[0(\cos \frac{12\pi}{8}(0)$ - $\sin \pi\,(12)(0)/8\,]$ + $[1(\cos \frac{12\pi}{8}(1)$ - $\sin \pi\,(12)(1)/$
8]

+ $[2(\cos \frac{12\pi}{8}(2)$ - $\sin \pi\,(12)(2)/8]$ + $[3(\cos \frac{12\pi}{8}(3)$ - $\sin \pi\,(12)(3)8\,]$

+ $[4(\cos \frac{12\pi}{8}(4)$ - $\sin \pi\,(12)(4)/8]$ + $[5(\cos \frac{12\pi}{8}(5)$ - $\sin \pi\,(12)(5)8\,]$

+ $[6(\cos \frac{12\pi}{8}(6)$ - $\sin \pi\,(12)(6)/8]$ + $[7(\cos \frac{12\pi}{8}(7)$ - $\sin \pi\,(12)(7)/8]$

X(6) = [0(-1- 0J)]+ [1(0-(-1J)] + [2(-1-0J)] + [3(0-1J)] + [4(1-0J)] + [5(0-(-
1J))]+ [6(-1-0J)+ [7(0-1J)]

X(6) = [-2+4-6] +[-J-3J-5J -7J]

X(6) = 4+ 16J

Untuk u=7

X(7) = $\sum_{n=0}^{N-1} X(n) \cos \frac{2\pi(7)x}{8}$ - Jsin $2\pi(7)x/8$

X(7)=$\sum_{n=0}^{8-1} X(n) \cos \frac{7\pi}{4} x$ - Jsin $\pi\ (7)x/4$

X(7) =[0($\cos \frac{7\pi}{4}(0)$ - Jsin $\pi\ (7)(0)/4$] + [1($\cos \frac{7\pi}{4}(1)$ - Jsin $\pi\ (7)(1)/4$]+

[2($\cos \frac{7\pi}{4}(2)$ - Jsin $\pi\ (7)(2)/4$] + [3($\cos \frac{7\pi}{4}(3)$ - Jsin $\pi\ (7)(3)/4$]

+[4($\cos \frac{7\pi}{4}(4)$ - Jsin $\pi\ (7)(4)/4$] + [5($\cos \frac{7\pi}{4}(5)$ - Jsin $\pi\ (7)(5)/4$]+

[6($\cos \frac{7\pi}{4}(6)$ - Jsin $\pi\ (7)(6)/4$] +[7($\cos \frac{7\pi}{4}(7)$ - Jsin $\pi\ (7)(7)/4$]

X(7) = [0(-1- 0J)] + [1($\frac{\sqrt{2}}{2}$ –(-$\frac{\sqrt{2}}{2}$ J)] + [2(0-(- 1J)] + [3(-$\frac{\sqrt{2}}{2}$ –(-$\frac{\sqrt{2}}{2}$ J)]+ [4(-1 –

0J)] + [5(-$\frac{\sqrt{2}}{2}$ –($\frac{\sqrt{2}}{2}$ J)]+ [6(0 - 1J)] + [7($\frac{\sqrt{2}}{2}$ –($\frac{\sqrt{2}}{2}$ J)]

X(7) = [$\frac{1}{2}\sqrt{2}$ - $\frac{3}{2}\sqrt{2}$ - $\frac{5}{2}\sqrt{2}$ +$\frac{7}{2}\sqrt{2}$] + [$\frac{1}{2}\sqrt{2}J + 2J + \frac{3}{2}\sqrt{2}J$–$\frac{5}{2}\sqrt{2}J - 6J +$

$\frac{7}{2}\sqrt{2}J$]

X(7) = 0 + [$-\frac{8}{2}\sqrt{2}J$ -4J

X(7) = 9,656 J

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