

## PROGRAM MATLAB

```
clear
clc

%-----FEEDER KALISARI 06-----

% satuan ampere

I1_kalisari = 65;
I2_kalisari = 10;
I3_kalisari = 71;
I4_kalisari = 40;
I5_kalisari = 55;
I6_kalisari = 37;
I7_kalisari = 45;
I8_kalisari = 28;

I_kalisari= [I1_kalisari
             I2_kalisari
             I3_kalisari
             I4_kalisari
             I5_kalisari
             I6_kalisari
             I7_kalisari
             I8_kalisari];

%panjang kabel satuan dalam km
L01_kalisari = 2.550;
L12_kalisari = 3.450;
L23_kalisari = 0.100;
L34_kalisari = 3.950;
L45_kalisari = 1.150;
L56_kalisari = 2.150;
L67_kalisari = 2.400;
L78_kalisari = 4.500;

% Nilai arus tiap section
B01_kalisari = I8_kalisari + I7_kalisari + I6_kalisari +
I5_kalisari + I4_kalisari + I3_kalisari + I2_kalisari +
I1_kalisari
B12_kalisari = I8_kalisari + I7_kalisari + I6_kalisari +
I5_kalisari + I4_kalisari + I3_kalisari + I2_kalisari
B23_kalisari = I8_kalisari + I7_kalisari + I6_kalisari +
I5_kalisari + I4_kalisari + I3_kalisari
B34_kalisari = I8_kalisari + I7_kalisari + I6_kalisari +
I5_kalisari + I4_kalisari
B45_kalisari = I8_kalisari + I7_kalisari + I6_kalisari +
I5_kalisari
B56_kalisari = I8_kalisari + I7_kalisari + I6_kalisari
B67_kalisari = I8_kalisari + I7_kalisari
B78_kalisari = I8_kalisari

% Mencari Nilai Z
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% Z1 = (R+jx).L (R+jX bernilai tetap 0.1344 + j0,3158)
Z01_kalisari = (0.1344+0.3158i)*L01_kalisari
Z12_kalisari = (0.1344+0.3158i)*L12_kalisari
Z23_kalisari = (0.1344+0.3158i)*L23_kalisari
Z34_kalisari = (0.1344+0.3158i)*L34_kalisari
Z45_kalisari = (0.1344+0.3158i)*L45_kalisari
Z56_kalisari = (0.1344+0.3158i)*L56_kalisari
Z67_kalisari = (0.1344+0.3158i)*L67_kalisari
Z78_kalisari = (0.1344+0.3158i)*L78_kalisari

% mencari nilai drop tegangan dengan rumus
V01_kalisari = (B01_kalisari * Z01_kalisari)
V01_absolut = abs (V01_kalisari)

V12_kalisari = (B12_kalisari * Z12_kalisari)
V12_absolut = abs (V12_kalisari)

V23_kalisari = (B23_kalisari * Z23_kalisari)
V23_absolut = abs (V23_kalisari)

V34_kalisari = (B34_kalisari * Z34_kalisari)
V34_absolut = abs (V34_kalisari)

V45_kalisari = (B45_kalisari * Z45_kalisari)
V45_absolut = abs (V45_kalisari)

V56_kalisari = (B56_kalisari * Z56_kalisari)
V56_absolut = abs (V56_kalisari)

V67_kalisari = (B67_kalisari * Z67_kalisari)
V67_absolut = abs (V67_kalisari)

V78_kalisari = (B78_kalisari * Z78_kalisari)
V78_absolut = abs (V78_kalisari)

V1_kalisari = 20000 - abs(V01_absolut)

V2_kalisari = V1_kalisari - abs(V12_absolut)

V3_kalisari = V2_kalisari - abs(V23_absolut)

V4_kalisari = V3_kalisari - abs(V34_absolut)

V5_kalisari = V4_kalisari - abs(V45_absolut)

V6_kalisari = V5_kalisari - abs(V56_absolut)

V7_kalisari = V6_kalisari - abs(V67_absolut)

V8_kalisari = V7_kalisari - abs(V78_absolut)

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metode_matrik_kalisari = Z1_kalisari * Min_matrik_kalisari *
I_kalisari

matrikkalisari1 = 73.12 + 171.81i
matrikkalisari1_absolut = abs(matrikkalisari1)

matrikkalisari2 = ((205.73 + 483.41i) - (73.12 + 171.81i))
matrikkalisari2_absolut = abs(matrikkalisari2)

matrikkalisari3 = ((209.44 + 492.13i) - (205.73 + 483.41i))
matrikkalisari3_absolut = abs(matrikkalisari3)

matrikkalisari4 = ((318.27 + 747.85i) - (209.44 + 492.13i))
matrikkalisari4_absolut = abs(matrikkalisari4)

matrikkalisari5 = ((343.78 + 807.77i) - (318.27 + 747.85i))
matrikkalisari5_absolut = abs(matrikkalisari5)

matrikkalisari6 = ((375.56 + 882.46i) - (343.78 + 807.77i))
matrikkalisari6_absolut = abs(matrikkalisari6)

matrikkalisari7 = ((399.11 + 937.78i) - (375.56 + 882.46i))
matrikkalisari7_absolut = abs(matrikkalisari7)

matrikkalisari8 = ((416.04 + 977.57i) - (399.11 + 937.78i))
matrikkalisari8_absolut = abs(matrikkalisari8)

dropmatrikkalisari = matrikkalisari1_absolut +
matrikkalisari2_absolut + matrikkalisari3_absolut +
matrikkalisari4_absolut + matrikkalisari5_absolut +
matrikkalisari6_absolut + matrikkalisari7_absolut +
matrikkalisari8_absolut
persentasematrik_kalisari = (dropmatrikkalisari/20000) * 100%

%Mencari Nilai aliran daya
%P = I^2*R
%P = (sqrt(3))*V*I*cos_phi

%daya pada setiap bus
R01kalisari = 0.1344*L01_kalisari
R12kalisari = 0.1344*L12_kalisari
R23kalisari = 0.1344*L23_kalisari
R34kalisari = 0.1344*L34_kalisari
R45kalisari = 0.1344*L45_kalisari
R56kalisari = 0.1344*L56_kalisari
R67kalisari = 0.1344*L67_kalisari
R78kalisari = 0.1344*L78_kalisari

rugi_kalisari1 = 3 * B01_kalisari^2 * (0.1344*L01_kalisari)

rugi_kalisari2 = 3 * B12_kalisari^2 * (0.1344*L12_kalisari)

rugi_kalisari3 = 3 * B23_kalisari^2 * (0.1344*L23_kalisari)

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rugi_kalisari4 = 3 * B34_kalisari^2 * (0.1344*L34_kalisari)

rugi_kalisari5 = 3 * B45_kalisari^2 * (0.1344*L45_kalisari)

rugi_kalisari6 = 3 * B56_kalisari^2 * (0.1344*L56_kalisari)

rugi_kalisari7 = 3 * B67_kalisari^2 * (0.1344*L67_kalisari)

rugi_kalisari8 = 3 * B78_kalisari^2 * (0.1344*L78_kalisari)

totalrugi_kalisari = rugi_kalisari1 + rugi_kalisari2 +
rugi_kalisari3 + rugi_kalisari4 + rugi_kalisari5 + rugi_kalisari6
+ rugi_kalisari7 + rugi_kalisari8

%-----FEEDER KRAPYAK 02-----

% satuan ampere
I1_krapyak = 3;
I2_krapyak = 8;
I3_krapyak = 32;
I4_krapyak = 28;
I5_krapyak = 35;

%panjang kabel satuan dalam km
L01_krapyak = 0.75;
L12_krapyak = 0.35;
L23_krapyak = 1.3;
L34_krapyak = 0.55;
L45_krapyak = 0.85;

% Nilai arus tiap section
B01_krapyak = I5_krapyak + I4_krapyak + I3_krapyak + I2_krapyak +
I1_krapyak
B12_krapyak = I5_krapyak + I4_krapyak + I3_krapyak + I2_krapyak
B23_krapyak = I5_krapyak + I4_krapyak + I3_krapyak
B34_krapyak = I5_krapyak + I4_krapyak
B45_krapyak = I5_krapyak

% Mencari Nilai Z
% Z1 = (R+jx).L (R+jX bernilai tetap 0.1344 + j0,3158)
Z01_krapyak = (0.1344+0.3158i)*L01_krapyak
Z12_krapyak = (0.1344+0.3158i)*L12_krapyak
Z23_krapyak = (0.1344+0.3158i)*L23_krapyak
Z34_krapyak = (0.1344+0.3158i)*L34_krapyak
Z45_krapyak = (0.1344+0.3158i)*L45_krapyak

% mencari nilai drop tegangan dengan rumus
V01_krapyak = (B01_krapyak * Z01_krapyak)
krapyak01_absolut = abs(V01_krapyak)

V12_krapyak = (B12_krapyak * Z12_krapyak)
krapyak12_absolut = abs(V12_krapyak)

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V23_krpyak = (B23_krpyak * Z23_krpyak)
krpyak23_absolut = abs(V23_krpyak)

V34_krpyak = (B34_krpyak * Z34_krpyak)
krpyak34_absolut = abs(V34_krpyak)

V45_krpyak = (B45_krpyak * Z45_krpyak)
krpyak45_absolut = abs(V45_krpyak)

V1_krpyak = 20000 - krpyak01_absolut

V2_krpyak = V1_krpyak - krpyak12_absolut

V3_krpyak = V2_krpyak - krpyak23_absolut

V4_krpyak = V3_krpyak - krpyak34_absolut

V5_krpyak = V4_krpyak - krpyak45_absolut

Vdrop_krpyak = krpyak01_absolut + krpyak12_absolut +
krpyak23_absolut + krpyak34_absolut + krpyak45_absolut

presentase_krpyak = (Vdrop_krpyak/20000) * 100%

% mencari drop tegangan dengan K-matrik
K_matrik_krpyak = [-1  -1  -1  -1  -1
                   0   -1  -1  -1  -1
                   0   0  -1  -1  -1
                   0   0   0  -1  -1
                   0   0   0   0  -1]

Min_matrik_krpyak = -K_matrik_krpyak

Z_krpyak = [Z01_krpyak      0          0          0
0
              Z01_krpyak Z12_krpyak      0          0
0
              Z01_krpyak Z12_krpyak Z23_krpyak      0
0
              Z01_krpyak Z12_krpyak Z23_krpyak Z34_krpyak
0
              Z01_krpyak Z12_krpyak Z23_krpyak Z34_krpyak
Z45_krpyak]

I_krpyak = [I1_krpyak
            I2_krpyak
            I3_krpyak
            I4_krpyak
            I5_krpyak]

metode_matrik_krpyak = Z_krpyak * Min_matrik_krpyak *
I_krpyak

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matrikkrapyak1 = 10.6848 +25.1061i
matrikkrapyak1_absolut = abs(matrikkrapyak1)

matrikkrapyak2 = (15.5299 +36.4907i) - (10.6848 +25.1061i)
matrikkrapyak2_absolut = abs(matrikkrapyak2)

matrikkrapyak3 = (32.1283 +75.4920i) - (15.5299 +36.4907i)
matrikkrapyak3_absolut = abs(matrikkrapyak3)

matrikkrapyak4 = (36.7853 +86.4345i) - (32.1283 +75.4920i)
matrikkrapyak4_absolut = abs(matrikkrapyak4)

matrikkrapyak5 = (40.7837 +95.8295i) - (36.7853 +86.4345i)
matrikkrapyak5_absolut = abs(matrikkrapyak5)

dropmatrikkrapyak = matrikkrapyak1_absolut +
matrikkrapyak2_absolut + matrikkrapyak3_absolut +
matrikkrapyak4_absolut + matrikkrapyak5_absolut
persentasematrik_kalisari = (dropmatrikkrapyak/20000) * 100%

%daya pada setiap bus

R1kra = 0.1344*L01_krapyak
R2kra = 0.1344*L12_krapyak
R3kra = 0.1344*L23_krapyak
R4kra = 0.1344*L34_krapyak
R5kra = 0.1344*L45_krapyak

rugi_krapyak1 = 3 * B01_krapyak^2 * (0.1344*L01_krapyak)
rugi_krapyak2 = 3 * B12_krapyak^2 * (0.1344*L12_krapyak)
rugi_krapyak3 = 3 * B23_krapyak^2 * (0.1344*L23_krapyak)
rugi_krapyak4 = 3 * B34_krapyak^2 * (0.1344*L34_krapyak)
rugi_krapyak5 = 3 * B45_krapyak^2 * (0.1344*L45_krapyak)

totalrugi_krapyak = rugi_krapyak1 + rugi_krapyak2 + rugi_krapyak3
+ rugi_krapyak4 + rugi_krapyak5

```



## LEMBAR REVISI dan TUGAS UJIAN SARJANA

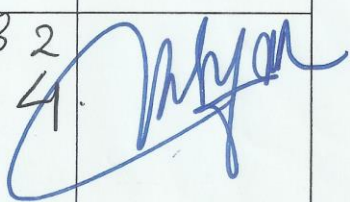
Berdasarkan Rapat Tim Penguji Ujian Sarjana

Hari : Senin  
Tanggal : 23 September 2019  
Tempat : R. Sidang

Memutuskan bahwa mahasiswa :

Nama : Indrajit Pratama  
NIM : 30601501716  
Judul TA : Analisa Drop Tegangan dan Rugi - Rugi Daya dengan Menggunakan Metode K-Matrik

wajib melakukan perbaikan dan membuat tugas seperti tercantum dibawah ini:

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	- tambahkan Rumus $\frac{2}{3}$ bab 2 dicantol tulisan bab 4.	

NO	TUGAS

Mengetahui,  
Ketua Tim Penguji



Ir. Agus Adhi Nugroho, MT  
NIDN. 0628086501

Semarang, 23 September 2019  
Penguji I



Ir. Agus Adhi Nugroho, MT  
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## LEMBAR REVISI dan TUGAS UJIAN SARJANA

Berdasarkan Rapat Tim Penguji Ujian Sarjana

Hari : Senin  
Tanggal : 23 September 2019  
Tempat : R. Sidang

Memutuskan bahwa mahasiswa :

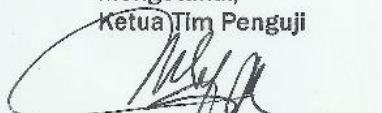
Nama : Indrajit Pratama  
NIM : 30601501716  
Judul TA : Analisa Drop Tegangan dan Rugi - Rugi Daya dengan Menggunakan Metode K-Matrik

wajib melakukan perbaikan dan membuat tugas seperti tercantum dibawah ini:


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	Flow chart di periksa kembali Lembar penyelesaian	Ace

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		Munaf 27/9 '19

Mengetahui,  
Ketua Tim Penguji

  
Ir. Agus Adhi Nugroho, MT  
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Semarang, 23 September 2019  
Penguji, III

  
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## LEMBAR REVISI dan TUGAS UJIAN SARJANA


Berdasarkan Rapat Tim Penguji Ujian Sarjana

Hari : Senin  
Tanggal : 23 September 2019  
Tempat : R. Sidang

Memutuskan bahwa mahasiswa :


Nama : Indrajit Pratama  
NIM : 30601501716  
Judul TA : Analisa Drop Tegangan dan Rugi - Rugi Daya dengan Menggunakan Metode K-Matrik

wajib melakukan perbaikan dan membuat tugas seperti tercantum dibawah ini:

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	Alatam 2 feeder ?	

NO	TUGAS

Mengetahui,  
Ketua Tim Penguji

  
Ir. Agus Adhi Nugroho, MT  
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Semarang, 23 September 2019  
Penguji, II

  
Dr. Ir. H. Muhammad Haddin, MT  
NIDN. 0618066301