

LAMPIRAN

1. Program Data Masukkan

Diameter Menara

```
function edit_1_Callback(hObject, eventdata, handles)
    diameterM=str2num(get(hObject,'string'));
    handles.diameterM=diameterM;
    guidata(hObject,handles);
```

Diameter Kolektor

```
function edit_2_Callback(hObject, eventdata, handles)
    diameterK=str2num(get(hObject,'string'));
    handles.diameterK=diameterK;
    guidata(hObject,handles);
```

Tinggi Kolektor

```
function edit_3_Callback(hObject, eventdata, handles)
    tinggiK=str2num(get(hObject,'string'));
    handles.tinggiK=tinggiK;
    guidata(hObject,handles);
```

Radiasi Matahari Global

```
function edit_4_Callback(hObject, eventdata, handles)
    radiasi=str2num(get(hObject,'string'));
    handles.radiasi=radiasi;
    guidata(hObject,handles);
```

Tinggi Menara

```
function edit_5_Callback(hObject, eventdata, handles)
    tinggiM=str2num(get(hObject,'string'));
    handles.tinggiM=tinggiM;
```

```
guidata(hObject,handles);
```

Suhu Lingkungan

```
function edit_7_Callback(hObject, eventdata, handles)
suhuLingkungan=str2num(get(hObject,'string'));
handles.suhuLingkungan=suhuLingkungan;
guidata(hObject,handles);
```

Suhu didalam Kolektor

```
function edit_8_Callback(hObject, eventdata, handles)
suhuKeluaranKolektor=str2num(get(hObject,'string'));
handles.suhuKeluaranKolektor=suhuKeluaranKolektor;
guidata(hObject,handles);
```

Tekanan Udara Panas didalam Kolektor

```
function edit_8_Callback(hObject, eventdata, handles)
tekanan=str2num (get(hObject,'string'));
handles.tekanan=tekanan;
guidata(hObject,handles);
```

Kerapatan Udara diluar Kolektor

```
function edit_9_Callback(hObject, eventdata, handles)
kerapatanUdaraLuar=str2num(get(hObject,'string'));
handles.kerapatanUdaraLuar=kerapatanUdaraLuar;
guidata(hObject,handles);
```

2. Program Data Keluaran.

Program Data Keluaran Perhitungan Rumus Matematis

%Perhitungan untuk mencari nilai Masukan Energi Matahari

radiasi=str2num(get(handles.edit_4,'string'));

area=str2num(get(handles.edit_5,'string'));

Qs=(radiasi*area)/1000;

%Perhitungan untuk mencari Kerapatan Udara

%dimisalkan Kerapatan udara dalam = 1

kerapatanUdaraDalam=1;

kerapatanUdaraLuar=str2num(get(handles.edit_9,'string'));

kerapatanUdara= (kerapatanUdaraLuar + kerapatanUdaraDalam)/2;

%Perhitugan untuk mencari Ut

tinggiM=str2num (get(handles.edit_6,'string'));

tinggiM=handles.tinggiM;

suhuLingkungan=str2num(get(handles.edit_7,'string'));

suhuKeluaranKolektor=str2num(get(handles.edit_8,'string'));

selisih= suhuKeluaranKolektor-suhuLingkungan;

Ut=sqrt((2*9.81*tinggiM*selisih)/suhuLingkungan);

%Perhitungan untuk mencari Aliran Masa Udara & Kecepatan

diameterM=str2num (get(handles.edit_1,'string'));

rt=diameterM/2;

diameterK=str2num (get(handles.edit_2,'string'));

rcoll=diameterK/2;

tinggiK=str2num (get(handles.edit_3,'string'));

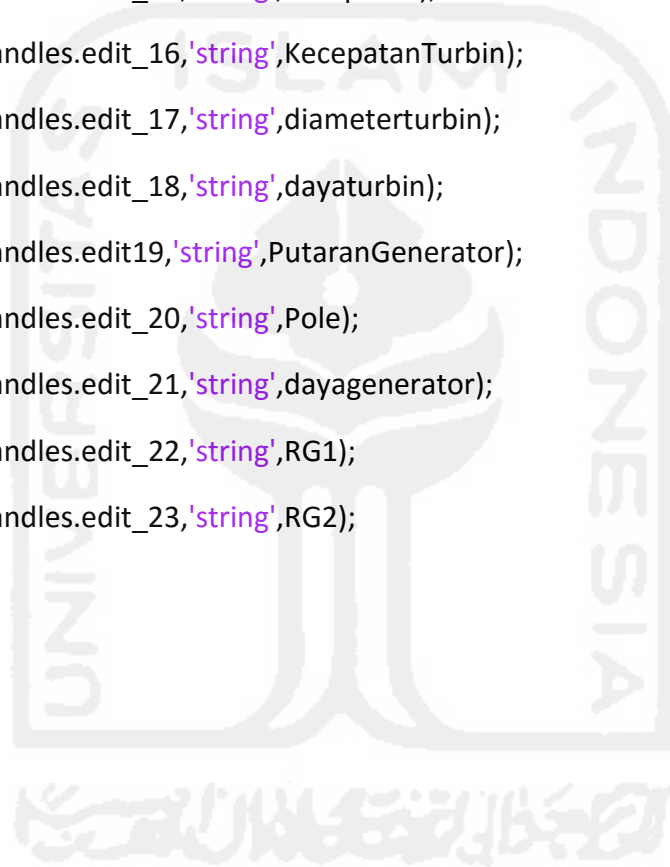
```

aliranMasaUdara= (kerapatanUdaraLuar*0.785*Ut*diameterM^2);
kecepatan= (aliranMasaUdara/(6.28*kerapatanUdara*(rcoll-rt))*log(rcoll/rt));
%Perhitungan untuk mencari nilai Efisiensi Menara
tekanan=50;
efisiensiMenara=(9.81*tinggiM)/(tekanan*suhuLingkungan);
%Perhitungan Turbin
luaskincir=3.14*rt^2;
dayaturbin= (0.5*aliranMasaUdara*(Ut^2))/1000;
%kecepatanturbin= (113.7*3.14^2)/60;
KecepatanTurbin=35;
diameterturbin=diameterM;
%Perhitungan Generator
dayagenerator= (0.33*kerapatanUdaraLuar*luaskincir*(Ut^3))/1000;
efisiensiturbin= 0.30;
%Perhitungan Putaran Generator
PutaranGenerator = 1500;
%Perhitungan Pole
Pole = 4;

%Perhitungan Rasio Gear
RG1 =1;
RG2 =50;
%Program untuk menampilkan nilai perhitungan
set(handles.edit_10,'string',Qs);

```

```
set(handles.edit_11,'string',Ut);  
set(handles.edit_12,'string',aliranMasaUdara);  
set(handles.edit_13,'string',efisiensiMenara);  
set(handles.edit_14,'string',area);  
set(handles.edit_15,'string',kecepatan);  
set(handles.edit_16,'string',KecepatanTurbin);  
set(handles.edit_17,'string',diameterturbin);  
set(handles.edit_18,'string',dayaturbin);  
set(handles.edit19,'string',PutaranGenerator);  
set(handles.edit_20,'string',Pole);  
set(handles.edit_21,'string',dayagenerator);  
set(handles.edit_22,'string',RG1);  
set(handles.edit_23,'string',RG2);
```



3. Program Data Keluaran Gambar.

```
function pushbutton3_Callback(hObject, eventdata, handles)
area=str2num(get(handles.edit_5, 'string'));
diameterM=str2num(get(handles.edit_1, 'string'));
tinggi=str2num(get(handles.edit_6, 'string'));

[x y z]=cylinder([area diameterM diameterM diameterM
diameterM diameterM diameterM diameterM diameterM],100);
surf(x,y,z*tinggi)
xlabel('x')
ylabel('y')
zlabel('z')
shading interp
colormap (hot)
%colorbar
```

4. Komponen-komponen GUI Matlab yang digunakan.

a. Komponen Tombol

Komponen-komponen	Property Inspector		
	Size	String	Tag
push button1	8.0	Hitung	pushbutton1
push button2	8.0	Hasil	Pushbutton2
push button3	8.0	Gambar	Pushbutton3
push button4	8.0	Reset	Pushbutton4
push button5	8.0	Keluar	Pushbutton5

b. Komponen Edit text untuk inputan dan keluaran

Komponen-komponen	Property Inspector		
	Size	String	Tag
Edit text 1	8.0	-	Edit_1
Edit text 2	8.0	-	Edit_2
Edit text 3	8.0	-	Edit_3
Edit text 4	8.0	-	Edit_4
Edit text 5	8.0	-	Edit_5
Edit text 6	8.0	-	Edit_6
Edit text 7	8.0	-	Edit_7

Komponen-komponen	Property Inspector		
	Size	String	Tag
Edit text 8	8.0	-	Edit_8
Edit text 9	8.0	-	Edit_9
Edit text 10	8.0	-	Edit_10
Edit text 11	8.0	-	Edit_11
Edit text 12	8.0	-	Edit_12
Edit text 13	8.0	-	Edit_13
Edit text 14	8.0	-	Edit_14
Edit text 15	8.0	-	Edit_15
Edit text 16	8.0	-	Edit_16
Edit text 17	8.0	-	Edit_17
Edit text 18	8.0	-	Edit_18
Edit text 19	8.0	-	Edit_19
Edit text 20	8.0	-	Edit_20
Edit text 21	8.0	-	Edit_21
Edit text 22	8.0	-	Edit_22
Edit text 23	8.0	-	Edit_23
Edit text 24	8.0	-	Edit_24
Edit text 25	8.0	-	Edit_25
Edit text 26	8.0	-	Edit_26

Komponen-komponen	Property Inspector		
	Size	String	Tag
Edit text 27	8.0	-	Edit_27
Axes	-	-	axes1

c. Komponen Untuk Label atau identitas dimasing-masing komponen.

Komponen- Komponen	Property Inspector		
	Size	String	Tag
Static text	8.0	Diameter Menara	text1
Static text	8.0	Diameter Kolektor	text2
Static text	8.0	Tinggi Kolektor	text3
Static text	8.0	Radiasi Matahari Global	text4
Static text	8.0	Area Kolektor	text5
Static text	8.0	Tinggi Menara	text6
Static text	8.0	Suhu Lingkungan	text7
Static text	8.0	Suhu Keluaran Kolektor	text8
Static text	8.0	Tekanan Udara Panas didalam Kolektor	text9
Static text	8.0	Kerapatan Udara diluar Kolektor	text10
Static text	8.0	Masukkan Energi Matahari	text11

Komponen- komponen	Property Inspector		
	Size	String	Tag
Static text	8.0	Kecepatan Arus Angin	text12
Static text	8.0	Efisiensi Menara	text13
Static text	8.0	Keluaran Daya Elektrik	text14
Static text	8.0	Laju Aliran Masa Udara	text15
Static text	8.0	Tinggi Menara	text16
Static text	8.0	Diameter Menara	text17
Static text	8.0	Area Kolektor	text18
Static text	8.0	Diameter Kolektor	text19
Static text	8.0	Blade :	text20
Static text	8.0	Profile Blade Turbin :	text21
Static text	8.0	Kecepatan Putaran Turbin :	text22
Static text	8.0	Efisiensi Turbin :	text23
Static text	8.0	Diameter Turbin	text24
Static text	8.0	Daya Keluaran Turbin	text25
Static text	8.0	Frekuensi :	text26
Static text	8.0	Pole Generator	text27
Static text	8.0	Putaran Generator	text28
Static text	8.0	Daya Generator	text29
Static text	8.0	Efisiensi Generator	text30

Komponen- komponen	Property Inspector		
	Size	String	Tag
Static text	8.0	Cos Phi	text31
Static text	8.0	Rasio Gear Box	text32
Static text	8.0	(Nilai Diameter Menara (1 – 15)	text33
Static text	8.0	(Nilai Diameter Kolektor 100 – 400)	text34
Static text	8.0	(Nilai Tinggi Kolektor (1 – 3)	text35
Static text	8.0	(Radiasi Matahari Global :2300) *tergantung lokasi	text36
Static text	8.0	(Nilai Tinggi Menara (10 – 150)	text37
Static text	8.0	(Nilai Suhu Lingkungan 30 – 40)	text38
Static text	8.0	(Nilai Suhu Keluaran Kolektor 70 – 100)	text39
Static text	8.0	(Nilai Tekanan Udara 70 – 100)	text40
Static text	8.0	(Nilai Kerapatan Udara 1.2)	text41
Static text	8.0	M	text42
Static text	8.0	M	text43
Static text	8.0	M	text44
Static text	8.0	$W m^{-2}$	text45

Komponen- komponen	Property Inspector		
	Size	String	Tag
Static text	8.0	m^2	text46
Static text	8.0	M	text47
Static text	8.0	$^{\circ}\text{C}$	text48
Static text	8.0	$^{\circ}\text{C}$	text49
Static text	8.0	$\text{J kg}^{-1}\text{K}^{-1}$	text50
Static text	8.0	kg m^{-3}	text51
Static text	8.0	kW	text52
Static text	8.0	ms^{-1}	text53
Static text	8.0	kW	text54
Static text	8.0	Kg s^{-1}	text55
Static text	8.0	M	text56
Static text	8.0	M	text57
Static text	8.0	m^2	text58
Static text	8.0	M	text59
Static text	8.0	4	text60
Static text	8.0	FX W-151-A	text61
Static text	8.0	Rpm	text62
Static text	8.0	0.85	text63

Komponen- Komponen	Property Inspector		
	Size	String	Tag
Static text	8.0	M	text64
Static text	8.0	kW	text65
Static text	8.0	50	text66
Static text	8.0	Hz	text67
Static text	8.0	Rpm	text68
Static text	8.0	kW	text69
Static text	8.0	0.85	text70
Static text	8.0	0.85	text71
Static text	8.0	:	text72