



Fig.1. IEEE-5-Bus Network

Transmission line parameters of IEEE-5-Bus are given in per unit value in Table 1.

Table 1. Transmission line parameters of IEEE-5-Bus in per unit value.

From Bus	To Bus	Transmission line Resistance	Transmission line Reactance	Transmission line Conductance	Transmission line Susceptance
1	2	0.02	0.06	0	0.06
1	3	0.08	0.24	0	0.05
2	3	0.06	0.18	0	0.04
2	4	0.06	0.18	0	0.04
2	5	0.04	0.12	0	0.03
3	4	0.01	0.03	0	0.02
4	5	0.08	0.24	0	0.05

Table 3. Generation, load at the bus in per unit values

Bus	P_G	Q_G	Q-Max	Q-Min	P_L	Q_L
1	0	0	5	5	0	0
2	0.4	0	3	-3	0.2	0.1
3	0	0	0	0	0.45	0.15
4	0	0	0	0	0.4	0.05
5	0	0	0	0	0.6	0.1

If you want, you can ignore Q-max and Q-min limit for your convenience.

Table 5. Bus-type, initial voltage, and angle at the IEEE-5-bus network

Bus No.	1	2	3	4	5
Bus Type	Slack	PV	PQ	PQ	PQ
Initial V-magnitude	1.06	1	1	1	1
Initial V-angle	0	0	0	0	0