

Editor - C:\Users\Hp\Documents\MATLAB\BlockDIAGRAMreduction.m

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1 % Program for block diagram reduction technique
2 - ng1=1; dg1=[1 1]; sysg1=tf(ng1,dg1);
3 - ng2=1; dg2=[1 1]; sysg2=tf(ng2,dg2);
4 - ng3=[ 0 1]; dg3=[1 45]; sysg3=tf(ng3,dg3);
5 - ng4=[1 1]; dg4=[1 7]; sysg4=tf(ng4,dg4);
6 - nh1=[1 1]; dh1=[1 2]; sysh1=tf(nh1,dh1);
7 - nh2=2; dh2=1; sysh2=tf(nh2,dh2);
8 - nh3=1; dh3=1; sysh3=tf(nh3,dh3);
9 - sys2=series(sysg3,sysg4);
10 - sys3=feedback(sys2,sysh1,+1);
11 - sys4=series(sysg2,sys3);
12 - sys1=sys2/sys4;
13 - sys5=feedback(sys4,sys1);
14 - sys6=series(sysg1,sys5);
15 - sys=feedback(sys6,1);
16 - tf(sys)
17
```

Command Window  
Continuous-time zero/pole/gain model.

>> BlockDIAGRAMreduction

ans =

$$s^6 + 58 s^5 + 640 s^4 + 2578 s^3 + 4723 s^2 + 3988 s + 1260$$

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$$s^9 + 121 s^8 + 5181 s^7 + 97860 s^6 + 936959 s^5 + 4.815e06 s^4 + 1.34e07 s^3 + 2.002e07 s^2 + 1.497e07 s + 4.374e06$$

Continuous-time transfer function.

f<sub>z</sub> >>