%Program for IIR Chebyshev Filter design

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%TE EXTC B Roll No.:630

As=13.979

Ap=1.9382

T=1

ohmp=0.6498

ohms=1.0995

[N,fc]=cheb1ord(ohmp,ohms,Ap,As,'s')

[B,A]=cheby1(N,Ap,1,'s')

Atf=tf(B,A)

[N,D]=bilinear(B,A,1/T)

Dtf=tf(N,D,T)

W=0:pi/16:pi

Hw=freqz(N,D,W)

mag=abs(Hw)

plot(W/pi,mag/pi,'k');grid;

xlabel('frequency')

ylabel('|H(e^jw)|')

title('Chebyshev Filter design')

**Output:**

As = 13.9790

Ap = 1.9382

T = 1

ohmp = 0.6498

ohms = 1.0995

N = 3

fc = 0.6498

B = 0 0 0 0.3333

A = 1.0000 0.7489 1.0304 0.3333

Transfer function:

0.3333

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s^3 + 0.7489 s^2 + 1.03 s + 0.3333

N =0.0249 0.0747 0.0747 0.0249

D =1.0000 -1.7875 1.4895 -0.5028

Transfer function:

0.02489 z^3 + 0.07468 z^2 + 0.07468 z + 0.02489

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z^3 - 1.788 z^2 + 1.489 z - 0.5028

Sampling time: 1

W =

Columns 1 through 16

0 0.1963 0.3927 0.5890 0.7854 0.9817 1.1781 1.3744 1.5708 1.7671 1.9635 2.1598 2.3562 2.5525 2.7489 2.9452

Column 17

3.1416

Hw =Columns 1 through 8

1.0000 0.7758 - 0.4980i 0.4300 - 0.6945i 0.1167 - 0.8128i -0.5286 - 0.8343i -0.6059 + 0.1393i -0.1651 + 0.1660i -0.0545 + 0.0884i

Columns 9 through 16

-0.0209 + 0.0467i -0.0086 + 0.0249i -0.0035 + 0.0131i -0.0014 + 0.0066i -0.0005 + 0.0030i -0.0001 + 0.0012i -0.0000 + 0.0003i -0.0000 + 0.0000i

Column 17

-0.0000 - 0.0000i

mag = Columns 1 through 16

1.0000 0.9219 0.8168 0.8211 0.9877 0.6217 0.2341 0.1039 0.0512 0.0264 0.0136 0.0067 0.0031 0.0012 0.0003 0.0000

Column 17

0.0000

Magnitude Response:

