AV331: Digital Signal Processing
Labsheet 8

IIR and FIR Filters

1. Using the pole-zero placement approach, determine the 4th order All pass filter and Graph the magnitude and phase response in one plot using subplot command.

2. Consider a second-order IIR filter specification that satisfies the following requirements:

the magnitude response is 0 at $\omega 1 = \pi/2$ and $\omega 1 = 3\pi/2$

the maximum magnitude response is 1 at $\omega 2,3 = 2\pi/3$

and the magnitude response is approximately 1/sqrt(2) at frequencies ω2,30.05.

Using the pole-zero placement approach determine locations of two poles and two zeros of the required filter and then compute its system function H(z) Graph the magnitude response of the filter and verify the given requirements Graph phase and group-delay responses in one plot

3. Design a Low Pass FIR Filter with the Blackman Window and a cut-off frequency of 0.35pi rad/samples.

4. Design a High Pass FIR Filter with the Blackman Window and a cut-off frequency of 0.35pi rad/samples.