National Institute of Technology Calicut

Department of Electronics and Communication Engineering

EC 3093D DIGITAL SIGNAL PROCESSING LAB

Sixth Semester B Tech Electronics & Communication Engineering

Experiment V
IIR Filter Design
(Matlab and Python Implementation).

IIR Filter

1. Design an IIR low pass filter of the following types: Butterworth, Chebyshev Type I, Chebyshev Type II, and Elliptic. The specifications are as follows:
    1. Sampling rate: 40 KHz
    2. Pass band edge frequency: 4 KHz
    3. Stop band edge frequency: 8KHz
    4. Pass band ripple: 0.5 dB
    5. Minimum stop band attenuation: 40 dB
2. Design an IIR high pass filter of all four types:. The specifications are as follows:
    1. Sampling rate: 3500 Hz
    2. Pass band edge frequency: 1050 Hz
    3. Stop band edge frequency: 600Hz
    4. Pass band ripple: 1 dB
    5. Minimum stop band attenuation: 50 dB

3. Design an IIR band pass filter of all four types:. The specifications are as follows:
    1. Sampling rate: 7 KHz
    2. Pass band edge frequencies: 1.4 KHz and 2.1 KHz
    3. Stop band edge frequencies: 1.05 KHZ and 2.45 KHz
    4. Pass band ripple: 0.4 dB
    5. Minimum stop band attenuation: 50 dB

4. Design an IIR band stop filter of all four types:. The specifications are as follows:
    1. Sampling rate: 12 KHz
    2. Pass band edge frequencies: 2.1 KHz and 4.5 KHz
    3. Stop band edge frequencies: 2.7 KHZ and 3.9 KHz
    4. Pass band ripple: 0.6 dB
    5. Minimum stop band attenuation: 45 dB
