

ESE 547 Fall 2009; September 30

Class	Topics	Sections	Reading
5	State Variable Examples Continued	Notes	Secs. 8.1, 8.2
	Roundoff Noise & Overflow	Notes	Sec. 12.7
	Examples: Notch Filters	Notes	Sec. 7.4.2
	Filters (general)	9.1.1	Sec. 9.1.2

Homework:

1. For the second-order notch filter as covered in class, assume a sampling rate of 48kHz, a notch frequency of 60Hz, and a notch bandwidth (3dB) of 1Hz. Find the coefficients of the filter, and plot (using MATLAB, or another plotting program) the amplitude of the gains from the input to the states, if the filter is implemented in Direct Form I, and if the filter is implemented in Direct Form II.
2. For the same second-order notch filter, find the amplitude of the gains from the summing nodes to the output, if the filter is implemented in Direct Form I, and if the filter is implemented in Direct Form II.