SIGNAL PROCESSING ALGORITHMS

Time and Place: Tuesday and Thursday, 2:00 - 3:20 PM, Bell 139. Some lectures on Saturday, 2:00 - 4:40 PM, Knox 4.

Professor: Adly T. Fam, 132 Bell Hall, Tel. 645-2422 X2128 Office. E-mail: *afam@eng.buffalo.edu*

Grading Policy: Final Project 50 points. Four quizzes, 20 points. Six matlab projects, 30 points.

Office Hours: Tuesday and Thursday, 3:30 to 4:30, and by appointment.

Web: www.eng.buffalo.edu/Classes/ee416/

Course Outline:

Signals and samples, the z-transform. The discrete Fourier transform. Frequency and time-domain response of filters. Digital filter design, FIR and IIR filters. Digital filter structures. Multi-rate filters and signals. Fast convolution and correlation algorithms. Interdisciplinary aspects: Computational aspects. Heavy design experience with signal processing software.

Prerequisites: EE 303[1].

Text:

Alan V. Oppenheim and Ronald W. Schafer, *Discrete-Time Signal Processing*, Prentice Hall, 1999.
James H. McClellan, Burrus, Oppenheim, Parks, Schafer, and Schuessler, *Computer Based Exercises for Signal Processing Using Matlab 5*, Prentice Hall, 1998.

References:

Software: *Matlab*: in the EE pc lab and on the SUN network.

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1. Review material in EE 303 on the z-transform, digital filters, convolution, and Fourier series.