CEEN3550 Signals and Linear Systems

UNO, Fall 1999 *TR 10:30-11:45am, PKI335*

Continuous and discrete-time representation of signals. System modeling and analysis using differential and difference equations, state variables. Laplace, Fourier and z transforms. The goal is to develop the ability for solving practical engineering problems, using a systems approach, in modern communications and signal processing systems.

1. Instructor: Dr. Lim Nguyen, PKI 201F, ext. 4-2752, nguyenl@unomaha.edu; office hrs M 11am/1pm, T/R 1pm, W11am.

2. Text: S. Haykin and B. Van Veen, *Signals and Systems,* Wiley 1999.

3. Problem sets: there will be approximately 10 problem sets assigned weekly and due the following week in class. Late turn-in (within 1 week of due date) without prior arrangement will be 50% off; no credit after 1-week late. Discussion and collaboration are strongly encouraged. However you must turn in solutions of your own (no division of work, please). A weekly recitation session will be organized primarily for problem solving.

4. Exams: three hourly exams and one final exams, take home or in-class TBD.

5. Grading: problem sets 30%, exams 45%, final 25%.

6. Course outline:

   - Review of dynamic time equations and solutions for electrical circuits.
   - Continuous and discrete signal and system concepts; linear time-invariant (LTI) systems, convolution, exponential, impulse and step responses.
   - Laplace transform: properties and system analysis.
   - Z-transform: properties and system analysis.
   - Signal analysis with Fourier transforms and series.
   - Frequency response of LTI systems with Fourier transforms.
   - Applications: samplings, communications systems, signal processings, feedback systems.