University of Wisconsin - Madison
College of Engineering [EGR]
Last Offered: 2015-2016 Spring [1164]
Direct Link to this Syllabus:

1. E C E 203, Signals, Information, and Computation
2. Credits : 3    Contact Hours : 4
3. Textbook and Materials : Signal Processing First; McClellan; 1; 2003

a. Other Supplemental Materials : None.

• Specific Course Information :

a. Brief description of the content of the course (Course Catalog Description) :
   Introduction to the signals, information, and computational techniques in electrical
   engineering.

b. Pre-requisites or Co-requisites : Open to Freshmen. Math 222 & Physics 202


• Specific Goals for the Course :

a. Course Outcomes :

   1. Students will be able to use time-domain and frequency-domain methods analyze
      signals.
   2. Students will be able to use Matlab to process and analyze signals.

• ABET Student Learning Outcomes :

   (a) Ability to apply mathematics, science and engineering principles.
   (b) Ability to design and conduct experiments, analyze and interpret data.
   (c) Ability to design a system, component, or process to meet desired needs.
(e) Ability to identify, formulate and solve engineering problems.
(i) Recognition of the need for and an ability to engage in life-long learning.
(j) Knowledge of contemporary issues.
(k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

- **Brief List of Topics to be Covered:**
  1. sinusoids, complex exponentials
  2. Fourier series (continuous and discrete)
  3. spectrogram
  4. signal coding
  5. filtering
  6. image processing
  7. two dimensional Fourier series
  8. FFT
  9. frequency response of linear systems