**Course Objectives & Outcomes**
**College of Science & Engineering**

Department: Electrical Engineering  
Course Number: EE 4418  
Course Name: Communication Systems

Objective 1) Knowledge about principles and techniques of modern communication systems

   Outcomes
   1) Student understand the basic signals and systems
   2) Student understand Fourier transform and its properties
   3) Student can design bandpass, lowpass, and highpass filter.
   Assignments that demonstrate accomplishment of this outcome:
      1) Weekly homework assignment. Answers require calculations and drawing.
      2) Quizzes and 1 midterm exam.
      3) MATLAB assignments. Plot signals in time domain and frequency domain.

Objective 2) Knowledge in various methods of analog and digital communications, including amplitude (AM), frequency modulation (FM), and phase modulation (PM)

   Outcomes
   1) Student understand the basic knowledge necessary for transmitting and receiving information
   2) Student understand different types of modulation and demodulation
   3) Student can solve analog and digital modulation problems
   Assignments that demonstrate accomplishment of this outcome:
      1) Weekly homework assignments. Answers require calculations and design.
      2) Quizzes and 1 midterm exam.
      3) MATLAB assignments. Simulate the modulation and demodulation of signals.

Objective 3) Knowledge about the theory of probability, random process, and optimum detection

   Outcomes
   1) Student learn the theory of probability, random variables, and stochastic processes
   2) Student understand noise in the communication systems and how the optimum detection works
   3) Student can find the bit error rate in various systems
   Assignments that demonstrate accomplishment of this outcome:
      1) Weekly homework assignments. Answers require calculations and design.
      2) Quizzes and 1 final exam.
      3) MATLAB assignments. Simulate a system and calculate received bit error rate.