1. **Course number and name:** ECE 3100: Network Analysis

2. **Credits and contact hours:** 3 credits and 3 hours

3. **Course coordinator:** Ikhlas Abdel-Qader, Professor


5. **Course Information**
   b. Prerequisites: ECE 2100 and MATH 3740; with a grade of “C” or better in all prerequisites
   c. This is a required course for electrical engineering

6. **Specific goals for the course**
   a. specific outcomes of instruction
      1. The student will understand the concept of a system and basic system properties
      2. The student will understand the concepts of linear and shift invariant systems and convolution
      3. The student will be able to perform Convolution integrals
      4. The student will understand and apply Laplace Transform to signals
      5. The student will use Laplace Transform to analyze circuits
      6. The student will understand and use Transfer Function to determine system’s response
      7. The student will have the ability to represent signals in different domains such as Laplace, Fourier, and Fourier series
      8. The student will learn how to use Fourier series for circuit analysis
      9. The student will learn Fourier Transform, spectrum concept, and frequency response
      10. The student will learn and perform frequency circuit analysis
      11. The student will learn and generate Bode Plots for circuits
   b. ABET student outcome:
      This course contributes to the attainment of the following student learning outcomes a, c, e, and k. ABET learning outcomes. Also, outcomes a and e are directly assessed in this course.

7. **Brief list of topics to be covered**
   - Course Introduction and Overview
   - Basic concepts of signals and systems
   - Introduction to the Laplace Transform
   - Applications of the Laplace transform to circuits
   - The Fourier Series and Circuit analysis
   - Fourier Transform and Circuit analysis
   - Frequency Response
   - Bode Plots