Sample course syllabus for ABET Self-Study Report (new format)

1. **Course number and name**  
   **ENGR 305: Systems Analysis**

2. **Credits and contact hours**  
   3 credit hours; three 50-minute lecture sessions/week, or two 1-hr-15-minute lecture sessions/week, depending on semester

3. **Instructor’s or course coordinator’s name**  
   Instructor: Tom Holton, Instructor  
   Course coordinator: Tom Holton, Professor of Electrical and Computer Engineering

4. **Text book, title, author, and year**  

   a. **other supplemental materials**  
      Holton, T. *ENGR 305 Notes*. Available online at [http://www.sfsu.edu/~ee/305](http://www.sfsu.edu/~ee/305). Username and password are given at the first lecture.

5. **Specific course information**  
   a. **brief description of the content of the course (catalog description)**  

   b. **prerequisites or co-requisites**  
      MATH 245: Elementary Differential Equations and Linear Algebra  
      ENGR 205: Electric Circuits.

   c. **indicate whether a required, elective, or selected elective course in the program**  
      Required for Computer Engineering  
      Required for Electrical Engineering  
      Required for Mechanical Engineering.

6. **Specific goals for the course**  
   a. **specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.**  
      - Students will demonstrate the ability to model physical systems by electrical analogs.  
      - Students will demonstrate the ability to determine the linearity, time invariance, causality and stability of systems.  
      - Students will demonstrate the ability to use time-domain methods of solving differential equations to determine the impulse response.  
      - Students will demonstrate familiarity with convolution.
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- Students will demonstrate the ability to determine Fourier series and Fourier transform of functions.
- Students will demonstrate the ability to determine Laplace transforms and inverse transforms.
- Students will demonstrate the ability to determine the system function, Bode plots and pole-zero plots.
- Students will have a familiarity with the sampling theorem.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
Course addresses ABET Student Outcome(s): a, b, c, e.

7. Brief list of topics to be covered
- Introduce basic concepts of signals and systems.
- Characterization of continuous-time signals.
- Modeling of physical systems by electrical analogs.
- Linearity and time invariance.
- Causality and stability.
- Time-domain methods of analysis of linear systems.
- Impulse response. Convolution.
- Time-domain solutions of differential equations.
- Fourier series and Fourier transform methods.
- Sampling theorem.
- Introduction to control theory, stability criteria, phase margin.
- State-space methods.