1. ES303 Linear Control Systems (Required Course)

2. Credits (3 0 3), 3 lecture periods, 0 lab periods, 3 credits hours

3. Course coordinator: R. Broussard, Associate Professor

4. Textbook: Nise, Norman S., Control Systems Engineering, 6th Edition, John Wiley

5. Specific course information
    a. Course description: Analysis and design of linear control systems in the time and frequency domains.
    b. prerequisites ES202 and EM232; co-requisite: ES301
    c. This is a required course in the major.

6. Specific goals for the course
    a. Analyze the transient and steady-state behavior of dynamic systems, under the influence of basic feedback controllers.
    b. Analyze closed loop system performance in the time domain and the frequency domain.
    c. Design system controllers to satisfy performance specifications in both the time domain and the frequency domain.
    d. a, b and c above contribute to Outcome c (Design system, component, or process): Formulating, solving, and implementing a control solution.
    e. Outcomes f, h, and j are measured in a 200 level course, this 300 level course and a 400 level course to measure progression. (Outcome f, h, j: have knowledge of contemporary issues, an understanding of professional and ethical responsibilities, and understand the impact of engineering solutions in a global and societal context).

7. Brief list of topics to be covered

Topics	Lecture periods	Laboratory periods
Feedback Control Intro	3	0
1st & 2nd Order Response	2	0
Higher Order Systems	1	0
Block Diagram Algebra	1	0
Signal Flow Diagrams	1	0
Time Domain System ID	3	0
Frequency Domain ID	3	0
Mason's Gain Formula	1	0
Bode Plots	8	0
RL Properties & Sketching	3	0
Compensator design	14	0
FVT => Steady State Error	3	0
Steady State Performance	2	0