1. **Course Number and Name:**

   CE 2373/ IE 3373 Engineering Probability And Statistical Models

2. **Credits and Contact hours**

   3 credit hours; 3 lecture hours

3. **Instructor's course or coordinator's name**

   a. Dr. Amit Joe Lopes

4. **Textbook**

   Engineering Statistics, Fifth Edition; Authors: Douglas C. Montgomery, George C. Runger and Norma F. Hubele. Publisher: Wiley.

   a. Homework Problems will be assigned during class. They are due one week later after they have been assigned. Assignment will be graded. Assignments will not be accepted after the due date and Solution to the problems must be **hand written.** When computer outputs are needed the conclusions must be **hand written.**

5. **Specific Course information**

   a. **Catalog Description:** Fundamental concepts of discrete and continuous random variables, distribution functions, moments, moment generating functions, statistical dependence, stochastic modeling and random events, graphical and numerical methods, descriptive and inferential statistics, point and interval estimation, hypothesis testing and regression analysis. The creation and proper utilization of statistical decision models for engineering analysis and design are stressed. Emphasis is on measurement, formulation analysis, and design of physical problems.

   a. Prerequisite: Math 2313 with grade of C or better. Co-requisite: None.

   b. Required

6. **Specific goals of the course**

   a. **The students will be able to:**

   Identify, formulate, and solve problems using descriptive statistics; select and use different continuous and discrete distribution function; solve hypothesis problems applying probability concepts and
   solve forecasting problem using regression analysis

7. **Relation to student outcomes:** a, e, k, 1, 3

8. **Topics Covered:**

   Chapters 1- 6

   a. Probability
   b. Commonly Used Distributions
   c. Hypothesis Tests for a Single Sample
   d. Inference for Two Samples
   e. Inference In Linear Models