IE 4385 Statistical Quality Control & Reliability

1. **Course number and name:** IE 4385 Statistical Quality Control
2. **Credits and contact hours:** 3 credits – 2 lectures per week - 1.5 hours per lecture
3. **Instructor’s or course coordinator’s name:** Dr. Francisco Oswaldo Aguirre
   
   a. **other supplemental materials:**
   
   reference books:

   b. **software:** Minitab (available on my.apps.utep.edu)

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

   The objective of this course is to teach students statistical methods for quality control and reliability. Topics include control charts for variables and attributes data, process capability studies acceptance sampling procedures and reliability engineering. New topics and recent trends in quality engineering are introduced including SPC for Short Production Runs, EWMA chart and Six Sigma. The Philosophies of Dr(s). Deming, Juran, and Taguchi are surveyed.

   b. **prerequisites or co-requisites:** IE 3373 with a grade of "C" or better.
   c. **indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program:** Required course.

6. **Specific goals for the course**
   a. **specific outcomes of instruction:**

   o Students will know major concepts of operations research, such as linear programming, simplex algorithm, and optimization
o Student will develop skills for identifying; formulating, solving, and interpreting appropriate models.

o Students will understand how the mathematical concepts are applied in the real-world and to learn to effectively use computing software to solve more complicated problems such as they arise in the real world.

o Students will understand the important of quality and the prevailing quality philosophy in use today.

o Students will understand the importance of "statistical thinking" in industry.

o Students will understand concepts of common and special cause random variation.

o Students will understand sampling techniques for assessing product quality.

o Students will understand the usefulness and theory behind use of Shewhart control charts.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course:

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7. Brief list of topics to be covered