Objectives
This course is intended for engineers involved in manufacturing and/or quality and process control. At the end of the course, the student will acquire an understanding of most statistical methods used today in a manufacturing environment. He/she will be able to make judicious choices from the variety of methods available for the application of interest. The student will also be familiarized with some relevant statistical software.

Minimum Outcomes
After successfully completing this course, the student should have attained, at the very least:

1. An ability to solve problems of moderate difficulty related to probability distributions, parameter estimation, hypothesis testing, and descriptive statistics.

2. An ability to use the appropriate process control chart effectively when confronted with a process control problem.

3. An ability to use factorial design, response surface methods, and the Taguchi method to identify the principal factors in a process or an experiment.

4. An ability to use the appropriate sampling strategy for a given quality control problem.
Syllabus

1. Probability and Statistics: Descriptive statistics, Random variables, Discrete and continuous distributions, Sampling, Estimation of process parameters, Hypothesis testing. (9 hrs)

2. Statistical Process Control: Methods and philosophy, Control charts for variables, Control charts for attributes, Cumulative sum control charts, Weighted moving average charts, Economic design, Process capability. (12 hrs)


4. Acceptance Sampling: Single sampling plans, Military standards. (6 hrs)

Course Conduct

Homework will be assigned on a regular basis. Some assignments will be collected and graded. Two projects will be assigned. There will be an in-class midterm (3/4/03) and a final exam (5/6/03).

Note: There will be no class on 4/8/03.

Point Distribution

Projects 40
Midterm 30
Final 30

A final grade for the course will be determined using the following scale:
A > 90 > A- > 87 > B+ > 83 > B > 80 > B- > 77 > C+ > 73 > C > 70 > F.