

**IE 423**  
**QUALITY ENGINEERING**  
**Fall 2008**

**Instructor** : Ali R. Kaylan **TA : Kamer Sözer**  
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**Office Hours** : Th 11:00-13:00, Fr 15:00-17:00 M4040  
**Lecture Hours** : Th 9:00-11:00 M3120  
**Problem Session** : T 15:00-17:00 M3120  
**Prerequisite** : An Introductory Course in Statistics (IE256)

**Textbook:**

Montgomery, Douglas C., *Introduction to Statistical Quality Control*, John Wiley & Sons, Inc., Fifth Edition, 2005.

**Course Description:**

This course aims at covering the fundamental methods of quality engineering. The major emphasis is on the statistical tools of quality engineering systems. In addition, quality excellence models, cost models, quality audit programs, quality information systems will be discussed. Actual case studies from industry will supplement the lectures.

**Course Outline:**

|  | <b>Weeks</b>     | <b>Chapters</b> |
|--|------------------|-----------------|
| 1. Quality Notions, Total Quality Management                 | 1 (Sep 23)       | 1-2             |
| 2. Modeling Process Quality and Related Inferences           | 2 (Oct 7)        | 3               |
| 3. Statistical Process Control, Control Charts for Variables | 3 (Oct 14)       | 4-5             |
| 4. Control Charts for Attributes                             | 4 (Oct 21)       | 6               |
| 5. Process Capability Studies                                | 5 (Oct 28)       | 7               |
| <b>First Midterm Exam Tuesday Nov. 4, 2008, 17:00-19:00</b>  |                  | <b>1-7</b>      |
| 6. Design of Experiments                                     | 7-8 (Nov 11, 18) | 12              |
| 7. Factorial Experiments for Process Design                  | 9 (Nov 25)       | 12              |
| 8. Process Optimization                                      | 10 (Dec 2)       | 13              |
| <b>Second Midterm Exam Tuesday Dec. 2, 2008, 17:00-19:00</b> |                  | <b>12-13</b>    |
| 9. Acceptance Sampling Plans                                 | 11 (Dec 16)      | 14              |
| 10. Other Acceptance Sampling Procedures                     | 12 (Dec 23)      | 15              |
| 11. Wrap-up Session  | 13 (Dec 30)      |                 |

**Final Exam**

**Grading:**

%20 (Midterm 1)+%20 (Midterm 2)+%15 (Project) +%15 (Assignments/Quizzes) + %30 (Final) = %100

**References:**

1. Feigenbaum, A. V., *Total Quality Control*, McGraw-Hill Inc. , 1991.
2. Grant, Eugene L., Richard S. Leavenworth, *Statistical Quality Control*, Seventh Edition, McGraw Hill, 1996.
3. Banks, Jerry, *Principles of Quality Control*, John Wiley & Sons, Inc., 1989
4. Wadsworth, H. M., K. S. Stephens, A. B. Godfrey, *Modern Methods for Quality Control and Improvement* , John Wiley & Sons, Inc., 1986
5. Juran, J.M. and F.M. Gryna *Quality Planning and Analysis*, McGraw-Hill, 1980.
6. Duncan, A.J., *Quality Control and Industrial Statistics*, Irwin, 1974.
7. Juran, J. M., *Quality Control Handbook*, McGraw-Hill Inc., 1974.
8. *Quality Progress*