Winter 2008-2009
INDU 372: Quality control and reliability
Credits: 3

Instructor: Dr. Anjali Awasthi
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Course Timings:

Class type	Days	Timings	Room	Location
Lecture	Wednesday, Friday	08:45-10:00	BE- 257	SGW
Tutorials	Friday	10:15-11:05	BE- 257	SGW

Office Hours: Thursdays 11:00 am-1:00 pm

Prerequisite: ENGR 371

Textbook: Introduction to statistical quality control by Douglas C. Montgomery, 6th edition, Wiley Publications, 2008

Course Description: This course covers modern statistical methods for quality control and improvement. The contents include principles of quality design and control, modeling process quality, statistical process control, inferences about process quality, control charts, design of experiments, acceptance sampling, reliability modeling and applications of quality and reliability in design and manufacture. The lecture schedule is as follows:

Week	Topic	Textbook Chapter
1	Introduction to Quality Control The DMAIC Process	Chapter 1 Chapter 2
2	Modeling process quality	Chapter 3
3	Inferences about process quality	Chapter 4
4	Statistical process control	Chapter 5
Assignment 1		
5	Control charts for variables	Chapter 6
6	Control charts for attributes	Chapter 7
7	Process capability analysis	Chapter 8
Mid-term		
8	Cumulative sum and exponentially weighted moving average control charts	Chapter 9
9	Design of experiments	Chapter 13

10	Lot by lot acceptance sampling for attributes	Chapter 15
11	Principles of reliability	Handouts
12	Failure rate data and models	Handouts
Final Project with Presentation		
Final Exam		

References:
1. Statistical Process Control and Quality Improvement by Gerald M. Smith, Fifth Edition, Pearson Prentice Hall Publications, 2004.
2. Introduction to reliability and quality engineering by Dr. John Bentley, Second Edition, Addison Wesley, 1999.

Grade Composition

Assignments	5%
Project with presentation	20%
Mid-term Quiz	25%
Final exam	50%

Note:
1. There is no direct mapping between numerical percentage grades and final letter grades for the course.
2. The projects are to be done individually.
3. Assignment submissions should be done both in paper and online via the electronic assignment submission system (EAS).

Expectations: The students are expected to maintain professionalism in the class. Class participation is strongly encouraged. In case of any unexpected problem, the instructor should be informed before the start of the class.