IE 6240 QUALITY MANAGEMENT SYSTEMS
Winter Semester 2014
Friday, Manoogian 215, 5:30-9:10PM

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“Improve quality, you automatically improve productivity. You capture the market with lower price and better quality. You stay in business, and you provide jobs. (It's) so simple.” { W. Edwards Deming }

COURSE DESCRIPTION: A survey of topics relating to the effective management of a Product Assurance Organization. Subjects shall include but not be limited to: definition, history and philosophy, of quality; planning and organizing for quality; design for quality; techniques for improving conformance quality; process/product control; and reliability program management. Special topics of study include Quality Function Deployment, Statistical Process Control, FMEA, Taguchi Methods, Measurement Systems Analysis, and Design for Reliability.

LEARNING OUTCOMES
This course intends to institutionalize importance of Quality and how it is and can be applicable in every field. Students will learn different concepts, methods and tools in the field of Quality and would be able to:

• Develop conceptual and practical understanding of qualitative and quantitative method and tools (six sigma, DFSS, FMEA, SPC, Capability studies …)
• Develop understanding of how statistical/graphical data analysis enables data driven decision making
• Changes the way we think and approach problem solving
• Changes the way we examine and look at data
• Appreciate availability and use of data analysis software

COURSE PREREQUISITES: BE 2100 or placement exam.

WEB ACCESS: Every student is expected to enroll at: http://blackboard.wayne.edu. Handouts, syllabus, answers to homework, and online access to grades are available to each student who has enrolled at Blackboard.com. Additionally, announcements will be posted on Blackboard, and emailed out to the email addresses registered on Blackboard.

PRIMARY TEXTBOOK
GRADING POLICY
EXAM I: 100 points
EXAM II: 100 points
CLASS PROJECT: 75 points
FINAL ORAL PRESENTATION 25 points
ATTENDANCE/HOMEWORK 50 points
TOTAL 350 points
NOTE: Homework will be spotchecked on a random basis.

CLASS PROJECTS
The major project counts for 75 points and is a group project. Students will design a hypothetical consumer product. Projects will be evaluated for originality, quality of write-up, etc. At the minimum, it will be expected that students conduct a thorough Concept Design, including the use of focused customer surveys, use QFD and FMEA in their analysis. Each student team will make a final presentation to the class during the last meeting day of the semester.

ABSENCES
It is the student’s responsibility to make up for any classes which they may have missed. If you know that you must miss one or more classes, please let me know so that I can assist you in making sure that handouts, etc. are saved for you. I will not have any provisions available for missed examinations. Therefore, it will be the student’s responsibility to make sure that they are present on the day of examinations. Excused absences on the day of an exam can only be honored if accompanied by a note from a doctor.

HONOR & ETHICS
The code of unspoken ethics in a professional work environment in the US will apply in the classroom. That is, honesty and ethical conduct will not only be expected, but demanded. Please see me if you have any confusion on what I mean. Obviously, cheating on an exam is not permitted. No talking or sharing of even stationary of class handouts is allowed during the exam. Students caught in violation of this policy will end up with failing grades on their exam. Cooperation in responding to homework questions is not only permitted, but encouraged, as part of the cooperative learning framework of the course.
SCHEDULE OF TOPICS
Course overview
Introduction to quality and history of quality
Overview of Deming philosophy
Crosby and Juran
Overview of TQM and Malcolm Baldrige
Six Sigma Overview
DFSS
Quality Cost models
Introduction to Quality Function Deployment (QFD)
QFD
Project assignment
ISO 9000
ISO/TS 16949
Lean Mfg.
Continuous Improvement practices/ Intro SPC
Normal distribution
Normal plotting

Midterm Exam

Winter Break
SPC
SPC & Gage Capability
Design for Reliability and Robustness
What is Robust Design
Reliability metrics
Taguchi experiments
TRIZ
Axiomatic Design
Review Day/Presentations

2nd Exam