Quality Engineering

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Course Topics

Introduction
History Perspective on Quality
Deming’s 14 Points
Taguchi’s View of Quality
Statistical Fundamentals
Conceptual Framework for Statistical Process Control
Statistical Basis for Shewhart Control Charts
Construction and Interpretation of Shewhart Control Charts
Computer Workshops
Rational Sampling
Process Capability
Variation of Assemblies
Control Charts for Individuals
Control Charts for Attribute Data
Case Studies
Other topics for graduate credit
Text

Statistical Quality Design and Control, Contemporary Concepts and Methods, Macmillan, Richard E. DeVor, T. H. “Phil” Chang, John W. Sutherland

Grade Determination (grad. credit % in parentheses)

25% Homework (20%)
15% Computer Workshops (10%)
25% Midterm Exam (25%)
35% Final (35%)
Extra Assignments (10%)

Grade Breakdown

Class GPA: approx. 3.0 - grad. students graded separately
Web-based Materials

- the course web site can be accessed from:

http://www.me.mtu.edu/~jwsuther

- At the web-site, the following materials may be retrieved:
  - Course notes
  - Homeworks
  - Homework solutions
  - listing of assignment results for both on- and off-campus students
  - other

- For listing of assignment results we need a 3 digit codeword
What is Quality?

- Customer Expectations - ultimate discriminator of product value
  Voice of the customer - Food Lion example

Separation of species issues

We will focus principally on engineering issues - emphasis placed on product performance, not perceived value.

This does not mean we can neglect the voice of the customer (QFD, surveys, etc.)

- For now, let’s think about quality as being the deviation of performance from that which is desired

Metrics
Other Topics

• Mission statement - - defines the business that we are in.
  
e.g., The mission of our company is to provide quality footwear to our customers.

• Vision statement - - states the aspirations of the company/organization; generally focuses on a time horizon of about 5 years; feasibility
  
e.g., We will be the footwear provider of choice in Houghton.

  what metrics to use??  Customer focus

  Sears example
Class

• Mission

• Vision

• What are your expectations?

• How to measure class quality?
Assignment

• Read Chapters 1 and 2

• Problems:

• Graduate Credit: Identify a journal article that discusses the philosophy of “Learning Organizations”. Prepare a two-page summary and critique of the article.

Submit a copy of the article as well as the 2-page writeup.