



Engineering and Technology Management

COURSE SYLLABUS

Course Number: E M 570

Course Name: Six Sigma Quality Management

Instructor: Russ Johnson

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Semester Credits: 3

Prerequisites: E M 503 or equivalent or instructor approval

Course Description and Objectives:

Quality management has been the seed for one of the most pervasive revolutions in management history. American businesses received a wakeup call in the late 1970's and 1980's as foreign businesses began moving into markets which post-World War II America had assumed were safe American provinces. The globalization of business has created a world in which consumers demand products and services that perform. A new world class quality is emerging. Total Quality Management, Continuous Quality Improvement, Kaizen, and World Class have become buzzwords in the battle for worldwide market share. While some view these concepts as symptoms of a management fad, most managers now view them as essential elements of survival in future markets. Many quality practitioners consider Six Sigma to be the most highly evolved of these implementation practices.

This course assumes the student has some familiarity with statistical concepts. A basic undergraduate course in statistics is a minimal requirement. Statistical concepts treated in the course will be much simpler if you have completed a recent course in engineering statistics. Ideally, this course, E M 570, should be completed as the final course for the ETM Six Sigma Quality Management Certificate.

Course Topics:

- Six Sigma Origins (PDCA, SPC, QC, QA, TQM, Six-Sigma, Lean Six-Sigma, TLS)
- Quality Masters
- Leadership and Strategic Planning in Quality Management
- Creating a Customer Focus
- Creating Effective Quality Improvement Teams
- Quality Improvement Project Selection, Justification and Management
- Measures and Metrics
- Seven Tools of Quality
- Seven quality Management Tools
- Problem Solving Using Define, Measure, Analyze, Improve, and Control
- Statistics in Quality Management
- Control Charts for Variable Data
- Process Capability
- Probability in Quality Management
- Control Charts for Attribute Data
- Basic Reliability and Quality
- Failure Mode and Effects Analysis
- Purpose and Fundamental Concepts in Design of Experiments
- Integration of Quality, Lean and Theory of Constraints Concepts in Enterprises

Grading:

Homework: 50% (assignments & point values vary between 470 and 570) Exam 1: 25% Exam 2: 25%