

TOTAL QUALITY MANAGEMENT

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COURSE DESCRIPTION:

"Use of various methods and recent developments of quality control (such as QA/QC, Deming and TQM) are covered in detail. Quality in design and planning is stressed as equally important to quality in the constructed project and quality in production of goods and services". This course familiarizes students with quality control techniques, quality assurance issues and quality management methods.

COURSE OBJECTIVES:

Provide an introduction to the fundamental concepts of statistical process control, total quality management, six sigma and the application of these concepts, philosophies, and strategies to issues arising in government and industry.

Enhance the student's understanding of the complexities of statistical analysis and control-chart interpretation and their work-place application.

Provide skills in diagnosing and analyzing problems causing variation in manufacturing and service industry processes.

Provide a basic understanding of "widely-used" quality analysis tools and techniques. Create an awareness of the quality management problem-solving techniques currently in use.

COURSE TOPICS:

Introduction

- Quality basics and history
- Quality advocates
- The customer and quality
- Quality improvement

Total Quality Management

- Deming
- Juran
- Crosby
- Quality Management

Quality Improvement Techniques

- Pareto Diagrams
- Cause-Effect Diagrams
- Scatter Diagrams
- Run Charts
- Cause and Effect Diagrams

Statistical Concepts

- Definitions
- Measures of Central Tendency

- Measure of Dispersion
- Concepts of Population and Samples
- Normal Curves

Control Charts for Variables

- Definitions
- Variation: Common vs. Special Causes
- Control Chart Techniques
- X-bar and R chart Correlation
- X-bar and S charts

Control Chart Interpretation and Analysis

- Using Charts to Pinpoint Problems
- Process Capability

Other Variable Control Charts

- Individuals and Moving Range Charts
- Moving Average and Moving Range Charts
- Charts for Individuals
- Median and Range Charts

Fundamentals of Probability

- Basic Concepts and Definitions
- Discrete Probability Distributions
- Continuous Probability Distributions

Control Charts for Attributes

- Definitions
- Control Charts for Non-conforming Units
- Control Charts for Counts of Non-conforming Units

Reliability

- Product Life Cycle
- Measures of Reliability

Quality Costs

- Quality Cost Measurement
- Utilizing Quality Costs for Decision-Making

Advanced Topics

- Quality Function Deployment
- Design of Experiments

Quality Systems: ISO 9000, Six Sigma

- Certification Requirements
- Evolving Standards