



## ASQ Introduction to Quality Engineering Training

### Description

#### Introduction

#### Who should attend:

Engineers, quality control personnel, inspectors, testing personnel, or those interested in the quality engineering profession.

#### Objectives

- Define basic quality management principles.
- Discuss the relationship of the quality engineer to the quality system.
- Analyze the relationship of statistics to a process.
- Use process capability and statistical process control to monitor a process.
- Generate acceptance sampling plans and identify and use technical quality tools.
- Incorporate quality technology in design, customer-supplier relationships, Reliability, Availability, and Maintainability (RAM), materials control, measurement, auditing, quality costs and document control within a quality system.
- Apply problem-solving tools and basic statistical concepts, process control and process capability plans, acceptance sampling, and attribute controls.

#### Content

##### Overview of Management and Leadership Principles

- Quality Philosophies and Foundations
- The Quality Management System (QMS)
  - Strategic Planning
  - Deployment Techniques
  - Quality Information System (QIS)
- Facilitation Principles and Techniques
- Customer Relations

- Supplier Management

## **The Quality System**

- Elements of the Quality System
- Documentation of the Quality System
- Quality Standards and Other Guidelines
- Quality Audits
- Cost of Quality (COQ)
- Quality Training

## **Product and Process Design**

- Classification of Quality Characteristics
- Design Inputs and Review
- Reliability and Maintainability

## **Product and Process Control**

- Tools
- Material Control
- Acceptance Sampling
- Measurement System Analysis (MSA) and Metrology

## **Continuous Improvement**

- Quality Control Tools
- Quality Management and Planning Tools
- Continuous Improvement Techniques
- Corrective Action
- Preventive Action

## **Quantitative Methods and Tools**

- Collecting and Summarizing Data
  - Descriptive Statistics
  - Graphical Methods for Depicting Relationships
  - Graphical Methods for Depicting Distributions
  - Continuous Distributions
  - Discrete Distributions
- Statistical Decision-Making
  - Point Estimates and Confidence Intervals
  - Hypothesis Testing and Paired-Comparison Tests
- Relationships between Variables
  - Linear Regression and Simple Linear Correlation
- Statistical Process Control (SPC)
  - Objectives and Benefits
  - Common and Special Causes
  - Selection of Variable and Rational Subgrouping

- Control Charts
- Process and Performance Capability
  - Process Capability Studies and Indices
- Design and Analysis of Experiments
  - Terminology and ANOVA
  - Planning and Organizing Experiments

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