Course Overview

The **Certified Quality Technician (CQT)** certification, offered by the **American Society for Quality (ASQ)**, is designed for quality professionals working under the direction of engineers or supervisors. This course prepares individuals to support quality improvement initiatives across manufacturing, service, and other industries by equipping them with essential tools, techniques, and technical knowledge.

Course Objective

To prepare candidates for the ASQ CQT exam by building competence in quality tools, inspection methods, statistical techniques, metrology, calibration, and audits. The course also develops problem-solving and risk management skills essential for ensuring product and process quality.

Who Should Attend

- Quality inspectors or technicians
- Professionals aiming to move into a quality role
- Those seeking ASQ CQT certification
- Individuals supporting quality engineers or auditors

Key Learning Areas

1. **Quality Concepts and Tools**
    - Basic quality principles
    - Seven quality tools (e.g., cause-effect diagrams, histograms)
    - Lean, Six Sigma, PDCA, and ethical conduct
2. **Statistical Techniques**
    - Descriptive statistics
    - Control charts and process capability
    - Sampling methods and probability concepts
3. **Metrology and Calibration**
    - Use and evaluation of measurement tools
    - Calibration scheduling and error analysis
    - Traceability and standards hierarchy
4. **Inspection and Testing**
    - Blueprint reading and GD&T
    - Measurement system analysis (MSA)
    - Inspection types, techniques, and error identification
5. **Auditing and Risk Management**
    - Internal and external audit processes
    - Risk assessment (FMEA, RCA)

Exam Format

- 110 multiple-choice questions (100 scored)
- Duration: 4 hours 18 minutes (computer-based)
- Open book with approved reference materials

Certification Benefits

- Enhances technical and analytical skills
- Recognized globally as a mark of quality excellence
- Supports career advancement in quality roles

Day 1: Introduction to Quality & Foundational Tools

- Overview of the CQT role and certification
- **Quality Concepts and Tools**
    - Quality principles, standards, and cost of quality (COQ)
    - The seven basic quality tools (e.g., Pareto, control charts)
    - Problem-solving tools (5 Whys, 8D)
    - Introduction to Lean, Six Sigma, PDCA, benchmarking
    - ASQ Code of Ethics

Day 2: Statistical Techniques and Data Analysis

- **Statistical Techniques**
    - Key terminology and frequency distributions
    - Central tendency and dispersion (mean, SD, variance)
    - Confidence intervals, probability, and distributions
    - Control charts ($\bar{X}$-R, p, np, c, u)
    - Process capability (Cp, Cpk, Pp, Ppk)
    - Common vs. special cause variation

Day 3: Metrology and Calibration

- **Measurement and Test Equipment (M&TE)**
    - Types of tools: gauges, CMM, hardness testers, etc.
    - In-line and automated inspection systems
- **Control, Maintenance, and Calibration**
    - M&TE maintenance, traceability, and customer-owned tools
    - Calibration schedules, results, errors, and standards hierarchy

Day 4: Inspection, Testing & Sampling

- **Inspection and Test**
    - Blueprint reading, GD&T, and defect classification
    - Measurement systems analysis (MSA), rounding, conversions
    - Inspection types and error sources
    - Traceability, Certificates of Compliance/Analysis
- **Sampling Techniques**
    - OC curve, AQL, sampling plans and types
    - Nonconforming material control and review process

Day 5: Audits, Risk & Exam Preparation

- **Quality Audits**
    - Types, components, tools, and communication skills
- **Risk Management**
    - Risk assessment methods (FMEA, RCA, control plans)
    - Corrective and preventive action processes
- **Final Review and Practice Exam**
    - Recap key formulas and definitions
    - Practice questions and timing strategies
    - Q&A and tips for exam readiness