MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

Phone: +601116373203 | **Email:** info@mawaevents.net

STATISTICAL QUALITY CONTROL TECHNIQUES

""Applying Data-Driven Methods to Improve Product Quality, Process Stability, and Operational Excellence""

Schedule

Date	Venue	Fees (Face-to-Face)
16 – 20 Nov 2026	Dubai – UAE	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

In today's competitive environment, quality excellence is a critical driver of customer satisfaction, regulatory compliance, and cost efficiency. Statistical Quality Control (SQC) offers a robust framework to monitor, control, and improve manufacturing and service processes using data-based decision-making.

This intensive 5-day course equips quality, operations, and engineering professionals with practical skills in the application of statistical techniques to real-world quality challenges. Participants will learn to use tools such as control charts, process capability analysis, sampling plans, and root cause analysis to ensure consistent output, identify variation, and drive continuous improvement across operations.

Objectives

By the end of this course, participants will be able to:

- Apply statistical methods to monitor and improve process quality
- Use control charts for variables and attributes to detect process shifts
- Perform capability studies to assess process performance
- Design effective sampling plans and measurement systems
- Utilize statistical tools for root cause analysis and problem-solving

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Why Attend

- Implement quality assurance methods that are data-driven and systematic
- Detect problems early and reduce process variation and waste
- Align quality control practices with ISO, Six Sigma, and Lean standards
- Strengthen internal audits and supplier quality management
- Support product compliance and customer satisfaction initiatives

Target Audience

This program is designed for:

- Quality Control and Quality Assurance Engineers
- Process, Production, and Manufacturing Engineers
- Six Sigma Practitioners and Lean Leaders
- Quality Auditors and Compliance Officers
- Anyone responsible for maintaining or improving product/process quality

Individual Benefits

Key competencies that will be developed include:

- Statistical thinking for quality improvement
- Use of control charts ($\bar{X}$-R, p, np, c, u) and interpretation
- Process capability indices (Cp, Cpk, Pp, Ppk)
- Measurement System Analysis (MSA) and Gauge R&R
- Corrective action based on statistical evidence

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved quality assurance through proactive data monitoring
- Reduced rework, scrap, and customer complaints
- Stronger compliance with quality standards (ISO 9001, IATF 16949, etc.)
- Better supplier control and product traceability
- Enhanced analytical capability within quality teams

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Core SQC principles, tools, and quality frameworks
- Case Studies – Real industry examples of control charting and RCA
- Workshops – Chart creation, capability studies, sampling design
- Peer Exchange – Sharing sector-specific quality improvement strategies
- Tools – Excel-based templates, statistical tables, audit checklists

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Course Outline

DETAILED 5-DAY COURSE OUTLINE

Training Hours: 07:30 AM – 03:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Fundamentals of Statistical Quality Control

- Module 1: Introduction to SQC and the Role of Variation (07:30 – 09:30) • Types of variation, causes, and impact on quality
- Module 2: Descriptive Statistics and Data Visualization (09:45 – 11:15) • Measures of central tendency and dispersion, histograms, boxplots
- Module 3: Workshop – Variation Analysis (11:30 – 01:00) • Understanding data behavior and process spread
- Module 4: Introduction to Control Charts (02:00 – 03:30) • Principles, objectives, and chart selection

Day 2: Variable Control Charts and Process Monitoring

- Module 5: $\bar{X}$-R and $\bar{X}$-S Charts (07:30 – 09:30) • Control limits, subgrouping, and chart interpretation
- Module 6: Individual-Moving Range Charts (09:45 – 11:15) • For low-frequency or batch processes
- Module 7: Process Stability and Special Cause Detection (11:30 – 01:00) • Rules for out-of-control conditions and trends
- Module 8: Workshop – Control Chart Construction (02:00 – 03:30) • Hands-on plotting using real process data

Day 3: Attribute Control Charts and Process Capability

- Module 9: p, np, c, and u Charts (07:30 – 09:30) • Charts for defectives and defects, binomial and Poisson distributions
- Module 10: Process Capability Analysis (09:45 – 11:15) • Cp, Cpk, Pp, Ppk – interpretation and application
- Module 11: Non-Normal Data and Capability for Special Distributions (11:30 – 01:00) • Transformations and non-parametric methods
- Module 12: Workshop – Capability Study (02:00 – 03:30) • Analyzing process capability and improvement targets

Day 4: Sampling and Measurement Systems Analysis

- Module 13: Acceptance Sampling Plans (07:30 – 09:30) • OC curves, AQL, LTPD, and sampling standards (MIL-STD, ANSI/ASQ)
- Module 14: Measurement System Analysis (MSA) and Gage R&R (09:45 – 11:15) • Evaluating repeatability, reproducibility, bias, and resolution
- Module 15: Workshop – Gage R&R Application (11:30 – 01:00) • Hands-on use of MSA templates
- Module 16: Risk-Based Thinking and Sampling Strategy (02:00 – 03:30) • Linking sampling to process risk and quality impact

Day 5: Root Cause Analysis and Continuous Improvement

- Module 17: Statistical Tools for Root Cause Analysis (07:30 – 09:30) • 5 Whys, Pareto analysis, Fishbone diagrams, DOE
- Module 18: Linking SQC to Quality Systems and Audits (09:45 – 11:15) • Using SQC in ISO/QMS environments and internal audits
- Module 19: Final Case Study and Data Presentation (11:30 – 01:00) • Group exercise on solving a quality problem with SQC tools
- Module 20: Review, Feedback, and Certification (02:00 – 03:30) • Action planning and course close

Certification

Participants will receive a Certificate of Completion in Statistical Quality Control Techniques, validating their ability to apply statistical tools to monitor, control, and improve quality across processes.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**