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COURSE BROCHURE

Advanced Quality Control and Assurance Practices Training Course

4 – 15 April 2027
Manama

Advanced Quality Control and Assurance Practices Training Course

Ref: 478_17454 **Date:** 4 – 15 April 2027 **Location:** Manama **Fees:** 8000 GBP

Quality Control and Assurance Practices is an advanced 2-week training course for QA/QC engineers, inspectors and quality supervisors who decide what is inspected, how it is sampled and when product is released, and who leave with an Inspection and Test Plan ITP linked to assurance controls. Clients now expect objective evidence at every hold point. Jupiter Prime Training presents this course for practitioners who sign off conformity.

Why Quality Control and Assurance Practices Matters Now

Three pressures shape QA/QC work today: clients and project owners who withhold payment until inspection records are complete, tighter supply chains where a single nonconforming batch halts a line or a site, and digital gauges and data systems that make measurement errors visible across shifts. An organisation that controls quality well releases product with confidence and closes nonconformances quickly; one that controls it poorly ships escapes, repeats rework and loses client trust. The course rests on the ISO 9001 quality management system requirements, statistical process control SPC, acceptance sampling by attributes and variables, and measurement system analysis MSA.

Who Gains Most from Quality Control and Assurance Practices

- Engineers responsible for preparing inspection and test plans and acceptance criteria
- Inspectors who perform receiving, in-process and final checks and record results
- Quality supervisors who release product and disposition nonconforming material
- Metrology and laboratory staff accountable for gauge calibration and measurement capability
- Supplier quality staff who verify incoming material certificates and source inspection

A QA/QC section from one plant or construction project gains most, because its engineers, inspectors and supervisors can agree one set of hold points, sampling rules and release criteria together.

Quality Control and Assurance Practices Capabilities

Participants move from performing checks to designing a control system in which every inspection, sample and gauge has a reason.

- Design inspection and test plans with hold, witness and review points — clients and project owners agreeing release stages
- Specify acceptance sampling plans using AQL and operating characteristic curves — supervisors balancing inspection cost and consumer risk
- Build control charts and calculate process capability indices — production managers deciding when to adjust a process
- Test measurement systems with gauge repeatability and reproducibility studies — metrology staff approving instruments
- Apply nonconformance disposition and corrective and preventive action — material review boards closing defects
- Align QC checks with QA controls such as audits and procedure verification — quality managers assuring the whole system

Key Quality Control and Assurance Practices Terms

- Inspection and test plan ITP — a document listing each inspection activity, its acceptance criteria, responsible party, records and hold or witness points.
- Hold point — a stage beyond which work cannot continue until a named party has inspected and released it.
- Acceptable quality limit AQL — the worst average defect level considered acceptable for a lot when applying a sampling plan.
- Process capability index Cpk — a ratio comparing process spread and centring with specification limits, showing whether output can meet tolerance.
- Gauge R&R — a study separating measurement variation due to the instrument from variation due to different appraisers.
- Nonconformance report NCR — a record of a failed requirement, its disposition and the corrective action taken.

Quality Control and Assurance Practices Day by Day

Day 1: Control and Assurance in Context

- QC Versus QA Responsibilities — Separating Product Checks From System Assurance
- Cost of Inspection Versus Cost of Escape — Setting Inspection Intensity
- ISO 9001 Operational Control Requirements — Anchoring Checks in the QMS
- Client and Contract Quality Clauses — Translating Requirements Into Criteria
- Quality Organisation Charts — Defining Inspection Independence and Authority

Day 2: Planning Inspection and Testing

- Inspection and Test Plan Structure — Sequencing Activities From Receipt to Release
- Hold, Witness and Review Points — Assigning Client and Third-Party Involvement
- Critical Characteristic Identification — Focusing Effort Where Failure Matters
- First Article Inspection — Validating New Parts and Processes
- Inspection Records and Traceability — Linking Results to Lots and Materials

Day 3: Receiving and Supplier Verification

- Material Test Certificate Review — Accepting Incoming Material on Evidence
- Source Inspection at Supplier Premises — Catching Defects Before Shipment
- Skip-Lot and Reduced Inspection Rules — Rewarding Proven Supplier Performance
- Positive Material Identification — Preventing Mixed or Wrong Grades
- Quarantine and Identification Status — Keeping Unverified Items Out of Use

Day 4: Acceptance Sampling

- Sampling by Attributes — Choosing Sample Sizes and Acceptance Numbers
- Sampling by Variables — Using Measured Data to Reduce Sample Size
- AQL and Inspection Levels — Balancing Producer and Consumer Risk
- Operating Characteristic Curves — Showing What a Sampling Plan Really Protects
- Switching Rules Between Normal and Tightened — Responding to Lot Rejections

Day 5: Statistical Process Control

- Variable Control Charts — Monitoring Means and Ranges on Critical Dimensions
- Attribute Control Charts — Tracking Defect Rates and Defectives per Lot
- Western Electric Run Rules — Detecting Special Causes Early
- Process Capability Indices Cp and Cpk — Judging Ability to Meet Tolerance
- Reaction Plans for Out-of-Control Signals — Deciding When to Stop a Process

Day 6: Measurement System Analysis

- Calibration Schedules and Intervals — Keeping Gauges Traceable and Fit
- Gauge R&R Studies — Quantifying Repeatability and Reproducibility
- Bias, Linearity and Stability Checks — Confirming Measurement Accuracy Over Range
- Attribute Agreement Analysis — Testing Consistency of Visual Inspectors
- Measurement Uncertainty Statements — Setting Guard Bands at Specification Limits

Day 7: Nonconformance Handling

- Nonconformance Report Workflows — Recording Defects With Usable Evidence
- Material Review Board Decisions — Choosing Rework, Repair, Use-As-Is or Scrap
- Containment Actions — Protecting Customers While Causes Are Investigated
- Concession and Deviation Requests — Securing Client Approval for Departures
- Nonconformance Trend Reporting — Showing Where Defects Concentrate

Day 8: Corrective and Preventive Action

- CAPA Process Design — Moving From Symptom Fixes to Cause Removal
- Eight Disciplines Problem Solving — Structuring Team Investigations
- Ishikawa Diagrams and Five Whys — Tracing Defects to Root Causes
- Error-Proofing Devices — Preventing Recurrence at the Source
- Effectiveness Verification — Confirming That Defects Do Not Return

Day 9: Assuring the Control System

- Process and Product Audits — Verifying That Inspection Follows the Plan
- Inspector Competence Matrices — Qualifying Staff for Each Check
- Quality Records Review Before Handover — Completing Dossiers for Clients
- QA/QC Key Performance Indicators — Measuring First-Pass Yield and Escapes
- Digital Inspection Systems — Capturing Results Without Transcription Errors

Day 10: Practising the Inspection and Test Plan

- Applying Critical Characteristic and Hold Point Choices — Structuring a Live ITP
- Applying Sampling and SPC Rules — Setting Inspection Frequencies
- Applying MSA Results — Selecting Gauges for Each Characteristic
- Applying NCR and CAPA Routes — Defining Responses to Failed Checks
- Inspection and Test Plan — Linking Checks, Criteria, Records and Assurance Controls

Applying Quality Control and Assurance Practices After the Course

- Review one existing inspection and test plan against critical characteristics and hold points, and propose changes to the client or project owner.
- Run a gauge R&R study on one critical measurement and use the result to approve, adjust or replace the instrument.

Quality Control and Assurance Practices Questions FAQ

What are quality control and assurance practices and why do they matter now?

Quality control and assurance practices are the inspection, sampling, measurement and corrective methods that prove product conforms and that the system producing it is reliable. They matter now because clients demand objective evidence before release and supply chains cannot absorb escapes.

Which roles gain most from quality control and assurance practices?

QA/QC engineers, inspectors and quality supervisors gain most from quality control and assurance practices. Metrology staff and supplier quality specialists also benefit when they need to align gauges, certificates and source inspection with the plant's release criteria.

How do advanced quality control and assurance practices differ from a quality management system course?

Advanced quality control and assurance practices work at product and process level rather than system design. You build inspection plans, sampling schemes, control charts and gauge studies, whereas a management system course concentrates on policy, objectives, audits and management review.

What do you bring back from quality control and assurance practices training?

You bring back an Inspection and Test Plan for a real product or work package, with hold points, sampling rules, gauges, records and responses to failed checks. It is ready for client review.

Quality Control and Assurance Practices: The Way Forward

The Inspection and Test Plan first informs the client or project owner's decision on which hold and witness points they will attend. Engineers, inspectors and supervisors use it daily to schedule checks and release work. After the first production run or work package, revisit sampling levels and capability results, because stable processes on factory lines and construction sites can justify reduced inspection.