COURSE BROCHURE

Quality Control and Inspection Techniques

An applied course on inspection and test planning, measuring instruments and calibration, acceptance sampling, statistical control charts and nonconformance handling in plants and on project sites.

Code	HT-QMS-112
Category	Quality & Operational Excellence
Duration	1 week
Level	Intermediate
City	Istanbul

Introduction

Finding a defect at the customer or after installation on site is too late, because the cost of correction multiplies at every stage a defective product passes through. Effective quality control puts the right check at the right point and turns measurement results into an accept or reject decision based on a clear criterion.

Objectives

- Distinguish quality control from quality assurance and place inspection within the production or project cycle
- Prepare an inspection and test plan defining characteristics, acceptance criteria and hold and witness points
- Select the right measuring instrument, verify its calibration and evaluate the measurement system
- Apply acceptance sampling plans and interpret the operating characteristic curve
- Analyze inspection data with control charts and capability indices and handle nonconformances

Who should attend

- Quality control inspectors and engineers in plants and projects
- Production, fabrication and installation supervisors
- Incoming inspection and supplier quality staff
- Project engineers who oversee inspection at contractors and vendors

Skills you will develop

- Inspection and test planning
- Measurement, calibration and measurement system analysis
- Acceptance sampling and statistical process control
- Documenting nonconformances and corrective actions

Learning Outcomes

- Prepare an inspection and test plan for a manufactured product or a construction activity
- Read the sample size and the accept and reject numbers from the sampling tables for a given AQL
- Build an X-bar and R chart and calculate and interpret Cp and Cpk from real data
- Write a clear nonconformance report with a disposition and a corrective action

Course Outline

Day 1: Quality Control Fundamentals and Inspection Planning

- Quality control, quality assurance and the cost of quality: prevention, appraisal, and internal and external failure
- Reading specifications and drawings: dimensions, tolerances and acceptance criteria
- The inspection and test plan: inspection stages, hold, witness and review points, and required records

Day 2: Measurement and Calibration

- Dimensional instruments: vernier calipers, micrometers, dial indicators, go/no-go gauges and coordinate measuring machines
- Calibration and traceability to reference standards, calibration intervals and instrument status labels
- Measurement system analysis: accuracy, repeatability and reproducibility, with a gauge R&R exercise

Day 3: Acceptance Sampling

- When to inspect every unit and when a sample is enough, and producer's and consumer's risk
- The ISO 2859-1 tables: inspection level, sample size code letter, acceptance quality limit and the switching rules between normal, tightened and reduced inspection
- The operating characteristic curve, incoming inspection and supplier quality rating

Day 4: Statistical Control and Analysis of Inspection Data

- Histograms, Pareto charts and check sheets for defect analysis
- Control charts for variables (X-bar and R) and for attributes (p and c), and the rules for detecting an out-of-control process
- Process capability: calculating Cp and Cpk and interpreting them against specification limits

Day 5: Field Inspection Methods and Nonconformance Handling

- Visual inspection and an introduction to non-destructive testing: liquid penetrant, magnetic particle, ultrasonic and radiographic testing, and what each method detects
- The nonconformance report: description, segregation, dispositions from rework to reject, and corrective action
- Applied project in which each team prepares an inspection and test plan and a sampling plan for a given product, then analyzes an inspection data set and issues an acceptance decision

Training methodology

Excel calculation exercises on control charts and the Cp and Cpk indices
Practical use of the sampling tables to find sample sizes and accept and reject numbers

Group measurement exercise on repeatability and reproducibility using hand instruments
Review and correction of sample inspection reports and nonconformance reports

Certification

Participants receive a Harbor Training Center certificate of attendance on completing the course.

Upcoming dates

City	Dates	Language	Fee
Istanbul	8 – 12 February 2027	AR	EUR 4,800
Istanbul	9 – 13 August 2027	EN	EUR 4,800

Fees are per participant.

Contact us

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To register and for details, scan the code or visit:

https://harbor4training.com/en/courses/quality-control-inspection