Course: Statistical Quality Control (SQC) for Laboratory and Field Operations

Code	City	Hotel	Start	End	Price	Language - Hours
HM-899	Auckland (New Zealand)	Hotel Meeting Room	2026-11-16	2026-11-20	5450 €	En - 25

Programme Summary:

This course is designed to equip participants working in analytical laboratories and field sampling operations with essential tools to implement and sustain Statistical Quality Control (SQC) methods. It emphasizes monitoring analytical processes, maintaining data integrity, and ensuring precision and accuracy across laboratory and mining environments—key for quality assurance mission.

General Objective:

To enable participants to apply SQC tools for monitoring, improving, and sustaining the quality of laboratory and field operations.

Learning Objectives:

- Understand the fundamentals and practical applications of SQC.
- Apply various control charts to detect process anomalies and monitor precision.
- Design and implement effective quality control procedures using statistical methods.
- Analyze trends and identify variability in sample testing.
- Integrate SQC with laboratory information systems and continuous improvement strategies.

Target Audience:

- Laboratory Managers and Analysts
- QA/QC Supervisors in Mining & Exploration
- Field Sample Technicians
- Lab Auditors and Compliance Officers
- Geochemical Engineers
- Technical Staff in sample preparation and testing

Course Outline

Module 1: Foundations of Quality Control

- Introduction to quality systems in laboratory and field settings
- Understanding the role of SQC in mining, exploration, and sample integrity
- Sources of error and variability in lab and sampling procedures
- Key terminology: accuracy, precision, bias, and uncertainty
- Relationship between SQC and overall Quality Assurance (QA)

Module 2: Statistical Principles and Control Charts

- Statistical foundations: mean, standard deviation, variation types
- Types and uses of control charts (X-bar, R, p, np, c, u)
- Rules for identifying trends, shifts, and out-of-control conditions
- Interpreting control chart patterns for process stability
- Setting control limits: warning vs action levels

Module 3: Practical Application of SQC

- Building control charts from sample data
- Applying SQC techniques to real-world testing processes
- Monitoring repeatability and reproducibility (R&R studies)
- Statistical tolerance limits and specification conformance
- Establishing and tracking key quality metrics

Module 4: Quality Management and Improvement

- Developing a comprehensive quality control plan
- Corrective and preventive action (CAPA) strategies
- Root cause analysis (RCA) and feedback loops
- Linking SQC to continuous improvement initiatives
- Roles of QA/QC staff in sustaining quality performance

Module 5: Advanced Tools and Case Studies

- Case studies: SQC implementation in mineral assay laboratories
- Best practices in field sampling quality control
- Integration of SQC with Laboratory Information Management Systems (LIMS)
- Troubleshooting quality failures using control chart signals
- Performance review and optimization based on SQC results

The Scandinavian Academy for Training and Development adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training and Development.

Program Timings:

- 9:00 AM to 2:00 PM in Arab cities.
- 10:00 AM to 3:00 PM in European and Asian cities.

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.