MAWA EVENTS

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

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CONCRETE TESTING AND QUALITY CONTROL

""Ensuring Structural Reliability Through Rigorous Concrete Inspection, Testing, and Compliance Practices""

Schedule

Date	Venue	Fees (Face-to-Face)
18 – 22 Oct 2026	Manama, Bahrain	USD 3495 per delegate

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

Introduction

Concrete remains the most widely used construction material in the world, forming the backbone of infrastructure, buildings, and civil engineering projects. Yet, failures due to poor quality control, improper testing, or substandard practices remain a major concern. Achieving durable, high-performance concrete requires systematic control of materials, procedures, and on-site inspections.

This intensive 5-day course provides a comprehensive overview of concrete technology, site testing procedures, quality control measures, and compliance with international standards (e.g., ASTM, ACI, BS EN). Participants will gain both theoretical knowledge and practical skills to manage concrete testing operations, detect issues early, and ensure long-term structural integrity.

Objectives

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

- Understand the composition, behavior, and performance factors of concrete
- Apply testing procedures for fresh and hardened concrete as per standards
- Establish quality control plans during concrete production, delivery, and placement
- Detect and address quality deviations, defects, or deterioration signs
- Document, interpret, and report test results for compliance and audits

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Why Attend

- Ensure your projects meet durability, strength, and safety requirements
- Minimize construction delays and failures due to substandard concrete
- Enhance your understanding of critical site and lab testing procedures
- Support project certification and inspection compliance
- Advance your technical credibility in construction quality control

Target Audience

This program is designed for:

- Civil Engineers and Construction Managers
- Quality Control and Site Inspection Engineers
- Laboratory Technicians and Material Engineers
- Structural Engineers and Supervisors
- Project Consultants and Technical Auditors

Individual Benefits

Key competencies that will be developed include:

- Fresh and hardened concrete testing procedures (slump, strength, durability)
- Understanding and interpreting testing standards and specs (ASTM, ACI, EN)
- Quality control documentation, sampling techniques, and batching practices
- Defect detection, troubleshooting, and corrective action procedures
- Effective reporting for consultants, clients, and regulators

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved quality assurance in concrete-related works
- Reduced material wastage and structural rework
- Higher compliance with construction codes and audit readiness
- Better contractor and supplier coordination
- Minimized risks of long-term durability and structural failures

Instructional Methodology

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

- Strategy Briefings – Key concrete properties, failure modes, and QC systems
- Case Studies – Lessons from concrete failures and success in megaprojects
- Workshops – Hands-on interpretation of test results and mix adjustments
- Peer Exchange – Site challenges and testing practice discussions
- Tools – Checklists, test logs, sample QA/QC plans, and compliance templates

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 Concrete and Quality Requirements

- Module 1: Introduction to Concrete Technology (07:30 – 09:30) • Cement types, aggregates, admixtures, and water • Concrete properties: workability, strength, durability
- Module 2: Codes and Standards Overview (09:45 – 11:15) • ASTM, ACI, BS EN testing and compliance references • Quality and tolerance requirements in structural design
- Module 3: Concrete Mix Design Principles (11:30 – 01:00) • Factors influencing mix design and proportioning • Water-cement ratio and strength classification
- Module 4: Workshop – Mix Adjustment Scenarios (02:00 – 03:30) • Exercises on modifying mix for workability or strength

Day 2: Testing of Fresh Concrete

- Module 5: Fresh Concrete Tests – Field and Lab (07:30 – 09:30) • Slump, air content, temperature, and unit weight tests • ASTM C143, C231, C1064, and others
- Module 6: Sampling and Specimen Preparation (09:45 – 11:15) • Cylinder and cube casting, curing, and storage • Test frequency and sampling locations
- Module 7: On-Site Concrete Placement & Control (11:30 – 01:00) • Inspection during delivery, pumping, and placing • Controlling segregation, bleeding, and cold joints
- Module 8: Workshop – Slump and Sampling Demo (02:00 – 03:30) • Simulated demonstration and sample calculation

Day 3: Testing of Hardened Concrete

- Module 9: Compressive Strength Testing (07:30 – 09:30) • Cube/cylinder break test procedures and timing • Interpreting results and identifying abnormalities
- Module 10: Non-Destructive Testing (NDT) Methods (09:45 – 11:15) • Rebound hammer, ultrasonic pulse velocity, core cutting • Choosing NDT methods for different site conditions
- Module 11: Durability and Permeability Tests (11:30 – 01:00) • Chloride ion penetration, carbonation, freeze-thaw • Relevance for long-term performance
- Module 12: Workshop – Strength Result Interpretation (02:00 – 03:30) • Analysis of datasets and corrective action triggers

Day 4: Concrete Defects, Failures, and Controls

- Module 13: Common Defects and Causes (07:30 – 09:30) • Cracking, honeycombing, scaling, delamination • Root causes and prevention
- Module 14: Repair and Remediation Approaches (09:45 – 11:15) • Grouting, epoxy injection, overlays, and coatings • When to repair vs replace
- Module 15: Site Quality Audits and Checklists (11:30 – 01:00) • Pre-pour, post-pour, and curing inspections • Use of ITPs and daily QA records
- Module 16: Workshop – Diagnosing Concrete Failures (02:00 – 03:30) • Case-based team analysis and recommendations

Day 5: Integrated QA/QC and Final Review

- Module 17: Developing a Concrete QA/QC Plan (07:30 – 09:30) • Responsibilities, documentation, and lab coordination • Using QA plans for contractor oversight
- Module 18: Records, Reporting, and Communication (09:45 – 11:15) • Test logs, rejection criteria, and escalation paths • Reporting to consultants, clients, and authorities
- Module 19: Course Review and Open Q&A (11:30 – 01:00) • Key takeaways and field problem resolution
- Module 20: Certification and Close (02:00 – 03:30) • Feedback, action planning, and certificate distribution

Certification

Participants will receive a Certificate of Completion in Concrete Testing and Quality Control, validating their skills in field and laboratory testing, inspection, and quality management for concrete works.

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.

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