MAWA EVENTS

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

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

MODERN CONSTRUCTION TECHNOLOGISTS FOR CONCRETE STRUCTURES

"Mastering Modern Construction Skills to Enhance Structural Quality, Efficiency, and Innovation."

Schedule

Date	Venue	Fees
02 – 06 Nov 2026	Dubai, UAE	USD 3495 per delegate

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

Introduction

Concrete remains the most widely used construction material worldwide—integral to infrastructure, buildings, and industrial facilities. However, modern engineering demands have pushed the boundaries of conventional methods. Advancements in concrete technology, materials, and construction processes are reshaping how engineers and contractors deliver high-performance, sustainable structures.

This intensive 5-day course provides civil engineers, site managers, and construction technologists with a deep understanding of modern concrete technologies and their applications. From high-performance and self-compacting concrete to 3D printing and digital quality control, participants will gain insights into innovative techniques, performance optimization, and durability enhancement for modern concrete structures.

Objectives

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

- Identify and apply modern concrete materials and admixtures
- Implement advanced construction techniques for better quality and speed
- Understand performance-based specifications for concrete durability and strength
- Apply quality control methods and testing standards for modern concrete
- Integrate sustainability and lifecycle considerations into concrete design

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Why Attend

- Stay ahead of evolving concrete technologies and construction trends
- Improve construction quality, structural performance, and safety
- Reduce project timelines and material waste through advanced techniques
- Support compliance with international codes and green building standards
- Gain practical tools for diagnosing and preventing common defects

Target Audience

This program is designed for:

- Civil, Structural, and Site Engineers
- Project Managers and Construction Supervisors
- Materials Technologists and Quality Control Inspectors
- Consultants and Design Engineers in Infrastructure Projects
- Anyone involved in the planning, execution, or evaluation of concrete works

Individual Benefits

Key competencies that will be developed include:

- Knowledge of modern concrete types and their properties
- Application of digital and automated methods in concrete placement
- Inspection, testing, and defect prevention skills
- Understanding of mix design, sustainability, and lifecycle impacts
- Integration of innovation and best practices into construction projects

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Enhanced project efficiency and structural reliability
- Improved QA/QC outcomes on concrete works
- Reduced repair costs due to better durability practices
- Stronger alignment with sustainability and performance standards
- Capacity to apply modern construction practices across new and retrofit projects

Instructional Methodology

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

- Strategy Briefings – Concrete science, codes, and new technologies
- Case Studies – Failures, innovations, and successful applications
- Workshops – Mix design, defect analysis, and durability planning
- Peer Exchange – Lessons from major construction projects globally
- Tools – Field checklists, design guides, inspection templates

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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 Modern Concrete Technology

- Module 1: Evolution of Concrete Materials and Standards (07:30 – 09:30) • Conventional vs. modern concrete; performance-based approach
- Module 2: Modern Cement Types and Admixtures (09:45 – 11:15) • High-performance, pozzolanic, and blended cement • Superplasticizers, shrinkage reducers, corrosion inhibitors
- Module 3: Workshop – Concrete Material Selection (11:30 – 01:00) • Evaluating material options for a specific structural use
- Module 4: Introduction to Mix Design Optimization (02:00 – 03:30) • Factors affecting strength, durability, and workability

Day 2: Advanced Construction Practices and Formwork

- Module 5: Self-Consolidating and Ultra-High-Performance Concrete (07:30 – 09:30) • Mix characteristics, pumping behavior, placement guidelines
- Module 6: 3D Printing and Robotic Concrete Construction (09:45 – 11:15) • Applications, limitations, and global case studies
- Module 7: Modern Formwork Systems and Pouring Techniques (11:30 – 01:00) • Climbing formwork, modular systems, and safety measures
- Module 8: Workshop – Construction Method Selection (02:00 – 03:30) • Choosing construction technology based on site conditions

Day 3: Durability, Cracking, and Structural Performance

- Module 9: Understanding Durability and Environmental Exposure (07:30 – 09:30) • Chloride ingress, carbonation, freeze-thaw, and sulphate attack
- Module 10: Cracking in Concrete – Causes and Prevention (09:45 – 11:15) • Plastic vs. hardened state cracking and mitigation
- Module 11: Quality Control and NDT Techniques (11:30 – 01:00) • Slump, strength, air content, maturity testing, and core sampling
- Module 12: Workshop – Defect Identification and Root Cause Analysis (02:00 – 03:30) • Interactive review of site case studies

Day 4: Sustainability, Lifecycle, and Repair Techniques

- Module 13: Sustainable Concrete Design and Green Codes (07:30 – 09:30) • Recycled aggregates, low-carbon concrete, and LEED/BREEAM
- Module 14: Lifecycle Costing and Service Life Prediction (09:45 – 11:15) • Durability modeling and economic analysis tools
- Module 15: Repair, Strengthening and Retrofitting (11:30 – 01:00) • Shotcrete, jacketing, FRP wrapping, corrosion mitigation
- Module 16: Workshop – Lifecycle and Repair Planning (02:00 – 03:30) • Applying tools to evaluate long-term performance

Day 5: QA/QC, Site Implementation, and Project Case Studies

- Module 17: Concrete Testing, Reporting and Compliance (07:30 – 09:30) • Field testing protocols, documentation, and standards compliance
- Module 18: Planning and Executing Concrete Works Onsite (09:45 – 11:15) • Inspection points, coordination, and risk control
- Module 19: Case Studies – Complex Structures and Lessons Learned (11:30 – 01:00) • Successes and failures in high-rise, bridge, and marine concrete
- Module 20: Final Review, Action Plan, and Certification (02:00 – 03:30) • Participant presentations and application plans

Certification

Participants will receive a Certificate of Completion in Modern Construction Technologists for Concrete Structures, validating their expertise in applying cutting-edge techniques and materials for improved concrete performance and construction outcomes.

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Why Choose MAWA Events

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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**