MAWA EVENTS

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

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

CONCRETE STRUCTURAL DESIGN, MAINTENANCE, AND RELIABILITY ANALYSIS التصميم الانشائي للخرسانة والصيانة وتحليل الاعتمادية

“Design Strong. Maintain Smart. Build to Last.”

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

Introduction

This course explores the technical principles and applied practices in designing concrete structures, planning effective maintenance, and applying reliability engineering to ensure long-term structural integrity in industrial and infrastructure projects.

Objectives

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

- Understand structural behavior and design principles of concrete.
- Identify degradation mechanisms in industrial environments.
- Develop maintenance plans and condition monitoring strategies.
- Apply reliability analysis tools for performance prediction.
- Integrate structural design with lifecycle asset management.

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Why Attend

- Learn practical methods to reduce structural failures.
- Improve safety, performance, and cost-efficiency of concrete assets.
- Gain expert insights into design, durability, and maintenance integration.

Target Audience

- Civil & structural engineers
- Reliability, asset, and maintenance engineers
- Project engineers and supervisors
- Facility & infrastructure managers

Individual Benefits

- Gain advanced knowledge of concrete structural systems.
- Learn to apply reliability-centered maintenance practices.
- Develop technical leadership in asset integrity.

Organizational Benefits

- Reduce maintenance costs and extend asset life.
- Improve structural reliability and operational safety.
- Enable risk-based decision-making in infrastructure planning.

Instructional Methodology

- Technical lectures and case-based discussions
- Group exercises and workshop simulations
- Real-life examples and field-tested templates
- Interactive Q&A and problem-solving labs

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Course Outline

DETAILED 5-DAY COURSE OUTLINE (Customizable) Training Hours: 07:30 AM – 03:30 PM Daily Format: 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1 – Design Principles for Industrial Concrete

- Structural loading & durability design
- Concrete materials and deterioration factors
- Design codes and safety factors

Day 2 – Exposure Effects & Corrosion Mitigation

- Chemical & mechanical exposure
- Reinforcement corrosion mechanisms
- Protective detailing & materials selection

Day 3 – Maintenance Strategy & Condition Monitoring

- Inspection techniques (NDT, sensors, visual)
- Maintenance scheduling and failure prevention
- Condition rating systems and KPIs

Day 4 – Reliability & Risk-Based Engineering

- Reliability-centered design and maintenance
- FMEA, risk analysis and service life prediction
- Asset reliability modeling and lifecycle costing

Day 5 – Application & Project-Based Learning

- Industrial case studies
- Maintenance & reliability plan development
- Final group presentations and review

Certification

Participants will receive a Certificate of Completion.

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**