

DESIGNING HIGH PERFORMANCE CONCRETE STRUCTURES TRAINING

"Master Advanced Concrete Design Techniques for Durable, Efficient, and Resilient Structures."

Schedule

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

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

Introduction

High-performance concrete (HPC) has revolutionized modern construction by offering superior strength, durability, and workability compared to conventional concrete. The Designing High Performance Concrete Structures Training provides engineers and designers with comprehensive knowledge and practical skills to design, analyze, and implement HPC in a variety of structural applications.

This course covers advanced concrete materials, mix design, structural behavior, durability considerations, reinforcement strategies, and compliance with international codes such as ACI, Eurocode, and local standards. Participants will learn to optimize designs for performance, cost-efficiency, and sustainability, while addressing challenges associated with high-strength and specialized concrete structures.

Objectives

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

- Understand the properties and advantages of high-performance concrete.
- Design concrete mixes tailored to structural and environmental requirements.
- Analyze and design beams, columns, slabs, and foundations using HPC.
- Address durability, serviceability, and fire resistance requirements.
- Apply reinforcement strategies and prestressing techniques for HPC structures.
- Ensure compliance with international and local design codes and standards.
- Optimize structural designs for cost-effectiveness and material efficiency.
- Integrate sustainable practices and advanced technologies in concrete construction.

Why Attend

High-performance concrete is essential for modern, long-lasting, and resilient structures. This training equips participants with advanced design skills, practical knowledge, and real-world techniques to implement HPC successfully. Engineers, designers, and project managers will gain the expertise needed to create durable, safe, and innovative concrete structures for complex construction projects.

Target Audience

This course is suitable for:

- Civil and Structural Engineers
- Design Engineers and Draftsmen
- Project Managers and Construction Supervisors
- Architects and Industrial Designers
- Engineering Consultants and Academics
- Professionals involved in high-rise, industrial, and infrastructure projects

Individual Benefits

- Gain advanced knowledge in high-performance concrete design and application.
- Learn to optimize structural designs for strength, durability, and cost-efficiency.
- Improve problem-solving, analytical, and technical design skills.
- Enhance professional credibility and career advancement opportunities.
- Gain confidence in using HPC for diverse and complex construction projects.
- Acquire practical skills in mix design, reinforcement, and structural detailing.

Organizational Benefits

- Deliver high-quality, durable, and resilient concrete structures.
- Optimize material usage and reduce long-term maintenance costs.
- Ensure compliance with safety, performance, and sustainability standards.
- Improve project efficiency, structural reliability, and client satisfaction.
- Build in-house expertise in advanced concrete design and construction methods.
- Support innovative solutions in high-rise, industrial, and specialized projects.

Instructional Methodology

The training uses a practical and interactive approach:

- Case studies of high-performance concrete projects
- Step-by-step tutorials for mix design, analysis, and structural detailing
- Hands-on exercises in reinforcement, prestressing, and durability assessment
- Group discussions and collaborative problem-solving workshops
- Assignments focused on real-world HPC design challenges
- Continuous feedback and Q&A sessions to reinforce learning

Course Outline

- Module 1: Introduction to High-Performance Concrete – Properties and Applications
- Module 2: Mix Design Techniques for HPC Structures
- Module 3: Analysis and Design of Beams and Slabs Using HPC
- Module 4: Column, Foundation, and Structural Frame Design
- Module 5: Durability, Serviceability, and Fire Resistance Considerations
- Module 6: Reinforcement Strategies and Prestressed Concrete Applications
- Module 7: Compliance with ACI, Eurocode, and Local Design Codes
- Module 8: Sustainability and Advanced Technologies in HPC Construction
- Module 9: Case Studies – Successful HPC Projects and Lessons Learned
- Module 10: Capstone Project – Designing a Complete HPC Structural System

Certification

Upon successful completion, participants will receive a Certificate in Designing High Performance Concrete Structures, validating their expertise in advanced concrete design, high-strength materials, and durable structural solutions.

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?

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