

## DESIGN & STRENGTHENING OF REINFORCED CONCRETE | ميمى صتال ينابم لة م واقم نيسحت و يئاشنال

"Master the Structural Design and Reinforcement of Concrete Buildings for Safer, Longer-Lasting Structures."

### Schedule

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

► Available delivery methods: In-House Training

### Introduction

This intensive course offers practical and theoretical insights into the design and structural strengthening of reinforced concrete (RC) buildings. It covers the latest techniques and international standards for analyzing, designing, assessing, and retrofitting concrete structures. The training includes real-world case studies and practical examples to equip civil and structural engineers with essential skills for modern construction challenges.

### Objectives

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

- Understand the fundamental principles of RC design
- Analyze the behavior and failure mechanisms of RC elements
- Apply effective strengthening and retrofitting techniques
- Utilize advanced materials for repair and rehabilitation
- Interpret and apply international design codes
- Solve real-life structural issues with cost-effective solutions

## Why Attend

- Enhance your ability to design safe and durable RC structures
- Learn practical retrofitting and strengthening solutions for old or damaged buildings
- Keep up with modern design standards and construction techniques
- Improve structural inspection and rehabilitation decision-making
- Advance your career in structural engineering, design, and consultancy

## Target Audience

- Civil Engineers
- Structural Engineers
- Site Engineers
- Engineering Consultants
- Construction Project Managers
- QA/QC Engineers involved in structural work

## Individual Benefits

- Gain confidence in tackling complex structural design and strengthening tasks
- Increase your technical competency in reinforced concrete design
- Acquire skills highly sought after in both new construction and restoration projects

## Organizational Benefits

- Improve design quality and project efficiency
- Reduce long-term maintenance and repair costs
- Build a technically stronger team capable of managing structural integrity risks

## Instructional Methodology

- Technical presentations and lectures
- Real-world case studies
- Group exercises and design workshops
- Video demonstrations of strengthening techniques
- Interactive Q&A and group discussions

## 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: Fundamentals of Reinforced Concrete Design

- 07:30 – 09:30: Principles of RC Design: Loads, Forces, and Materials
- 09:45 – 11:15: Code Requirements (ACI, Eurocode) for RC Elements
- 11:30 – 01:00: Flexural, Shear, and Torsional Behavior of RC Components

### Day 2: Structural Assessment and Failure Modes

- 07:30 – 09:30: Inspection Techniques and Condition Assessment
- 09:45 – 11:15: Common Causes of RC Structure Failures
- 11:30 – 01:00: Crack Analysis, Corrosion Effects, and Structural Audit

### Day 3: Strengthening Methods and Design Solutions

- 07:30 – 09:30: Strengthening RC Beams, Columns, and Slabs
- 09:45 – 11:15: Retrofitting Techniques (FRP, Steel Plates, Jacketing)
- 11:30 – 01:00: Load Increase, Change of Use & Earthquake Resistance

### Day 4: Advanced Repair Materials and Technologies

- 07:30 – 09:30: Use of High-Performance Concrete and Grouts
- 09:45 – 11:15: Fiber-Reinforced Polymers (FRP) in Strengthening
- 11:30 – 01:00: Practical Case Studies – Retrofit Success Stories

### Day 5: Application, Simulation & Certification

- 07:30 – 09:30: Design Workshop: Strengthening of Existing Structure
- 09:45 – 11:15: Group Presentations and Peer Review
- 11:30 – 01:00: Final Discussion, Action Planning & Certificate Ceremony

## Certification

All participants will receive a Certificate of Completion recognizing their competence in Design & Strengthening of Reinforced Concrete Structures.

## 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:

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