MAWA EVENTS

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

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DESIGN, REPAIR AND STRENGTHENING OF CONCRETE STRUCTURES USING FRP SYSTEMS ACCORDING TO ACI CODE

"Reinventing Structural Performance with FRP: Compliant, Durable, and Smart Solutions."

Schedule

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

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

Introduction

This course provides a comprehensive understanding of the design, repair, and strengthening of reinforced concrete structures using Fiber-Reinforced Polymer (FRP) systems in accordance with the American Concrete Institute (ACI) codes. It covers FRP materials, installation techniques, performance criteria, and real-life applications, with a strong emphasis on structural safety, durability, and compliance.

Objectives

Participants will:

- Understand the types, behavior, and properties of FRP systems
- Learn how to design and apply FRP for strengthening concrete members
- Explore ACI 440 guidelines and design provisions
- Gain insight into quality assurance and field installation practices
- Analyze failure modes and risk mitigation strategies

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Why Attend

- Gain industry-standard knowledge for strengthening RC structures
- Learn the latest techniques and innovations in FRP repair systems
- Minimize structural downtime with faster, lighter solutions
- Improve your qualifications for infrastructure rehabilitation projects

Target Audience

- Civil & Structural Engineers
- Repair & Rehabilitation Consultants
- Construction Managers
- QA/QC Engineers
- Government and Infrastructure Authorities

Individual Benefits

- Develop specialized skills in FRP retrofitting techniques
- Become proficient in applying ACI 440 standards
- Enhance your design portfolio with sustainable repair solutions

Organizational Benefits

- Extend the life of aging infrastructure at reduced costs
- Ensure compliance with international codes and safety standards
- Reduce construction time and increase operational reliability

Instructional Methodology

- Lectures with real project visuals
- Hands-on FRP design calculations
- Code-compliant design examples
- Group case studies and discussions
- Interactive Q&A and digital resources

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: Introduction to FRP and Structural Strengthening Needs

- What is FRP? Types and applications
- Common deterioration mechanisms in RC structures
- Overview of ACI 440 code provisions

Day 2: Materials and Mechanical Properties

- FRP types: carbon, glass, aramid
- Bonding agents, adhesives, resins
- Stress-strain behavior and durability factors

Day 3: FRP Design Principles According to ACI 440

- Flexural and shear strengthening
- Column confinement techniques
- Strength reduction factors and design assumptions

Day 4: Installation and Quality Control

- Surface preparation and application procedures
- QA/QC testing and inspection
- Safety and environmental considerations

Day 5: Case Studies, Failure Modes, and Practical Design Workshop

- Global examples of successful applications
- Lessons learned from failed projects
- Hands-on session: designing FRP strengthening for a beam and column

Certification

Delegates who complete the program will receive a Certificate of Proficiency in “FRP-Based Repair and Strengthening of RC Structures According to ACI 440.”

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**