

Repair Course

MODULE A: Evaluation of structures (20 hours)

- ▶ **Planning an investigation program.**
- ▶ **Test Selection.**
- ▶ **Surface Hardness Method.**

*Schmidt Hammer.

*Ultra Sonic Pulse Velocity.

- ▶ **Partially Destructive Tests.**

(Windsor probe, Pullout test, pulls of test)

*Meaning Of Apparatus

*Measurement and Significance

*Theory of Operation

*Advantages

- ▶ **Destructive Tests**

(Core test, loading test)

*Meaning Of Apparatus

*Measurement and Significance

*Theory of Operation

*Advantages

- ▶ **Strain measurement**

(Mechanical, Electrical, Acoustic)

- ▶ **Course Exam.**

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MODULE B: Concrete Repair Fundamentals (20 hours)

▶ **Concrete Repair Fundamentals I.**

(Surface Preparation, Reinforcement Repair, Material Selection & Placement)

- Examine how to select repair materials and ingredients.
- Discover the latest in equipment handling, preparation placement of repair materials including placing materials pneumatically (shotcrete) and using form work to cast repair materials .
- Basics of repair material compatibility to improve the performance of repairs.
- Determine when and how to use bonding agents and shoring tests to ensure a quality repair.

▶ **Concrete Repair Fundamentals II.**

(Waterproofing, General protection, Corrosion Prevention)

- How to protect concrete from the effects of corrosive environments.
- Identify various cathodic protection strategies to prevent embedded steel corrosion.
- Analyze how systems protect against various chemical environments.
- Explain how to stop water leakage through cracks.

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MODULE B: Concrete Repair Fundamentals

➤ **Repairing Concrete Cracks**

(Evaluation and Selection of Repair Methods)

- How to choose the best repair procedure for active and dormant cracks.
- Summarize repair techniques for routing and sealing cracks.
- Identify repair methods based on unique criteria.
- Discuss stitching, grouting, dry packing, surface treatments.

➤ **Fire Repair**

(Case Study- Tower of Pisa)

➤ **Course Exam.**

