



Consulting and Training | Reach New Heights

Course Name

Structural Rehabilitation & Strengthening Solutions

Sector Name

Civil Engineering

Document Type

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Structural Rehabilitation & Strengthening Solutions

Course Introduction

Existing structures may require intervention for many different reasons: deterioration, increased loading, changes in use, design deficiencies, construction problems, accidental damage, or the need to extend their operational life. The engineering challenge is not simply to repair visible damage. Engineers must determine what the structure needs, whether its existing performance can be restored or must be enhanced, and which intervention will provide an effective and durable solution without creating new structural problems.

Boost Consulting & Training has designed this course around the engineering decisions that connect structural assessment with rehabilitation and strengthening. Participants will learn how to define intervention requirements, distinguish repair from rehabilitation and strengthening, evaluate alternative techniques, address compatibility and constructability issues, and develop solutions appropriate to the structure, deterioration mechanism, required performance, and site constraints.

The main concept of this course is to move from identifying a structural problem to selecting and developing the right intervention—one that restores, protects, or enhances structural performance according to the actual engineering need.

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Structural Rehabilitation & Strengthening Solutions

Target Audience

- ✓ Civil and structural engineers
- ✓ Rehabilitation and maintenance engineers
- ✓ Construction and site engineers
- ✓ Engineering consultants and infrastructure professionals

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Learning Objectives

- ✓ Determine the engineering need for repair, rehabilitation, or structural strengthening.
- ✓ Translate structural condition and performance findings into clear intervention requirements.
- ✓ Evaluate rehabilitation alternatives according to deterioration, structural behavior, and future use.
- ✓ Select appropriate repair techniques for damaged and deteriorated structural elements.
- ✓ Compare strengthening solutions for different structural deficiencies and loading requirements.
- ✓ Address compatibility, load transfer, detailing, and constructability when developing interventions.
- ✓ Plan rehabilitation works while controlling execution risks and maintaining technical quality.
- ✓ Develop integrated rehabilitation and strengthening solutions for existing structures.

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Structural Rehabilitation & Strengthening Solutions

Course Outline

✓ DAY 1

Defining the Right Intervention

From Structural Findings to Engineering Needs

- ✓ Translating deterioration, damage, structural deficiencies, and changed service requirements into intervention needs
- ✓ Distinguishing durability problems from serviceability and structural performance deficiencies
- ✓ Establishing the required level of restored or improved performance

Repair, Rehabilitation or Strengthening

- ✓ Differentiating repair, protection, rehabilitation, retrofitting, and structural strengthening
- ✓ Selecting the intervention level according to condition, consequence, remaining life, and future use
- ✓ Completing an Intervention Decision Challenge for different existing structure scenarios



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Course Outline

✓ DAY 2

Repairing and Rehabilitating Structural Elements

Developing Effective Repair Solutions

- ✓ Connecting repair techniques with the underlying deterioration or damage mechanism
- ✓ Preparing damaged areas and addressing reinforcement, substrate, bonding, and repair geometry
- ✓ Selecting compatible repair materials according to structural and exposure requirements

Achieving Durable Rehabilitation

- ✓ Managing interfaces between existing materials and newly introduced repair systems
- ✓ Controlling recurring deterioration rather than treating visible symptoms alone
- ✓ Developing a Rehabilitation Solution for a deteriorated structural element

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Course Outline

✓ DAY 3

Strengthening Existing Structures

Selecting the Strengthening Strategy

- ✓ Identifying strengthening needs arising from increased loads, deficiencies, modifications, or performance requirements
- ✓ Evaluating changes in structural behavior and load paths created by strengthening
- ✓ Comparing local strengthening with broader structural intervention

Applying Strengthening Solutions

- ✓ Examining section enlargement, additional reinforcement, steel strengthening, FRP systems, and other applicable techniques
- ✓ Evaluating anchorage, connection, load transfer, compatibility, and detailing requirements
- ✓ Completing a Strengthening Options Assessment for a realistic structural case

Structural Rehabilitation & Strengthening Solutions

Course Outline

✓ DAY 4

Making Rehabilitation Solutions Buildable

Constructability of Structural Interventions

- ✓ Evaluating access, temporary support, sequencing, occupied facilities, and restricted working conditions
- ✓ Planning load relief and temporary structural conditions during intervention
- ✓ Coordinating rehabilitation works with existing services and surrounding operations

Controlling Rehabilitation Execution

- ✓ Establishing critical inspection and acceptance points during repair and strengthening works
- ✓ Managing substrate preparation, installation quality, curing, anchorage, and workmanship
- ✓ Conducting a Rehabilitation Constructability Review before site execution

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Course Outline

✓ DAY 5

Developing the Complete Engineering Solution

Comparing Intervention Alternatives

- ✓ Evaluating technical effectiveness, durability, disruption, implementation complexity, and future maintenance
- ✓ Considering remaining service life when comparing rehabilitation alternatives
- ✓ Documenting the engineering basis for the selected intervention

From Intervention Design to Future Performance

- ✓ Establishing post-rehabilitation inspection and monitoring requirements
- ✓ Defining performance indicators and conditions requiring future engineering attention
- ✓ Developing Structural Rehabilitation & Strengthening Solution for an integrated case study

Structural Rehabilitation & Strengthening Solutions

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Dec. 21, 2026	Dec. 25, 2026	5 days	4250.00 \$	UAE , Dubai
Jan. 31, 2027	Feb. 4, 2027	5 days	4250.00 \$	Bahrain , Manama
June 14, 2027	June 18, 2027	5 days	4250.00 \$	UAE , Abu Dhabi
Aug. 23, 2027	Aug. 27, 2027	5 days	5950.00 \$	Switzerland , Lausanne

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