

Innovation & Technology Center

Summer 2026

Section I: Overview:

COURSE TITLE	Structural Rehabilitation of Structures
INSTRUCTOR	Dr. Ayman Shamseldein
CREDITS (Hours)	20 hours - 4 hours/Day
PRE-REQUISITES/CO-REQUISITES	Basic knowledge of structural engineering and reinforced concrete design
LANGUAGE	English
GRADING	Attended/Not Attended
LEARNING ENVIRONMENT	Computer Lab
NUMBER OF PARTICIPANTS	10 - 25
COURSE FEES	4000 EGP/Student

Section II: Background and Rationale:

This course provides practical and theoretical knowledge on the assessment, repair, and strengthening of existing structures.

It covers deterioration mechanisms, structural evaluation techniques, and modern rehabilitation methods including FRP and TRM systems.

The course links academic concepts with practical engineering applications for sustainable and resilient infrastructure.

Section III: Learning Outcomes

- Understand causes and mechanisms of structural deterioration.
- Apply techniques for inspection, assessment, and evaluation of existing structures.
- Select appropriate repair and strengthening methods based on structural deficiencies.
- Understand the design principles of FRP/FRCM/TRM strengthening systems.
- Develop rehabilitation strategies for reinforced concrete and masonry structures.

Section IV: Target Audience:

Civil engineering students, structural engineers, consultants, researchers, and professionals involved in structural assessment and rehabilitation.

Section V: Content and Structure:

DAY	TITLE	DETAILS
1	Introduction to Structural Rehabilitation	Importance of rehabilitation, deterioration mechanisms, damage assessment, and structural inspection techniques.
2	Structural Assessment and Repair Materials	Evaluation methods, non-destructive testing, repair materials, and concrete repair techniques.
3	Strengthening of Reinforced Concrete Structures	Strengthening methods including steel plates, RC jacketing, and FRP-based systems.
4	TRM/FRCM Strengthening Systems	Materials, design concepts, applications, and case studies of textile reinforced mortar systems.
5	Case studies	Training on real case scenarios in Egypt and UK