



RETROFITTING AND REHABILITATION OF CIVIL INFRASTRUCTURE

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TYPE OF COURSE : New | Elective | PG
COURSE DURATION : 12 Weeks (24 Jan' 22 - 15 Apr' 22)
EXAM DATE : April 24, 2022

INTENDED AUDIENCE : M.E/M.Tech/PhD students from Civil, Architecture, Construction Engineering background or equivalent specialization and BE/B.Tech students from similar background can take this course as elective

INDUSTRIES APPLICABLE TO : All civil engineering design and consultancy firms, construction companies, material manufacturers related to concrete technology will recognize this course for its practical applications

COURSE OUTLINE :

The major objective of this course is to give an in-depth understanding of the various methods of repair, retrofitting and rehabilitation techniques for masonry and concrete structures. The causes and types of deterioration, the evaluation of the existing condition of infrastructure, the materials for repair and retrofitting, the maintenance and strengthening techniques is covered in detail in this course. Seismic retrofitting and design of retrofitted structural components using recent techniques and materials have been included in the course. The course covers the challenging issues for efficient retrofitting and rehabilitation in order to extend the durability of existing structure in a sustainable manner.

ABOUT INSTRUCTOR :

Prof. Swati Maitra is an Assistant Professor in Ranbir & Chitra Gupta School of Infrastructure Design and Management, IIT Kharagpur. She obtained her PhD from IIT Kharagpur and Masters' from IIT Bombay in Civil Engineering. She is a recipient of awards like DAAD Fellowship by the German Academic Exchange Service and Bihar PWD Medal by the Indian Roads Congress.

Prof. Sriman Kumar Bhattacharyya is a Professor in Civil Engineering Department and presently the Deputy Director of IIT Kharagpur. He was a Former Director of CSIR-Central Building Research Institute (CBRI). Prof. Bhattacharyya's research area includes sustainable building materials, fluid-structure interaction, structural health monitoring, FRP-concrete composite system, structural restoration, numerical modelling and structural fire engineering.

COURSE PLAN :

- Week 1:** Overview of Retrofitting and Rehabilitation of Civil Infrastructure
- Week 2:** Condition Evaluation and Testing
- Week 3:** General Repair and Strengthening of Concrete Structures
- Week 4:** Fiber Reinforced Polymer Composites (FRPC) and its Characteristics
- Week 5:** Retrofitting by FRP Composites
- Week 6:** Retrofitting by FRP Composites (continued...)
- Week 7:** Retrofitting by FRP Composites (continued...)
- Week 8:** Concrete Overlay for Pavement Rehabilitation
- Week 9:** Retrofitting of Masonry Structures
- Week 10:** Retrofitting of Building structures damaged due to seismic event
- Week 11:** Retrofitting of Special structures damaged due to seismic events
- Week 12:** Retrofitting of Steel Structures