

**Global Initiative on Academic  
Network (GIAN)/ TEQIP-II**

10 day Course on  
**STRUCTURAL UPGRADE  
AND STRENGTHENING OF CIVIL ENGINEERING  
INFRASTRUCTURE USING FIBER REINFORCED  
POLYMER COMPOSITES**

July 18<sup>th</sup> - 29<sup>th</sup>, 2016

**REGISTRATION FORM**

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Registration Fee: \_\_\_\_\_

Enclosed is a crossed draft no .....  
.....Dated.....

For Rs..... In favor of

"IIT-Hyderabad", payable at State Bank of

India, Hyderabad.

Also, payment may be made directly to

IIT-Hyderabad using Electronic Bank Transfer

using the following details Payable to :

IIT Hyderabad

Bank Name: State Bank of India

SWIFT Code: SBIN0014182

Account No.: 3041279764

**REGISTRATION FEE\***

Industry/Research Academic Institutions

Rs. 15,000  Rs. 10,000

Students Foreign Delegates

Rs. 2,000  500 USD

\*An additional fee of Rs. 2,000 should be paid

by all participants for lunch and refreshments.

\*Registration fee is waived for those

candidates nominated through TEQIP.

**DATE AND VENUE**

This 10 day GIAN/TEQIP course is proposed to be held at IIT Hyderabad, Kandi Telangana during July 18-29, 2016. IIT-Hyderabad is located at about 50 km from the heart of Hyderabad city on the National Highway-9 at Kandi village (near Sangareddy town, Telangana).

**CONTACT DETAILS**

**Dr. S. Suriya Prakash**

Course Coordinator

Associate Professor

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course on**

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**July 18-29, 2016**

Department of Civil Engineering

Indian Institute of Technology Hyderabad

Kandi, Sangareddy,

Telangana 502285, India

<http://www.iith.ac.in/~strengthening>

Sponsored by



**COURSE INSTRUCTORS**

**Prof. DJ Belarbi,**

*Distinguished Professor, Department  
of Civil Engineering, University of Houston,  
USA*

Dr. Abdeldjelil Belarbi is Hugh Roy and Lillie Cranz Cullen Distinguished Professor of Civil Engineering at the University of Houston. He is actively engaged in a broad spectrum of structural engineering research areas. His primary research contributions deal with constitutive modeling, analytical, and the experimental investigation of reinforced and prestressed concrete structures. He has concentrated his research on smart structures and the use of FRP composites with his focus on the development of advanced materials and the use of FRP for rehabilitation and strengthening of aging and deteriorated civil engineering infrastructure. Dr. Belarbi has served as principal investigator or co-investigator on numerous research projects with a research expenditure of over 10 million US dollars, has published over 200 technical papers, and has supervised over 45 MSCE theses and PhD dissertations. Dr. Belarbi is a Fellow of both the American Society of Civil Engineers (ASCE) and the American Concrete Institute (ACI).

**Prof. K.V.L. Subramaniam**

*Professor & Dean (Planning),  
Department of Civil Engineering, IIT H*

Dr. Subramaniam's research expertise is in the areas of material characterization using destructive and non-destructive methods, health monitoring and strengthening of structures. He has published several papers on condition assessment and repair of concrete structures. He has also served as a consultant on various projects related to condition assessment and strengthening. He is a fellow of ASCE and ACI, USA and serves on several international committees on concrete structures.

**Dr. S. Suriya Prakash,**

*Associate Professor and Course coordinator  
Department of Civil Engineering, IIT H*

Dr. Suriya Prakash's research expertise is on structural concrete behaviour and design. He worked with Structural Group Inc., USA a renowned firm in strengthening design and construction using advanced construction materials. He has authored more than twenty journal papers on the behaviour of reinforced concrete columns and strengthening of infrastructure with FRP composites. He is a member of ASCE and ACI, USA.

**Dr. Gopal Rai**

*Industry Expert  
CEO, Dhirendra Group of Companies,  
Mumbai*



## BACKGROUND

A significant number of buildings have deterioration in the form of steel corrosion, concrete cracking and spalling. As a result, design professionals have the challenge of evaluating and implementing effective and economical repair and strengthening solutions. Unfortunately, there is no single solution that offers a simple, straightforward design, specification and execution for all repair and strengthening projects.

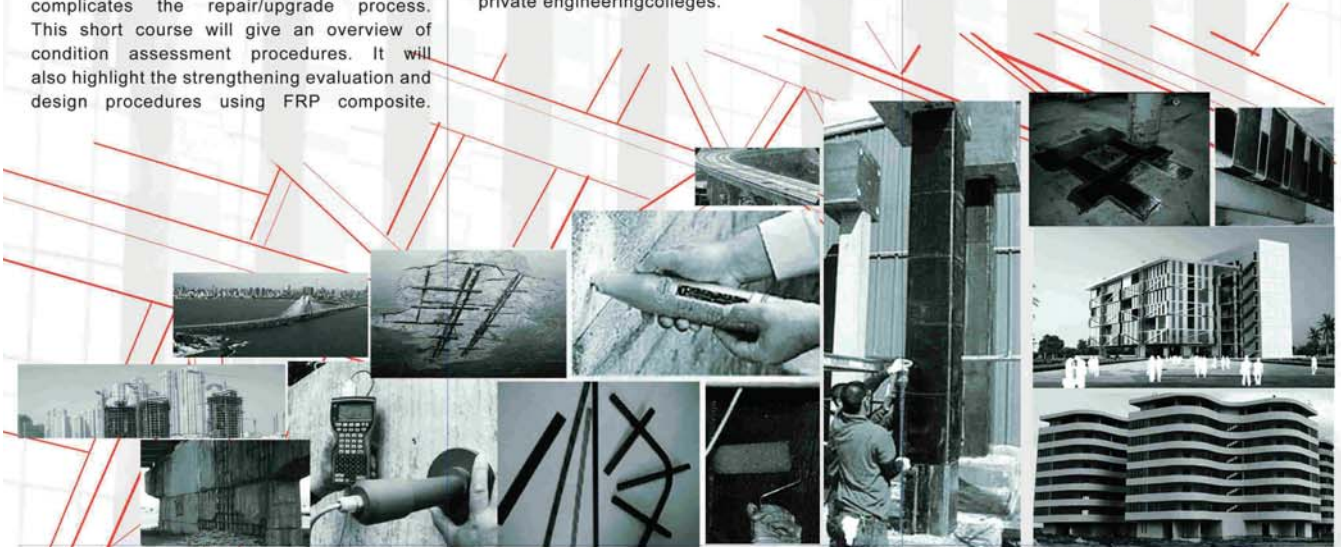
The fact that most of the structures need strengthening are occupied and operational complicates the repair/upgrade process. This short course will give an overview of condition assessment procedures. It will also highlight the strengthening evaluation and design procedures using FRP composite.

## WHO SHOULD ATTEND?

This course is for all building industry professionals involved in evaluating concrete; destructive and nondestructive testing; inspecting; conducting structural condition assessment; repair; and restoration of existing structures. Engineers, architects, designers, contractors, developers, inspectors and other building professionals in both private and public practice will benefit. This course will provide an excellent exposure to young scientists, research scholars and teachers at the universities and private engineering colleges.

## LEARNING OUTCOMES

- Fundamentals of reinforced concrete and strengthening design
- Overview of condition assessment procedures
- Identification of structural deficiency and capacity evaluation
- Structural strengthening techniques
- FRP material properties, installation procedures and techniques
- FRP strengthening design principles and detailing
- Case studies on strengthening



## COURSE CONTENTS

**Module A:** Infrastructure Condition Assessment Techniques (8 hours of lecture + 2 hours of lab)

**Module B:** Overview of FRP Composites (5 hours of lecture)

**Module C:** Strengthening Design with FRP Composites (15 hours of lecture + 5 hours of tutorials)

**Module D:** Case Studies on Infrastructure Strengthening with FRP Composites (5 hours of lecture)

## COURSE MATERIAL

A copy of presentation material of the course will be provided along with several useful references and case studies.

## REGISTRATION FEES

Application for participation to GIAN course may be sent in the attached proforma along with the registration fee to Dr. S. Suriya Prakash so as to reach him before 15th of June, 2016. The fee should be remitted by a crossed demand draft in favor of "IIT Hyderabad" payable at state bank of India, Rs. 15000/- per participant from Industry and the fee is fixed at Rs. 10,000/- for participants from academic institutions. A limited seats are available for students whom the fee is Rs. 2000/- . Fee for the foreign delegates USD 500 Travel, boarding and lodging expenses of the participants will have to be borne by the participants or their organizations.

A limited accommodation is available at the IIT-H guest house. Therefore, participants, who wish to avail this facility, are advised to write to Dr. S. Suriya Prakash well in advance, and in any case, not later than 15th of June, 2016.

The registration fees includes the cost for course material. An additional fees of Rs. 2000/- has to be paid for refreshments including Lunch / 2 Coffee/Tea with snacks / Mineral water bottle on all 10 days.

Registration fee is waived for those candidates nominated through TEQIP.

## ABOUT IIT HYDERABAD

Inventions and innovations are key words on which the foundation of IITH is based. One of India's eight new IITs- IITH started functioning in August 2008. With a current strength of 160 faculty and 1800 students, IITH offers B.Tech program in seven disciplines, M.Tech in six disciplines, M.Sc in two disciplines and Ph.D in 11 disciplines

IITH develops state-of-the-art infrastructure for advanced research and has produced over 400 publications in internationally reputed journals. Research is a culture among the faculty and students of IITH

This is evident from the 25 research projects ranging from Rs18 lakhs to Rs18 crores that are ongoing at IITH

On top of the gamut of sponsored projects from various funding agencies, IITH has active collaboration with industry as well. IITH also has an innovative academic program where the students are offered fractional credits and the first semester under graduates are allowed to do a project of their choice

Many more innovations in the academic front are in the offing. IITH always strives to offer an innovative environment where one is not afraid to experiment with high-risk ideas.