



IIT Bombay



Northeastern  
University

## IITB-NEU Joint SCPP Workshop on

# Resilience of Critical Infrastructure Networks



Friday, June 27, 2025



Department of Civil Engineering  
IIT Bombay

Critical infrastructure networks are vital for the functioning of human societies and economies. They are central to facilitating emergency responses, livelihood, and sustainable recovery. In the aftermath of disasters, the functionality of these networks suffers along with the system's structural integrity, until the network is recovered to an acceptable functionality.

However, despite their importance, these networks remain underprepared, vulnerable to increasing disasters and climate risks. This workshop focuses on the assessment of resilience of these critical infrastructure networks in a post-disaster context, emphasizing their ability to withstand, absorb, adapt, and recover from disruptions.

Join us, as we delve into these challenges and discuss practical solutions to analyze, estimate and strengthen the resilience of critical infrastructure networks.

## What to Expect



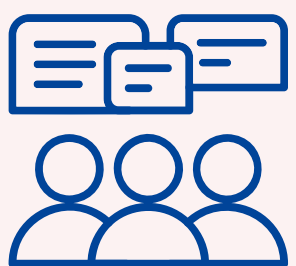
### Keynote Talks

Insights from research experts on critical infrastructures and resilience



### Hands-On Session

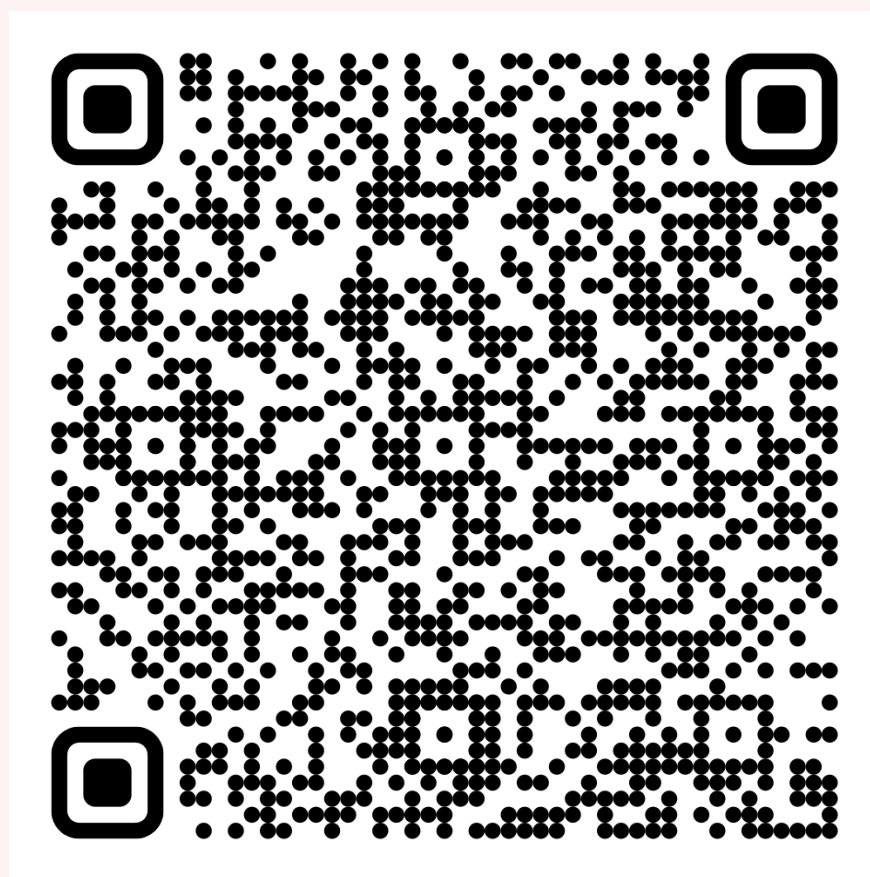
Training on resilience assessment through guided software sessions



### Panel Discussion

Bridging multidisciplinary research together for resilient futures

Scan to Register



Link: <https://tinyurl.com/mphpa5eb>

## For Queries

Email: [networksresilience2025@civil.iitb.ac.in](mailto:networksresilience2025@civil.iitb.ac.in)

Phone No: [+91 9971454875](tel:+919971454875)

## Important Details

- Limited Seats: 75 Participants
- Hands-On Session: Only 25 Seats
- Registration is Free, but Mandatory



Organized by  
Structural Safety, Risk & Reliability (SSRR) Lab, IIT Bombay



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## Keynote Talks

“Networked Infrastructure under Compound Extremes (NICE): The theory of embedding resilience in lifelines from design to operations” - Prof. Auroop Ganguly, Northeastern University

“Reinforcement learning for road network efficiency and under disruptions” - Dongqin Zhou, Northeastern University

“Urban flooding and connectivity loss in multimodal transportation networks” - Danish Mansoor, Northeastern University

“Network resilience of Mumbai suburban network under hydrometeorological extremes: A case study” - Prof. Avijit Maji, IIT Bombay

“Climate change and the resilience of the Indian railway network” - Prof. Arpita Mondal, IIT Bombay

“Machine learning for critical infrastructure resilience: Frameworks and future directions” - Prof. Sounak Kabasi, NIT Jamshedpur

“Infrastructure networks, compound extremes, and the challenge of just adaptation” - Prof. Udit Bhatia, IIT Gandhinagar

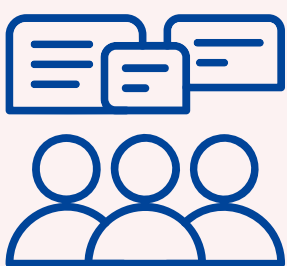
“A framework for tropical cyclone vulnerability and recovery analysis of buildings and electrical networks in Chittagong city” - Prof. Subhrajit Dutta, NIT Silchar

## What's more



### Hands-On Session

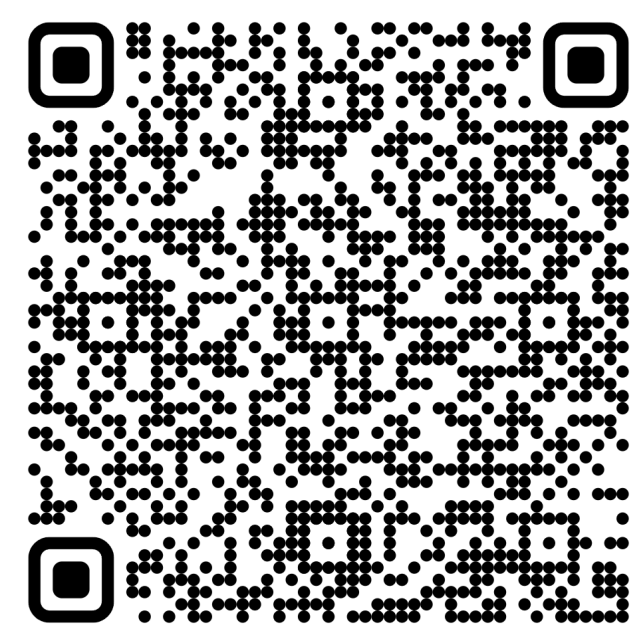
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## Hands-On Session

The hands-on session provides an introduction to the iRe-CoDeS framework for resilience assessment of critical infrastructures. The iRe-CoDeS (interdependent Resilience Compositional Demand and Supply) framework was developed by the research group of Prof. Božidar Stojadinović at ETH Zürich, Switzerland. The session will include a demonstration of this framework using the open-source tool **pyrecodes**.

### Objective

Introduce the iRe-CoDeS framework for disaster resilience studies using the pyrecodes Python library

### Activities

Two guided exercises on community and residential network resilience

- Exercise 1 – Resilience assessment of a simple community network
- Exercise 2 – Resilience assessment of a residential network

### Prerequisite

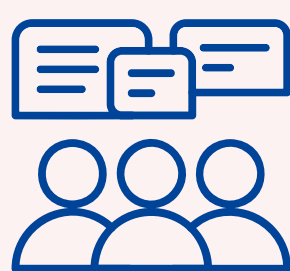
Basic knowledge and skill of programming in Python

## What's more



### Keynote Talks

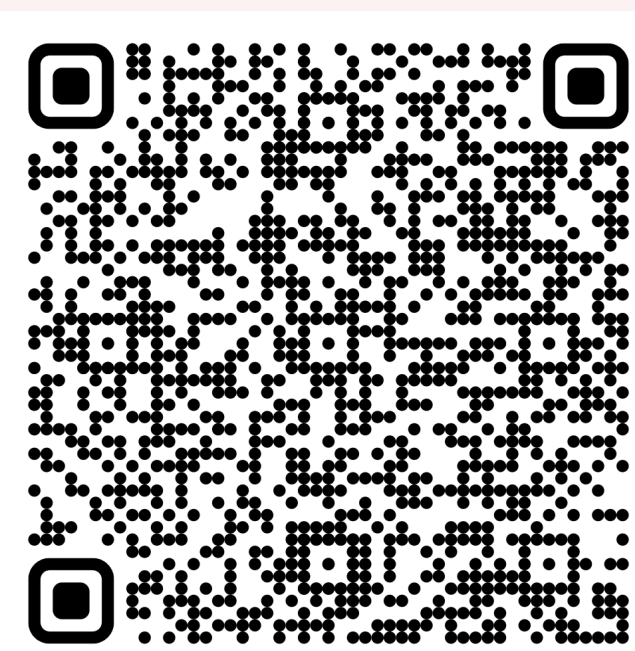
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