AICTE QIP
SHORT TERM TRAINING PROGRAMME

On

Modelling Air quality and hydro-meteorological extremes over Indian Mega-cities

March 22nd to 27th, 2021

Name of the course coordinators

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Sponsored by

All India Council for Technical Education

Organized by

Department of Civil Engineering
Indian Institute of Technology Madras

BACKGROUND

The proposed short-term course is designed to enhance and strengthen the basic knowledge on Urban sustainability. Indian urban population increased gradually from ~ 10% in 1900 to ~ 20 % in 1975. More recently, in 2011, ~ 30% of Indians were living in urban locations. Nonetheless, it is being predicted that by 2030 India will have ~ 40% of urban citizens and by 2045 India will be dominated by urban citizens (> 50%). Hence, the rate of urbanization in India is unprecedented. Presence of an urban agglomerate can manifest its own localized warmer climate (relative to the rural background) with episodes of severe heat stress, hazardous air quality, frequent water scarcity and intense rainfall- flash flood scenarios. Further, the frequency of these events over urbanized areas is predicted to be enhanced under a warmer future. Therefore, capacity building in the field of air quality and numerical weather prediction at urban-scale is essential to comprehensively plan pollution mitigation strategies and emergency action for disaster management in urban agglomerates. These measures can be achieved through understanding the various components of a atmosphere and their association with hydrology and hydraulics using coupled modelling.

COURSE CONTENT

The scope of the short term course are:

- Basics of urban air quality problem and management
- Air pollution emission inventory creation
- Introduction to various components of weather and air quality modelling
- Fundamentals of the coupling between urban pollution and urban micro-meteorology and hydro-meteorology.
- Introduction to atmospheric-hydrological-hydraulic modelling
- Understanding management, mitigation and policy level strategies for mega-cities
- WRF and online chemistry coupled WRF-Chem model
- Training on atmospheric-hydrological coupled models
- Machine learning approaches in air quality and hydrology

COURSE MATERIAL

Each registered participant will be provided with a set of comprehensive lecture notes.

FACULTY

There will be lectures by relevant experts from IIT Madras, IIT Bombay, IIT Delhi, IIT Kanpur, University of Hyderabad and various national labs.

COURSE DURATION & VENUE

The course is of one-week (six days) duration from March 22nd to March 27th 2021. **Lectures will be delivered in online mode only.**

Register through the following link:

https://forms.gle/k36pAzYeVnB8gTZ1A

ELIGIBILITY

The course is open to faculty with background in Civil, Aerospace, Environmental, Chemical, Mechanical branches from engineering colleges approved by AICTE. Faculty with Atmospheric, climate and hydrological sciences background are also admissible. ***No course fee*** is charged for participants sponsored by AICTE approved institutions.

IMPORTANT DATES

Last date for application : ~~1st March~~ 12 March 2021
Intimation of selection (by email) ~~10th March~~ 15 March 2021
Confirmation of participation (by email) : ~~15th March~~ 17 March 2021

Center for Continuing Education, IITM:
http://www.cce.iitm.ac.in/

Department of Civil Engineering, IITM:
https://civil.iitm.ac.in

Course coordinators Profile:
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