

# GLOBAL INITIATIVE FOR ACADEMIC NETWORKS



National Coordinating Institute  
**INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR**

[www.gian.iitkgp.ac.in](http://www.gian.iitkgp.ac.in)

## SMART URBAN MULTIMODAL TRANSPORT PLANNING, OPERATIONS AND MANAGEMENT

### Course overview

Multimodal transportation refers to the integrated planning, operations and management of various transport modes with an aim to maximize the system efficiency of the transport network. This course introduces the audience to the basic and advanced modeling techniques of transport planning and operations. The course will cover planning methodologies of various modes that include automobile, public transit, bicycle and pedestrians. The participants will gain an in-depth understanding of the optimization techniques in transport operations.

The course will disseminate a multimodal perspective of transport planning, operations and management. In this context, the key topics to be covered during the course include:

- Multi-Modal Transportation System Analysis using the Highway Capacity Manual (HCM)
    - Design principles of pedestrian and bicycle facilities; Analysis of multimodal system: automobile, transit, bicyclist and pedestrian
  - Simulation based approaches in assessing Multi-modal transportation system
    - Traffic simulation model calibration; Assessing mobility, safety, fuel consumption and emissions
  - Introduction to various simulation techniques widely used in transportation optimization
    - Traffic simulation models (microscopic, mesoscopic and macroscopic); Connected and Automated Vehicles modeling
  - Applications of optimization in transportation system operations and management
    - Traffic signal timing optimization; Intersection control with connected and automated vehicles
  - Multimodal facility design
    - IRC guidelines for pedestrian facility design, Design principles of LRT, Metro and BRT systems
    - Integrated land-use and transportation planning; Transit Oriented Development (TOD); Transit signal priority
- Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules

July 8 – 12, 2019

## You Should Attend If...

- you are a transportation/civil engineer; urban planner, or research scientist interested in urban multimodal transport planning and operations;
- you are systems engineer interested to learn optimization techniques in transportation;
- you are a student or faculty from academic institution interested in learning about simulation techniques in transportation for improving efficiency of multimodal transport systems.

## Course Fees

The fees for enrolling in the course is as follows:

**Student participants from India: No fee (Refundable deposit of ₹2,000 at time of registration)**

**Participants from academic institutions (faculty/researchers): ₹7,500**

**Participants from industry / Research organizations: ₹12,000**

**Participants from NGO / Individual participants: ₹5,000**

**Participants from abroad: US \$250**

The above fee includes all instructional materials, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

## The Faculty



**Brian Park** is an Associate Professor of Engineering Systems and Environment Department and Link Lab at the University of Virginia, USA. Dr. Park received his Ph.D. from Texas A&M University, USA, and his research interests include cyber-physical system for transportation, stochastic optimization, connected and automated vehicle safety assessment, microscopic simulation model application, and transportation system sustainability. He is an Editor in Chief of the International Journal of Transportation, and an Associate Editor of the American Society of Civil Engineers Journal of Transportation Engineering, Journal of Intelligent Transportation Systems and the KSCE Journal of Civil Engineering. Furthermore, he is a member of TRB (a division of the National Academies) Vehicle Highway Automation Committee and Artificial Intelligence and Advanced Computing Applications Committee, and chair of Simulation subcommittee of Traffic Signal Systems Committee. Dr. Park has published over 150 journal and conference papers in the area of transportation system operations and managements, and intelligent transportation systems, and is a recipient of PTV America Best Paper Award. For his complete profile, please visit - <https://engineering.virginia.edu/faculty/b-brian-park>



**Arkopal Goswami** is an Assistant Professor in the Ranbir and Chitra Gupta School of Infrastructure Design and Management, Indian Institute of Technology (IIT) Kharagpur. Dr. Goswami specializes in transportation infrastructure, where his research interests are in the field of sustainable urban transport infrastructure - its planning, management, and preservation. He received his doctorate in Civil Engineering from the University of Virginia, USA in 2008. Subsequently, he gained valuable experience of working for public and private sector transport organizations in USA. For his complete profile, please visit - <http://www.iitkgp.ac.in/department/ID/faculty/id-akgoswami>



**Bhargab Maitra** is a Professor of Department of Civil Engineering, and the Head of RCG School of Infrastructure Design and Management, IIT Kharagpur, India. His research interests are Travel Behavior Analysis, Public Transport, Intelligent Transport System, Electric Mobility and Urban Traffic Management. For further information please visit <http://www.facweb.iitkgp.ac.in/~bhargab/index.html>

## Course Co-ordinator

**Dr. Arkopal Kishore Goswami**

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## Registration Process

Registration for GIAN courses is not automatic because of the constraints on maximum number of participants allowed to register for a course. In Order to register for one or multiple non-overlapping courses, you have to apply online using the following steps:

1. **Create login and password at [www.cep.iitkgp.ac.in/gian](http://www.cep.iitkgp.ac.in/gian)**
2. **Login and complete the registration form.**
3. **Select courses**
4. **Confirm your application and payment information.**
5. **Pay ₹500 (non-refundable) through online payment gateway.**

The course coordinators of the selected courses will go through your application and confirm your selection as a participant one month before the starting date of the courses. Once you are selected you will be informed and requested to pay the full fees through online payment gateway service.



<http://www.gian.iitkgp.ac.in/GREGN>