

A GIAN Course on

# Advances in Dynamic Transportation Systems

## Overview

Efficient transportation systems are crucial for social and economic development of any society. The transportation systems in India are often the result of unrelated and discrete decisions taken by a large number of local, state, and central government agencies. This can cause unexpected impacts by way of massive costs in energy usage, loss of productivity from transportation delays, and deleterious environmental effects from vehicle emissions under congestion. The dynamics of these phenomena are less-understood and therefore, there is an urgent need to produce more transportation experts who have better grasp of this topic. Planning and analysis of transportation systems have been largely done in India and around the world with a static view, in that the elements of the system are looked upon as temporally in steady state. Although such planning is often useful in macro-scale economic decision-making and regional planning, it does not tie in well with the reality of congestion formation in the systems during peak-usage periods when the performance of the systems deteriorates due to dynamic variations. While such static models have been in vogue for the past 6 decades and relatively well-understood around the world, it is only during the past 2 decades that there have been developments in dynamic modeling and analysis for time-dependent variations in transportation systems, which requires an understanding of several new concepts. Thus it is timely that professionals, academics and students of transportation systems in India are brought up-to-date in the recent developments in the fundamental principles as well as the nascent tools of analysis, to spur further improvement of dynamic transportation systems planning and control with India-specific considerations in the near future.

The broad topics that will be covered include transportation systems, traffic flow and traffic control, equilibrium flow network models, simulation based planning, modeling concepts for Indian conditions, fundamentals of connected and autonomous systems, and integrated dynamic planning. 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.

<b>Dates</b>	<b>2 – 6 July 2018</b> <b>Number of participants for the course will be limited to 50.</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"> <li>▪ you are a transportation engineer dealing with transportation planning and traffic management</li> <li>▪ you are a transportation professional in government organizations such as MMRDA, CIDCO, MCGM, etc. or a researchers in a transportation engineering research laboratory</li> <li>▪ you are a student/ faculty from academic institute willing to learn dynamics in transportation systems</li> </ul>
<b>Fees</b>	<p>The participation fees for taking the course is as follows:</p> <p><b>Industry : INR 23,600</b>  <b>Govt. Research Organizations: INR 8,850</b>  <b>Academic Institutions: INR 5,900</b>  <b>Students: INR 1770</b></p> <p>The above fee includes lunches and tea/coffee during breaks, registration kit, instructional materials, computer usage, and internet facility. The participants will be provided with accommodation on payment basis.</p>

## The Faculty



**Prof. R. Jaykrishnan** has been a Professor at the University of California, Irvine, since 1991. He got his B. Tech from IIT Madras in 1985, followed by his MS and PhD at the University of Texas at Austin. He is among 4 or 5 transportation engineering faculty from India with the longest tenure in the United States universities. UC Irvine is also ranked as a top-5 or top-10 transportation research program in the world. As part of his PhD, he developed Dynasmart, the earliest-existing dynamic modeling system for Intelligent Transportation Systems and dynamic route guidance, which was used in one of two earliest models for DTA Dynamic Traffic Assignment, developed by the Federal Highway Administration (FHWA) of USA. He has over 100 refereed publications to his credit, and has advised over 20 PhD graduates during his long career, with 11 of them in faculty positions in the USA and around the world.



**Dr. Gopal R. Patil** is an Associate Professor in the Department of Civil Engineering at Indian Institute of Technology (IIT) Bombay. He received his M. Tech degree in Transportation Systems Engineering from IIT Bombay in 2002 and PhD from Rensselaer Polytechnic Institute, Troy, NY in 2007. Dr. Patil's areas of interest includes transportation systems planning, network optimization, freight transportation modeling, and traffic operations.



Government of India  
Ministry of Human Resource  
Development



## Course Coordinator

### Gopal R. Patil

Department of Civil Engineering  
Indian Institute of Technology Bombay  
Phone: 022-25767301/7308  
E-mail: gpatil@iitb.ac.in

**GIAN Short Term Course on**

**Advances in Dynamic Transportation  
Systems**

**02 – 06 July 2018**

**Registration Form**

Name (in block letters): \_\_\_\_\_

\_\_\_\_\_

Qualification: \_\_\_\_\_

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

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

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

\_\_\_\_\_

Mobile: \_\_\_\_\_

Fax: \_\_\_\_\_

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

Payment: Rs: \_\_\_\_\_

IIT Guest House/ Hostel accommodation  
required (will be provided as per availability and  
on payment basis): YES / NO  
(Please contact the course coordinator for the  
availability details)

Signature of Applicant: \_\_\_\_\_

Date: \_\_\_\_\_

**Venue for Classes**

Classes will be held in Seminar Hall of Department of  
Civil Engineering, IIT Bombay.

**Lecture Notes**

To fully realize the objectives of the course, the  
lecture notes in electronic format will be made  
available to the participants.

**Date & Time of Registration:**

2 July 2018, 9.00 AM at Civil Department, IIT Bombay.

**COURSE FEE (including GST)**

**Industry/Research Organization: INR 23,600/-**

**Academic Institutions: INR 7,200/-**

**Students: INR 2,300/-**

The last date of registration is 14 June 2018.

The above fee includes lunches and tea/coffee during  
breaks, registration kit, instructional materials,  
computer usage, and internet facility. The  
participants will be provided with accommodation on  
payment basis.

The course fee has been paid by (Please tick  
appropriate option)

(i) Logging in at  
<https://portal.iitb.ac.in/ceqipapp>.

You will have to create a login ID, look up  
this course and fill up a registration form.  
After approval of the faculty co-ordinator,  
you can pay the fees.

OR

(ii) Demand draft drawn in favour of "**The  
Registrar, IIT Bombay - CEP Account**". If  
**payment is by DD, please furnish the  
following details:**

DD No.: \_\_\_\_\_ Dt: \_\_\_\_\_

All completed registration forms with bank  
transaction details may be mailed to:

Prof. Gopal R. Patil  
Department of Civil Engineering  
IIT Bombay, Powai, Mumbai 400076