

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**Department of Civil Engineering**  
**COURSE HANDOUT**

<b>Academic Term</b>	<b>Semester I, 2017-18</b>
<b>Course Title</b>	<b>Traffic Flow Theory</b>
Course ID No.	CE G543
Instructor(s)	Durgesh Vikram

**Course Modules**

Module No	Module Title	Learning Objectives	Learning Outcome (You should be able to answer these questions after the module)	Number of Lectures
1	Use of space-time diagram for vehicle trajectories	As a first step towards analysis of traffic flow	What are the distinguishing features of interacting traffic streams?	5
2	Use of cumulative plots in analysis of traffic flow	To understand the simplification of analysis procedure as at many levels it helps in simplifying the analysis of traffic flow.	How to determine flow, density and travel time information of a traffic stream?	6
3	Time independent models of traffic flow	To learn some simple models of traffic flow.	How to estimate other variables describing a traffic stream if one knows the value of one variable?	6
4	Dynamic macroscopic models	To understand the propagation of congestion as well as mitigation of congestion in interacting traffic streams.	When will the traffic jam be over? What is going to be the length of queue at the peak of traffic jam?	15
5	Queuing theory	To understand and estimate delay to the vehicles approaching a Toll Plaza.	What is the expected length of queue at any of the servers of a Toll Plaza?	8

**Text Book(s)**

T1	Chakraborty, P. and Das, A. <b>Principles of Transportation Engineering</b> , PHI Pvt. Ltd., latest edition
T2	Carlos F. Daganzo <b>Fundamentals of Transportation and Traffic Operations</b> , Emerald Group Publishing Limited, latest edition.

**Reference Book(s)**

R1	Garber, N. J. And Hoel, L. A. <b>Traffic and Highway Engineering</b> , Brooks/Cole: CA, USA, latest edition
R2	May, A. D. <b>Traffic Flow Fundamentals</b> , PHI: USA, latest edition

**Evaluation Scheme:**

No	Name	Type	Duration	Weight	Day, Date, Session, Time
1	Assignment /Quiz/Term Paper	Both closed book and open book	Spread over the entire semester	40%	-
2	Mid-Semester Test	Closed book	90 minutes	25%	13/10 4:00 - 5:30 PM
3	Comprehensive Exam	Closed book	180 minutes	35%	12/12 AN