

# Urban transportation planning - Video course

## COURSE OUTLINE

The course, “Urban Transportation Planning” is intended for Post Graduate students and research scholars working in the areas of Traffic and Transportation Engineering.

Knowledge in the fundamentals of Traffic and Transportation Engineering and Probability and Statistics is the desired prerequisite for the course.

The course aims at imparting knowledge on understanding of urban transportation problems in planners’ perspective, definition of the problem, setting clear goals and objectives to serve as guiding factors in the planning process, identification of the causal factors influencing the demand for urban travel and development of relationship between the factors and the travel demand.

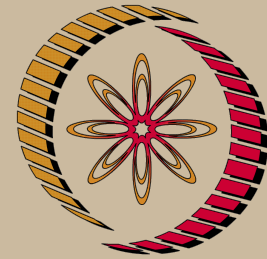
The course also provides adequate exposure to travel demand forecasting and application of the results of the forecasting to identify the right type of the transportation system needed to cater to the future demand and quantify the same.

### Contents:

Introduction, Transportation planning process, Problem definition, Setting objectives, Factors influencing travel demand, Travel demand modeling - Trip generation, Modal split, Trip distribution and Route assignment analyses, Transportation surveys, Land-use models, Travel demand forecasting, Urban structure and its influence of travel intensity, Urban goods movement.

## COURSE DETAIL

Sl. No.	Topic	No. of Hours
1.	<b>Introduction:</b> Transport and Socioeconomic Activities,	04



NP-TEL

# NPTEL

<http://nptel.iitm.ac.in>

## Civil Engineering

### Pre-requisites:

1. Knowledge in the fundamentals of Traffic and Transportation Engineering and Probability and Statistics.

### Additional Reading:

1. Literature on Discrete Choice Modeling, Utility Theory, Model calibration and validation.

### Coordinators:

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	Historical Development of Transport, Transportation in the Cities, Freight Transportation, Future Developments.	
2.	<p><b>Urban Transportation System Planning - Conceptual Aspects:</b></p> <p>Transport Planning Process, Problem Definition, Solution Generation, Solution Analysis, Evaluation and Choice, Implementation, Sequence of Activities Involved in Transport analysis.</p>	04
3.	<p><b>Trip Generation Analysis:</b></p> <p>Trip Production Analysis, Category Analysis, Trip Attraction Modelling.</p>	04
4.	<p><b>Mode Choice Modelling:</b></p> <p>Influencing Factors, Earlier Modal Split Models, Trip-End Type Modal Split Model, Trip-Interchange Modal Split Model, Disaggregate Mode-Choice Model, Logit Model of Mode Choice, Binary Choice Situations, Multinomial Logit Model, Model calibration, Case studies.</p>	07
5.	<p><b>Trip Distribution Analysis:</b></p> <p>Presentation of Trip-Distribution Data, PA Matrix to OD Matrix, Basis of Trip Distribution, Gravity Model of Trip Distribution, Calibration of Gravity Model, Singly and Doubly Constrained Gravity Models, A case Studies, Growth Factor Methods of Trip Distribution, Uniform Factor Method, Average Factor Method, Fratar Growth-Factor Method, Disadvantage of Growth Factor Method.</p>	07
6.	<p><b>Route Assignment:</b></p> <p>Description of transport network, Route Choice Behaviour, The Minimum Path, Minimum Path Algorithm, Route Assignment Techniques, All-or-Nothing Assignment, Multipath Traffic Assignment, Capacity-Restrained Traffic Assignment</p>	04

7.	<b>Transportation Surveys:</b> Definition of Study Area, Zoning, Types of Movements, Types of Surveys, Home-Interview Survey, Commercial Vehicle Survey, Intermediate Public Transport Survey, Public Transport Survey, Roadside-Interview Survey, Cordon-Line Survey, Post-Card Questionnaire Survey, Registration-Number Survey, Tag-on-Vehicle Survey.	03
8.	<b>Transport Related Land-Use Models:</b> Development of Land - Use models, The Lowry Model, Application of Lowry Model.	03
9.	<b>Urban Structure:</b> Urban Activity Systems, Urban Movement Hierarchies, Types of Urban Structure, Centripetal-Type Urban Structure, Grid-Type Urban Structure, Linear-Type Urban Structure, Directional Grid Urban Structure.	02
10.	<b>Urban Goods Movement:</b> Classification of Urban Goods Movements, Methodology of Approach to Analysis of Goods Movement, Modelling Demand for Urban Goods Transport.	02

#### References:

1. Adib Kanafani.(1983). Transportation Demand Analysis. Mc Graw Hill Series in Transportation, Berkeley.
2. Hutchinson, B.G. (1974). Principles of Urban Transport Systems Planning. Mc Graw Hill Book Company, New York.
3. John W.Dickey. (1975). Metropolitan Transportation Planning. Mc Graw Hill Book Company, New York.
4. Papacostas, C.S., and Prevedouros, P.D. (2002). Transportation Engineering and Planning. 3rd Edition, Prentice - Hall of India Pvt Ltd., 318-436.