B.E. Semester: VII
Civil Engineering
Subject Name: *URBAN TRANSPORTATION SYSTEM* (CV 704-B)

A. Course objective :

- To cover concepts of Transportation planning, various modes, transit systems and their suitability
- To give idea of modeling in planning, to develop the methodology of travel demand modeling for Urban Transportation Systems
- To provide knowledge of Land use planning and transportation interaction.

B. Teaching /Examination Scheme

Teaching scheme				Total Credit	Evaluation Scheme					
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract/ Tut.	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
03	02	00	05	05	03	70	30	20	30	150

C. Detailed Syllabus

Module I :

1 Introduction

Development plans, objectives and goals; level of planning; role of transportation at national, regional and urban level.

2 Urbanization

Definition of urban area; trends in urbanization; urban class groups; metropolitan city; transportation problems & identification.

3 Travel Demand

Concepts of travel demand; factors affecting demand and the demand functions; calibration methods; sequential, direct demand models; introduction to aggregate and disaggregate approaches

Module II :

4 Transportation Surveys

The transportation study area definition; division into traffic zones; network identification and coding; types of travel and characteristics of various surveys; home interview; roadside survey; goods, mass transit and intermediate public transport surveys; sampling and expansion factors; accuracy checks, screen line checks, consistency checks.

5 Travel Forecasting

Growth factor methods and urban transportation planning system; growth factors; average growth factor method and Furness method

Module III :

6 UTP System

Trip generation; zonal regression methods and category analysis; trip distribution method; gravity models and opportunity models; modal split methods; factors affecting modal split; trip end models and trip distribution models; route assignment; factors affecting route choice; diversion curve; shortest paths; all or nothing assignment.

Module IV:

7 Corridor Identification

Prediction issues and forecasting of the travel demand and future desires; corridor identification and corridor screen line analysis.

8 Mass Transit Systems

Bus and rail transit; characteristics, capacities, route planning.

9 Transportation Plan Preparation

Urban forms and structures; point, linear, radial, poly-nuclear developments and preparation of plan, comprehensive and traffic system management plans.

D. Lesson Planning

Sr. No.	Title of the Unit	Minimum Hours	Weightage
1	Introduction	2	5
2	Urbanization	4	10
3	Travel Demand	5	10
4	Transportation Surveys	4	10
5	Travel Forecasting	8	25
6	UTP system	10	25
7	Corridor Identification	4	5
8	Mass transit system	4	5
9	Transportation Plan Preparation	4	5

E. List of Tutorial

1	Introduction
2	Transportation surveys
3	Urban transportation system planning
4	Transit system

F. Instructional method and pedagogy(Continuous Internal Assessment Scheme)(CIA)

- At the start of course, the course delivery pattern, prerequisite of the subject will be Discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.
- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms Carries Marks
- Internal exam of 30 marks will be conducted as a part of Mid semester evaluation.
- Experiments shall be performed in the field related to course contents.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

G. Students Learning Outcomes:

- The students will gain an experience in the implementation of planning transportation routes in new developing towns and cities.
- The students will get a diverse knowledge to solve the problem of congestion and inconvenience.
- The students would be able to understand and evaluate current scenarios of traffic management and improve it.

H. Recommended Study Materials

A. Text Books:

1 Kadiyali, L.R., Traffic Engineering & Transport Planning, Khanna Publishers, New Delhi

2 Jotin Khisty, S.C. and Kent Lall, B., Transportation Engineering – An Introduction, Prentice-Hall, NJ

3 Salter, R J., Highway Traffic Analysis and Design, ELBS

B. Reference Books:

4 Hutchison, B.G., Introduction to Transportation Engineering, & Planning, McGraw Hill Book Co.

5 John W. Dickey, Metropolitan Transportation Planning, Tata McGraw Hill Pub. Co.

6 Vukan R. Vuchic, Urban Public Transportation System & Technology, Prentice Hall, Inc.

7 Papacostas, C.S., Fundamentals of Transportation System Analysis, PHI

8 Jotin Khisty, C. and Kent Lall, B., Transportation Engineering – An Introduction, Prentice-Hall, NJ