4/4 B.Tech. EIGTH SEMESTER

CE8T3E **URBAN TRANSPORTATION PLANNING** **Credits: 3**

Lecture: 3 periods/week **Internal assessment: 30 marks**

Tutorial: 1 period /week **Semester end examination: 70 marks**

Pre-requisites: Transportation Engineering

Learning objectives:

- To know about urban planning, assignment and their attributes
- To design the trip generation, distribution and mode choice characteristics
- To study about the master plans and mass transit systems

Course outcomes:

At the end of course the student will be able to:

1. Comprehend the urban travel demand and independent variables
2. Analyze the traffic surveys and trip generations modules
3. Assess, analyze and study the trip distribution factors and mode choice analysis
4. Evaluate the traffic assignment methods and plans
5. Understand the mass transit systems and study about advance transit systems

UNIT-I

URBAN TAVEL DEMAND

Urban development - Urban transport problems - Urban travel characteristics - Need for planning urban travel demand - Trends - Overall planning process - Components of travel demand

INDEPENDENT VARIABLES

Travel Attributes - Assumptions in demand estimation - Sequential travel demand modeling - Simultaneous travel demand modeling - Study area - Cordon lines Screen lines -Zoning.

UNIT-II

TRAVEL DEMAND SURVEYS

Sampling methods - Home interview surveys - Road side interview surveys - Terminal surveys - Cordon surveys - Taxi surveys - Onboard surveys - Economic surveys - Data checking.

TRIP GENERATION

Trip characteristics - factors influencing Trip productions and attractions - Trip rates - Zonal regression models -Category analysis - Personal trip generation models.

UNIT-III

TRIP DISTRIBUTION

Factors influencing trip distribution - Growth factor methods - Trip length frequency diagram - Growth models - LP method - Opportunity models - Gravity opportunity model.

MODE CHOICE ANAYSIS

Factors influencing passenger mode choice - Zonal regression models - Utility maximization - Discrete choice situation - Binary and Multinomial Logit models - Probability curves --Probit arid nested Logit models.

UNIT – IV

TRAFFIC ASSIGNMENT

Need for Assignment - Objectives - Diversion curves - Shortest path Algorithms - All or nothing Assignment technique - Capacity Restraint Assignment technique - Multi path Assignment . technique - Link flows - Sufficiency and Deficiency analysis.

PLAN PREPARATION AND EVALUATION

Types of plans- conceptual plan, Master plan - Short term planning vs Long term planning -Corridor Identification and Evaluation - Plan preparation

UNIT- V

MASS TRANSIT SYSTEMS

Need for Mass Transit systems - Role of Mass Transit in Urban Transport - Recommendations of Committee on urbanization & Alternate systems of UT

ADVANCE TRANSIT

Characteristics & Capacities of different MT systems - LRT**,** monorail, Metro, BRTS, etc.

Learning resources:

Text books:

1. Kadiyali L.R - Traffic Engineering and Transportation Planning -Khanna Publishers, New Delhi.
2. Papacostas C.S. - Fundamentals of Transportation Engineering Prentice Hall of India Pvt. Ltd; New Delhi.
3. John Khisty C - Transportation Engineering - An Introduction, Prentice Hall, Englewood Cliffs, New Jersey.
4. Nicholas J. Garber, A. Hoel, Raju Sarkar, Cengage learning, Principles of Traffic and Highway Engineering.

Reference books:

1. Chari, S.R. UTP Lecture Notes - Regional Engg. College, Warangal.
2. Hutchinson, B.G. Introduction to Urban System Planning, McGraw Hill.
3. Mayer M and Miller E, Urban Transportation Planning: A decision oriented Approach, McGraw Hill.Bruton, Urban Transportation Planning.
4. Dicky, Metropolitan Transportation Planning, DC Script Book Co.
5. Saxena, Traffic Planning and Design, Dhanpat Rai Publishers, New Delhi.

e-learning resources:

http://nptel.ac.in/courses.php

http://jntuk-coeerd.in/