20CE4703C - URBAN TRANSPORTATION PLANNING

Offering Branches	CE		
Course Category:	Honours Course	**Credits:**	3
Course Type:	Theory	**Lecture-Tutorial-Practical:**	3-0-0
Prerequisites:	20BS1101- Engineering Mathematics II 20CE3502 - Highway Engineering	**Continuous Evaluation:**	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Explain** the urban travel demand and independent variables	K4
CO2	**Analyze** the traffic surveys and trip generations modules	K4
CO3	**Analyze** and study the trip distribution factors and mode choice analysis	K4
CO4	**Calculate** the traffic assignment methods and plans	K3
CO5	**Simulate** the mass transit systems and study about advance transit systems	K3

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2				2	3							2	3
CO2	2				2	3							2	3
CO3	3				3	3							3	3
CO4	2				2	2							2	2
CO5	2				2	2							2	2
Avg.	**2**				**2**	**3**							**2**	**3**

1- Low **2-Medium** **3-High**

Course Content

UNIT-1	**URBAN TAVEL DEMAND** Urban development - Urban transport problems - Urban travel characteristics - Need for planning urban travel demand - Trends - Components of travel demand **INDEPENDENT VARIABLES** Travel Attributes - Sequential travel demand modeling - Simultaneous travel demand modeling - Study area - Cordon lines Screen lines -Zoning.	**CO1**
UNIT-2	**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	**CO2**
UNIT-3	**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 - Binary and Multinomial Logit models - Probit arid nested Logit models.	**CO3**
UNIT-4	**TRAFFIC ASSIGNMENT** Need for Assignment - Diversion curves - Shortest path Algorithms - All or nothing Assignment technique - Multi path Assignment - 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	**CO4**
UNIT-5	**MASS TRANSIT SYSTEMS** Need for Mass Transit systems - Recommendations of Committee on urbanization & Alternate systems of UT **ADVANCE TRANSIT**	**CO5**

	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- Resources & other digital material	1. https://nptel.ac.in/courses/ 105/105/105105208 2. https://nptel.ac.in/courses/ 105/105/105105204 3. https://nptel.ac.in/courses/ 105/107/105107067