

B. E. CIVIL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - VII

URBAN TRANSPORT PLANNING

Course Code	18CV745	CIE Marks	40
Teaching Hours/Week(L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives: This course will enable students to;

5. Understand and apply basic concepts and methods of urban transportation planning.
6. Apprise about the methods of designing, conducting and administering surveys to provide the data required for transportation planning.
7. Understand the process of developing an organized mathematical modelling approach to solve select urban transportation planning problem.
8. Excel in use of various types of models used for travel forecasting, prediction of future travel patterns.

Module -1

Urban transport planning: Urbanization, urban class groups, transportation problems and identification, impacts of transportation, urban transport system planning process, modeling techniques in planning. Urban mass transportation systems: urban transit problems, travel demand, types of transit systems, public, private, para-transit transport, mass and rapid transit systems, BRTS and Metro rails, capacity, merits and comparison of systems, coordination, types of coordination.

Module -2

Data Collection And Inventories: Collection of data – Organisation of surveys and Analysis, Study Area, Zoning, Types and Sources of Data, Road Side Interviews, Home Interview Surveys, Commercial Vehicle Surveys, Sampling Techniques, Expansion Factors, Accuracy Checks, Use of Secondary Sources, Economic data – Income – Population – Employment – Vehicle Owner Ship.

Module -3

Trip Generation & Distribution: UTPS Approach, Trip Generation Analysis: Zonal Models, Category Analysis, Household Models, Trip Attraction models, Commercial Trip Rates; Trip Distribution by Growth Factor Methods. **Problems on above.**

Module -4

Trip Distribution: Gravity Models, Opportunity Models, Time Function Iteration Models. Travel demand modeling: gravity model, opportunity models, Desire line diagram. Modal split analysis. **Problems on above.**

Module -5

Traffic Assignment: Diversion Curves; Basic Elements of Transport Networks, Coding, Route Properties, Path Building Criteria, Skimming Tree, All-or-Nothing Assignment, Capacity Restraint Techniques, Reallocation of Assigned Volumes, Equilibrium Assignment. Numerical problems on Traffic Assignment. Introduction to land use planning models, land use and transportation interaction.

Course outcomes: After studying this course, students will be able to:

5. Design, conduct and administer surveys to provide the data required for transportation planning.
6. Supervise the process of data collection about travel behavior and analyze the data for use in transport planning.
7. Develop and calibrate modal split, trip generation rates for specific types of land use developments.
8. Adopt the steps that are necessary to complete a long-term transportation plan.

Question paper pattern:

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Textbooks:

4. Kadiyali. L. R., 'Traffic Engineering and Transportation Planning', Khanna Publishers, New Delhi.
5. Hutchinson, B.G, 'Introduction to Urban System Planning', McGraw Hill.
6. Khisty C.J., 'Transportation Engineering – An Introduction' Prentice Hall.
7. Papacostas, 'Fundamentals of Transportation Planning', Tata McGraw Hill.

Reference Books:

3. Mayer M and Miller E, 'Urban Transportation Planning: A decision oriented Approach', McGraw Hill.
4. Bruton M.J., 'Introduction to Transportation Planning', Hutchinson of London.
5. Dicky, J.W., 'Metropolitan Transportation Planning', Tata McGraw Hill.


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