M.E. (Civil) (Infrastructure Engineering) Semester: I

Subject Name: Urban Transportation System Planning

Subject code : MECV102

A. Learning objectives:

The objective of this course is

- To setting concepts related Urban Transportation System Infrastructure which involves high cost investment but it is vital for economic developement & prosperity.
- Proximity to transportation Infrastructure influence real estate values
- To present the foundations of many basic Engineering tools and concepts related Infrastructure Engineering.
- To provide a coherent development to the students for the courses in sector of Engineering like Transpotation & Traffic Engineering etc.
- To enhance the student's ability to think logically and application of content in terms of Organisation & integration connectivity with other modes of transportation
- To give an experience in the implementation of Engineering concepts which are applied in field of Infrastructure Engineering

B. Teaching Scheme (Credits and Hours)

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect Hrs	Tu Hrs	Prac. Hrs	Total	Theory	Pra/TW	Total	UE	IE	CIA	Prac/Viva	Total
04	02	00	06	04	01	05	70	30	20	30	150

C. Detailed Syllabus

Unit No.	Topics

1   **Introduction to transportation systems planning**: various modes of transportation and comparisons, urban transportation system planning process, use and evaluation of various modelsorthogonal trajectories of curves. Growth and Decay.

2   **Planning methodologies**: modeling techniques in planning, problem solving techniques.

3   **Urban Mass transportation Systems:** Urban transit problems, travel demand, types of transit systems, public, private, para-transit transport, mass and rapid transit systems, coordination, types of coordination.

4   **Travel demand modeling:** Trip generation, trip distribution, modal split analysis, trip assignment techniques, and various models, transportation compact study methodologies.

5   **Network assignment methods**: connectivity, strategies for the evaluation of ultimate transportation framework and case studies. Strategies for the evaluation of alternate transportation plans and plan implementation.

6   **Land use planning models and their suitability**: Transportation impacts study Methodologies.

7   **Urban goods movement**: framework and case studies.

D. Lesson Planning:

Unit No	Topics	Hours	Weightage
1	Introduction	6	10%
2	Transpotation Planning and Analysis	9	15%
3	Urban Mass transportation Systems	12	25%
4	Travel demand modeling	8	12%
5	Network assignment Analysis	10	15%
6	Land use planning models & Transpotation Impact methodology	8	12%
7	Urban goods movement frame work	7	11%

E. List of Tutorials:

Sr. No.	Tutorial Content
1	Trip generation: Linear Regression and Cross Category analysis.
2	Trip distribution: Growth Factor Methods, Gravity Model.
3	Modal split analysis.
4	Trip assignment: Shortest path analysis and network-assignment, connectivity.
5	Land use planning model (Lowery and Garin Lowery model).
6	Computer application for solving the above mentioned problems.
7	**Field work:** Collection of Home – Interview data. Presentation with group discussion on its analysis and interpretations.
8	**Field Visit:** Visit to Urban Mass Transportation System Service - Depot, Terminals, Offices.

F. Instructional Method and Pedagogy (Continuous Internal Assessment (CIA) Scheme)

- Two Faculties will be covering the syllabus in branch for 4 hours in a week. In Tutorial, class must be divided into one class & faculties will be solving or assigning the problem of the subject in each class.

- Attendance is compulsory in lectures and Tutorial which carries 05 Marks.

- At regular intervals assignments is given to all students which carries 30 marks. Evaluation of these assignments will be observed under Daily Homework Daily Assessment (DHDA) System.

- Classroom participation and involvement in solving the problems in Tutorial rooms carries 05 Marks.

- Surprise tests/Quizzes/Seminar/Tutorial may be conducted and having share of five marks in the overall internal evaluation

- Viva Voce will be conducted at the end of the semester of 10 Marks.

- One internal exam of 30 marks is conducted as a part of internal theory evaluation.

G. Students Learning Outcomes:

At the end of the course

- The students will be able to think logically for development of Infrastructure in field of

Urban Transportation System Planning.

- The students will gain an experience in the implementation of Infrastructure Engineering on engineering concepts which are applied in field Urban Transportation System.

H.   Text Books & Reference Books:

1   B.G.Hutchinson, Principles of urban transportation system planning- McGraw-Hill, New York, 1974.

2   Edward K.Morlok, Transportation Engg. and Planning

3   W.Dickey, Metropolitan Transportation Planning Tata McGraw-Hill, New Delhi, 1975

4   Blunder and Black, Land useTtransportation System

5   J.Ortuzer and L.G. Willumsen, Modelling Transport, Johan Wiley and Sons Chincester, 1994

6   Vukan R. Vuchic, Urban Transit : Operations, Planning and Economics, Wiley Sons Publishers

7   Peter White, Public Transport, UCL Press

8   Kadiyali L.R., Traffic Engineering and Transport Planning, Khanna Publishers

9   Khisty, C J., Transportation Engineering – An Introduction, Prentice-Hall, NJ

10   TCRP Report 30, TCRP Report 95, TCRP Report 100

11   S.C. Saxena, Traffic Planning and Design, DhanpatRai Pub., New Delhi.

12   ParthoChakraborty and Animesh Das, Principles of Transportation Engineering, PHI

13   S. Papacostas, Fundamentals of Transportation System Analysis, PHI.

14   James H. Banks, Introduction to Transportation Engineering, WCB-McGraw Hill, New York.