# SCHEME OF COURSE WORK

**Course Details:**

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| **Course Title** | **: Urban Transport Planning** | | |
| **Course Code** | **: 19CE2107** | **L P C** | **: 3 0 3** |
| **Program:** | **: M. Tech.** | | |
| **Specialization:** | **: Infrastructure Engineering and Management** | | |
| **Semester** | **: II** | | |
| **Prerequisites** | **: Transportation Engineering** | | |
| **Courses to which it is a prerequisite** | **: None** | | |

**Course Outcomes (COs):**
At the end of the course, the student will be able to:

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| 1 | Describe the aspects of transport planning and traffic survey forecasting. |
| 2 | Apply the concepts of Trip Generation |
| 3 | Analyse Trip Distribution methodologies. |
| 4 | Evaluate various Trip Assignment and Modal Spit methodologies of transportation planning |
| 5 | Discuss about Land Use Transport Models, Transport Economics and traffic-Environment Interaction. |

**Program Outcomes (POs):**
Post graduates will be able to:

1. Synthesize existing and new knowledge in various sub areas of infrastructural engineering.
2. Analyse complex engineering problems critically with adequate theoretical background for practical applications.
3. Evaluate a wide range of feasible and optimal solutions after considering safety and environmental factors.
4. Demonstrate the ability to pursue research by conducting experiments and extract the relevant information through literature surveys.
5. Use state –of- the- art of modern tools for interpreting the behavior and modeling of complex engineering structures.
6. Attain the capability to work in multi-disciplinary teams to achieve common goals.
7. Demonstrate the knowledge to perform the projects efficiently in multi-disciplinary environments after consideration of economical and financial matters.
8. Communicate effectively on complex engineering activities to prepare reports and make presentations.
9. Engage in life-long learning independently to improve knowledge.
10. Understand the responsibility of carrying out professional practices ethically for sustainable development of society.
11. Examine critically and independently one's actions and take corrective measures by

**Course Outcome versus Program Outcomes:**

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO-1** | S | | M | | | M | | | | | M | M |
| **CO-2** | M | | M | M | | M | | | | | M | M |
| **CO-3** | S | | M | M | | M | | | | M | M | M |
| **CO-4** | S | | | M | | M | | | | M | M | M |
| **CO-5** | S | | S | M | S | M | | M | | M | M | M |

*S - Strongly correlated, M - Moderately* correlated, *Blank - No correlation*

| **Assessment Methods:** | Assignment / Seminar / Mid-Test / End Exam |
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## Teaching-Learning and Evaluation

| Week No. | TOPIC / CONTENTS | Course Outcomes | Sample questions | TEACHING-LEARNING STRATEGY | Assessment Method & Schedule |
|---|---|---|---|---|---|
| 1 | Travel Characteristics-Origin,Destination, Route, Purpose-Travel demand as function of independent variables-assumption of demand estimation | CO-1 | Write the assumptions of travel demand. | Lecture, Discussion | Assignment |
| 2 | relation between land use and travel – Four step process of Transportation planning | CO-1 | Discuss the interaction of landuse-transport. | Lecture, Discussion | |
| 3 | General concept of Trip – Trip Generation – Trip Distribution – Traffic assignment and mode split | CO-1 | What are the various stages of transport modeling? | Lecture, Discussion | |
| 4 | Aggregate and disaggregate Models – Direct Demand Models, Sequential and Sequential Recursive models. | CO-1 | How the aggregate models are different from disaggregate models? | Lecture, Discussion | |
| 5 | Definition of study area – Zoning principles ; Types and sources of Data, Home Interview surveys | CO-2 | What are the principles of zoning? | Lecture, Discussion, problem solving | |
| 6 | Road side interview surveys; Goods Taxi, IPT surveys; Sampling techniques ; Expansion factors and Accuracy check : Desire line diagram and use. | CO-2 | Write about roadside interview? | Lecture, Discussion, problem solving | |
| 7 | Factors governing Trip Generation and Attraction : Multiple linear Regression Models | CO-3 | What are the factors governing trip generation? | Lecture, Discussion, problem solving | Quiz-1 |
| 8 | Category analysis | CO-3 | Write about category analysis | Lecture, Discussion, problem solving | |
| **9** | **MID TEST – I** | | | | |
| 10 | Growth Factor Models – Uniform Growth Factor Method ; Average Growth Factor Method | CO-3 | What are various growth factor model | Lecture, Discussion, problem solving | Assignment |
| 11 | Fratar Method ; Furness Method ; limitation of Growth Factor Models, ; Concept of Gravity Model. | CO-3 | What are the limitations of growth factor models? | Lecture, Discussion, problem solving | |
| 12 | Assignment Techniques – All-or-nothing assignment : Multiple route Assignment | CO-4 | Write about All-or-nothing assignment? | Lecture, Discussion, problem solving | |
| 13 | Capacity resistant method, Minimum path trees ; Diversion curves. Factors affecting mode split – Probit logit and Descriminant Analysis. | CO-4 | Write about logit analysis. | Lecture, Discussion, problem solving | |
| 14 | Detrimental effect of Traffic on Environment: Noise Pollution :Air Pollution | CO-5 | List various of air pollutants | Lecture, Discussion | |
| 15 | Vibrations : Visual Intrusion – Effects and remedial measures. | CO-5 | What is vibration due to traffic? | Lecture, Discussion | |
| 16 | Costs and benefits of transportation projects ; vehicle operating cost ; time saving, accident costs | CO-5 | What are various benefits of transportation projects? | Lecture, Discussion | Quiz-II |
| 17 | methods of economic evaluation – benefit Cost ratio method – Net Present Value method ; Internal Rate of Return method | CO-5 | Discuss various economic evaluation methods. | Lecture, Discussion | |
| **18** | MASS TRANSIT: Introduction to Metros, BRTS, MonoRails | CO-5 | Compare various mass transit services | Lecture, Discussion | |

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| **19** | **MID TEST – II** | | | | |
| **19/20** | **END EXAM** | | | | |