

Branch Name:	Civil Engineering
Semester/Year:	Semester VII / Forth Year
Subject Title:	Urban Transportation System (Elective - III)
Subject Code:	1ET1060706
Pre-requisite:	To study of this subject imparts knowledge of urbanization process, urban transportation system planning, land use planning, travel demand modeling procedure, different urban mass transportation systems and urban goods movement.

Course Objective:

- To provide safe, economic, timely and comfortable urban mass transportation systems.
- To reduce private vehicle trips which ultimately reduce traffic congestion, accidents and environmental pollution.
- To knowledge of urbanization process, urban transportation system planning, land use planning, travel demand modeling procedure, different urban mass transportation systems
- To reliable mass transportation systems to cater the increased need of the passengers and goods trips within urban as well as suburban area.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
03	02	00	05	70	30	-	-	100

Subject Contents			
Sr. No	Topic	Total Hours	Weightage (%)
1	Introduction Urbanization, urban class groups, transportation problems and identification, impacts of transportation, urban transport system planning process, modeling techniques in planning.	04	10
2	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.	06	15

3	Land Use and Surveys: Introduction to land use planning models, land use and transportation interaction. The transportation study area definition; division into traffic zones; network identification and coding; types of trips, characteristics of various surveys; home interview; roadside survey; goods, mass transit and intermediate public transport surveys; sampling and expansion factors; accuracy checks, screen line checks, consistency checks.	09	20
4	Travel demand modeling: Trip generation-zonal regression and category analysis, Trip distribution-growth factor models, gravity model, opportunity models, Desire line diagram. Modal split analysis-trip end models, trip interchange models, logit models, Trip assignment techniques-route choice, diversion curves, shortest path algorithms, all- or-nothing assignment, capacity restraint models and Direct demand models.	15	35
5	Mass transit systems: Introduction to routing and scheduling, transit system's performance parameters. Corridor identification and corridor screen line analysis. Urban forms and structures: point, linear, radial poly-nuclear developments and suitable transit systems, Urban good movement. Preparation of comprehensive plan and transportation system management planning.	08	20

Course Outcome:

After learning the course the students should be able to:

- Carry out trip generation, trip distribution, modal split and trip assignment analysis.
- Reduce private vehicle trips which ultimately reduce traffic congestion, accidents and environmental pollution.
- Knowledge of urbanization process, urban transportation system planning, land use planning, travel demand modeling procedure, different urban mass transportation system.

List of Reference Books:

1. C. S. Papacostas, Fundamentals of Transportation System Analysis, PHI.
2. Khisty, C J., Transportation Engineering – An Introduction, Prentice-Hall, NJ
3. B.G.Hutchinson, Principles of urban transportation system planning- McGraw-Hill
4. Kadiyali L.R., Traffic Engineering and Transport Planning, Khanna Publishers
5. S.C. Saxena, Traffic Planning and Design, Dhanpat Rai Pub., New Delhi.
6. Blunder and Black, Land use Transportation System
7. J.Ortuzer and L.G. Willumsen, Modelling Transport, Johan Wiley and Sons Chincester,1994

List of Open Source Software/learning website:

TransCad - academic version for the students.