

GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL ENGINEERING

B. E. SEMESTER: VII

Subject Name: **Urban Transportation System (Department Elective-I)**

Subject Code: **170604**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam (E)		Mid Sem Exam (Theory) (M)	Practical (Internal)
				Theory	Practical		
4	2	0	6	70	30	30	20

Sr. No.	Contents	Hours
Module I		12
I	<p>INTRODUCTION:</p> <p>Development plans, objectives and goals; level of planning; role of transportation at national, regional and urban level.</p> <p>URBANISATION:</p> <p>Definition of urban area; trends in urbanization; urban class groups; metropolitan city; transportation problems & identification.</p> <p>TRAVEL DEMAND:</p> <p>Concepts of travel demand; factors affecting demand and the demand functions; calibration methods; sequential, direct demand models; introduction to aggregate and disaggregate approaches.</p>	
Module II		12
II	<p>TRANSPORTATION SURVEYS:</p> <p>The transportation study area definition; division into traffic zones; network identification and coding; types of travel and 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.</p> <p>TRAVEL FORECASTING:</p> <p>Growth factor methods and urban transportation planning system; growth factors; average growth factor method and Furness method.</p>	

Module III		12
III	UTP SYSTEM : Trip generation; zonal regression methods and category analysis; trip distribution method; gravity models and opportunity models; mode split methods; factors affecting modal split; trip end models and trip distribution models; route assignment; factors affecting route choice; diversion curve; shortest paths; all or nothing assignment.	
Module IV		12
IV	CORRIDOR IDENTIFICATION: Prediction issues and forecasting of the travel demand and future desires; corridor identification and corridor screen line analysis. MASS TRANSIT SYSTEMS: Bus and rail transit; characteristics, capacities, route planning. TRANSPORTATION PLAN PREPARATION: Urban forms and structures; point, linear, radial, poly-nuclear developments and preparation of plan; comprehensive and traffic system management plans.	
Note: Each module carries equal weightage.		
Term work shall be based on the above mentioned syllabus		

Reference Books:

1. B. G. Hutchison, Introduction to Transportation Engg, & Planning McGraw Hill Book Co.
2. John W. Dickey, Metropolitan Transportation Planning, Tata McGraw Hill Pub. Co.
3. Edward K. Morlok, Introduction to Transportation Engg. & Planning, McGraw Hill Book Co
4. Vukan R. Vuchic, Urban Public Transportation System & Technology, Prentice Hall, Inc.