

GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL (TRANSPORTATION ENGINEERING) (13) PUBLIC TRANSPORTATION PLANNING SUBJECT CODE: 2741304 M.E. 4TH SEMESTER

Type of course: Major Elective - V

Prerequisite: Urban Transportation System Planning

Rationale:

Due to rapid growth of urban population, efficient urban mass transportation system is necessary to mitigate the problems created by personalized vehicular trips. Similarly, efficient regional mass transportation systems are necessary for safe, timely and economic transportation of passengers and freight at regional level. Transportation engineer should be able to understand, plan and design the efficient mass transportation system along with proper routing, scheduling, infrastructure, management and fare structure. This subject includes all these points to enhance the know-how of the students.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	2#	0	4	70	30	30	0	10	10	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Development of Public Transit System: Historical Growth, Modes of public transport and comparison, public transport travel characteristics, technology of bus, rail, rapid transit systems, basic operating elements.	6	12
2	Transit Network Planning: Objectives, principles, Intercity and Regional transit system, considerations, transit lines – types, geometry and characteristics, transit routes and their characteristics, timed transfer networks, prediction of transit usage, network evaluation, accessibility considerations.	9	22
3	Transit Scheduling: Components, determination of service requirements, scheduling procedure, marginal ridership, crew scheduling.	9	22
4	Transit Infrastructure Facilities: Design of bus stops, rail transit stops, design of terminals – principles of good layout, types of layout, depot location, twin depot concept, crew facilities and amenities.	9	22
5	Transit Agency and Economics: Organisational structure of transit agency, management and personnel, transit system statistics, performance and economic measures, operations, fare structure.	9	22

Reference Books:

1. Vukan R. Vuchic, Urban Transit : Operations, Planning and Economics, Wiley Sons Publishers.
2. Peter White, Public Transport, UCL Press
3. Kadiyali L.R., Traffic Engineering and Transport Planning, Khanna Publishers
4. Khisty, C J., Transportation Engineering – An Introduction, Prentice-Hall, NJ
5. TCRP Report 30, TCRP Report 95, TCRP Report 100

Course Outcome:

After learning the course the students should be able:

1. To know regarding public transportation systems, their operation, planning and economics.
2. To be familiar with problems of transit routing, scheduling, infrastructure facilities, fare structures and management.

List of Tutorials:

1. Problems based on routing, scheduling.
2. Problems based on fare structure, transit system statistics.
3. Design of bus stops, terminals, depot, goods terminal area.
4. Computer applications for solving the above.

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.