



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering- Transportation Engineering

Subject Code: 3721318

Semester – II

Subject Name: PUBLIC TRANSPORTATION PLANNING

Type of course: Program Elective III

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. The subject includes elements of transportation network and their operational matter, which will be enhanced the know-how of the students.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
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.	9
2	Transit Network Planning: Objectives, principles, Intercity and Regional transit system, considerations, transit lines, its capacity – types, geometry and characteristics, transit routes and their characteristics, timed transfer networks, prediction of transit usage, network evaluation, accessibility considerations	9
3	Transit Scheduling: Components, determination of service requirements, scheduling procedure, marginal ridership, crew scheduling.	9
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
5	Transit Agency and Economics: Organisational structure of transit agency, management and personnel, transit system statistics, performance and economic measures, operations, fare structure.	9
	TOTAL	45 Hr.



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Suggested Specification table with Marks (Theory):

Distribution of marks weightage for cognitive level

Bloom's Taxonomy for Cognitive Domain	Marks Weightage (%)
Recall	10
Comprehension	20
Application	30
Analysis	20
Evaluate	10
Create	10

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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 Outcomes: At the end of the course, Student will be able

Sr. No.	CO statement	Marks % weightage
CO-1	To understand the historical growth in public transportation systems, their operation, planning and economics.	20%
CO-2	To plan transit network, define principles of transit network, classify transit types, geometry and characteristics, transit routes and their characteristics	30%
CO-3	To apply problems of transit routing, scheduling, infrastructure facilities, fare structures and management	10%
CO-4	To design transit infrastructure facilities like bus stops, rail transit stops, design of terminals, layout of depot and location	30%
CO-5	To Know organizational structure of transit agency, management and personnel, transit system statistics, performance and economic measures, operations, fare structure.	10%

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.