



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering- Transportation Engineering

Subject Code: 3721303

Semester –II

Subject Name: Regional and Mass Transportation System Planning

Type of course: Program Elective - IV

Prerequisite: NIL

Rationale: Mass transportation planning is carried out primarily by Local, State and Central Government. The knowledge can be useful to planners and decision makers in the development and implementation of transportation system. It is important to understand the transportation and planning options. In the course, various models are covered to study urban mass transportation planning. It also includes the study of various phases of planning at regional level. It is essential to understand the various issues related to mass transportation planning at regional level. Various models of demand assessment are discussed in the course.

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)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Demographic and Employment Forecasting Models: Demographic models -linear, exponential and logistic models; cohort survival models - birth, aging and migration models; employment forecasting models - economic base mechanism; input and output models - dynamic models of population and employment, multiregional extensions	12
2	Transport Modelling: Need & role of transport models, issues, transport models in practice, simplified transport demand models	10
3	Regional Transportation Development - Delineation of Planning Regions: Concept of region and space – types of regions, rural road network development approach, regional freight transportation- issues & approach, demand assessment, various models.Planning of Rural roads, concept of network planning, rural road plan, road alignment and surveys, Governing factors in route selection, factors considered for alignment. Regional analysis and development concepts	10
4	Mass Transit Planning & Modelling: Transit classification, transit network design, classification of routes, prediction of transit usage, evaluation of network, scheduling principles & methodology, urban freight transportation: freight demand, spatial distribution of goods, truck terminal planning.	13
	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	10
Application	20
Analysis	20
Evaluate	20
Create	20

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. Hutchinson, B.G., Principles of Urban Transportation System Planning, Mc-Graw
2. Hill 1974.
3. Oppenheim, N., Applied Models in Urban and Regional Analysis, Prentice-Hall, NJ.
4. Khisty C J., Lall B.Kent, Transportation Engineering – An Introduction, Prentice- Hall, NJ, 2005
5. Chand Mahesh, Puri U. K., Regional in India, Allied Publishers, New Delhi, 1983.
6. Glassion John, Introduction to regional planning, Hutchinson and MIT Press,
7. Cambridge, 1996.
8. Ortuzar J. D., Willumsen L.G., Modeling Transport, John Wiley & Sons, 1994
9. Vukan R. Vuchic, Urban Transit : Operations, Planning and Economics, Wiley & Sons Publishers.
10. D. Salvo Perspectives in Regional Transportation Planning, Lexington Books, USA, 1974.
11. Mishra Sundaram and Prakash Rao, Regional Development Planning in India, Vikas Publishing House Pvt. Ltd., 1974.
12. Seminar, Road -and Road Transport in Rural Areas, Nov. 19-21, 1985, CRRI, New Delhi.

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

Sr. No.	CO statement	Marks % weightage
CO-1	To develop the idea of transportation planning at the regional level..	10%
CO-2	To define techniques of developing models for the regional transportation planning.	30%
CO-3	To make the students conversant with Urban Mass Transit Planning and Freight Transportation Planning procedure	20%
CO-4	To analyse the required trips for regional transit/freight demands	20%
CO-5	To design of regional transit/freight network for the given data.	20%



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Field visit:

1. Visit to the urban mass transit system depot, terminal and management office.
2. Visit to the truck terminal area.
3. Review the existing urban mass transit system and freight transportation system.
4. The suggestions for the improvements should be presented with group discussion

List of Tutorials:

1. Problems based on population and employment forecasting by different methods.
2. Problems based on cohort analysis.
3. Problems based on regional and rural road network development concept.
4. Problems based on urban mass transit routing and scheduling procedure.
5. Problems based on freight demand and goods transportation.
6. Planning and design of truck terminal

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