

GUJARAT TECHNOLOGICAL UNIVERSITY
CIVIL (TRANSPORTATION ENGINEERING) (13)
TRANSPORTATION SYSTEM MANAGEMENT
SUBJECT CODE: 2721309
M.E. 2nd SEMESTER

Type of course : Major Elective - III

Prerequisite : Nil

Rationale :

Due to rapid urbanization and increased vehicle ownership, the role of traffic management system management becomes crucial. The behavior of commuters and their response time also plays important role in the traffic management. It is compulsory to understand various TSM techniques in urban area. The role of Mass transportation plays an important role in reducing the pollution and congestion. Availability of proper parking place is very difficult to get in the urban area. The planning of the parking lots is necessary to understand. The course includes the study of traffic operations improvement and parking management.

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.	Topics	Teaching Hrs.	Module Weightage
1	Methodology & Data Collection: Methodological frame work, objectives and problems, conflicts resolution, strategic categories and action elements, travel behaviour impact and response time.	8	10%
2	TSM actions combinations and interactions, impact assessment and evaluation, monitoring and surveillance, Area wide data collection methodology, corridor data collection methodology. TSM Actions: Study of following TSM actions with respect to problems.	5	20%
3	Public transportation & HOV treatment - Toll discounts for car pools during peak periods, park and ride, car pooling, exclusive lanes, priority at ramp terminals, bus transfer stations, limited and skip-stop bus services, shared ride.	10	20%
4	Demand Management: Staggered work hours, flexible work hours, high peak period tolls, shuttle services, circulation services, extended routes.	7	10%
5	Traffic Operations Improvement: On-street parking ban, freeway ramp control & closure, travel on shoulders, one-way streets, reversible lanes, traffic calming, Right turn phase, right turn lanes, reroute turning traffic.	7	20%
6	Parking Management: Short term reserved parking, increased parking rates, time duration limits, expanded off-street parking, Non Motorized Transport- pedestrian only streets, Dial-a-ride for elderly & handicapped.	8	20%

References:

1. D, Arlington, Transportation System Management in 1980: State of the Art and Future Directions, Transportation Research Board, 1980.
2. Institute of Transportation Engineers, Transportation and Traffic Engg. Hand Book, Prentice Hall, 1982
3. TRB Publications.

Course Outcomes:

1. To make the students aware of low cost techniques for reducing problems of traffic and transportation system.
2. To give the concepts of data collection for TSM actions, its implementation and impact analysis.
3. To provide the know-how of demand management, traffic operation improvement and parking management.

List of Tutorials:

1. Traffic data collection on congested/problematic corridor for TSM action.
2. Traffic data collection on congested/problematic traffic network area for TSM action.
3. Analysis of data and suggestion of suitable TSM techniques, preparation of alternatives.
4. Prediction of impacts due to suggested TSM alternatives- either by computer simulation or by actual implementation.
5. Problem solving for the problematic transit operation and parking management.
6. Group discussion on the proposed TSM solutions.

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