



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering Syllabus

Subject Code : 3716504

Subject Name : Transportation System Management and Analysis

WEF Academic Year :	2023 - 24
Semester :	1
Category of the Course :	Program Elective I

Course Scheme :

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

Course Content :

Sr. No.	Course Content	No. of Hours
1	Methodology & Data Collection : Methodological frame work, objectives and problems, conflicts resolution, strategic categories and action elements, travel behavior impact and response time.	8
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 existing problems.	5
3	Public transportation & HOV treatment : Toll discounts for car Pools during peak periods, park and ride, carpooling, exclusive lanes, priority at ramp terminals, bus transfer stations, limited and skip-stop bus services, shared ride.	10
4	Demand Management : Staggered work hours, flexible work hours, high peak period tolls, shuttle services, circulation services, extended routes.	7
5	Traffic Operations analysis and 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
6	Parking Management and analysis : Existing Parking availability and demand analysis. 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

Reference Books :

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.



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Course Outcome :

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 Experiments/ 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.

List of Open Source Software (May not be open source but useful for the subject)

MATLAB, Open Office ,EXCEL, SPSS, ANSYS

Learning website :

<http://nptel.ac.in/>

www.scilab.org/

<https://ocw.mit.edu/courses/transportation-courses>

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