Marwadi University

Master of Technology

Civil Engineering (Transport)

01TR0105: Transportation System Management

Objective of the Course: Objectives of introducing this subject at first year level in Masters of civil engineering are:

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

Credit Earned:4

Students learning outcomes:

After successful completion of the course it is expected that student will be able to..

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.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
3	0	2	4	50	20	30	25	25	150

Detailed Syllabus

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Sr No.	Title of the unit	Number of hours
1	**TSM actions**	
	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	7
2	**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
3	**Demand Management**	
	Staggered work hours, flexible work hours, high peak period tolls, shuttle services, circulation services, extended routes	8
4	**Traffic Operations Improvement:**	
	On-street parking ban, freeway ramp control & closure,	2
	Travel on shoulders, one-way streets.	1
	Reversible lanes, traffic calming,	2
	Right turn phase, right turn lanes, reroute turning traffic.	2
5	**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.	6
6	**Intelligent Transportation System**	
	Wireless Communication, intelligent transportation application,	4

Suggested lists of experiments

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.

Suggested Theory Distribution

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	15%	10%	35%	20%	10%

Instructional Method and Pedagogy:

1. Use of Learning Management system like canvas
2. Demonstration through ppt and videos and lectures
3. Brainstorming and group discussion sessions
4. Collaborative learning

Recommended Study Material:

Reference Book:

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.

Web Resources

- http://nptel.ac.in/
- www.scilab.org/
- https://ocw.mit.edu/courses/transportation-courses/

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