Course Type	Course Code	Name of Course	L	T	P	Credit
DE	CED401	Traffic Engineering and Management	3	0	0	9

Course Objective

The course encompasses principles of traffic engineering and introduces different management techniques to mitigate the traffic problems. The course introduces the student to concepts of characterizing traffic, application of various modeling approaches, and design of traffic facilities to control and manage traffic.

Learning Outcomes

Upon successful completion of this course, students will:

- understand of basic of traffic stream parameters.
- able to develop model for traffic flow.
- know theories and applications of traffic intersection control

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Traffic stream characteristics and measurement**: Road user characteristics, Fundamental parameters and relations of traffic flow, Traffic stream models, Moving observer method, Measurement at a point; Measurement over a short section, Measurement along a length of road, Automated traffic measurement, Traffic surveys.	11	To understand the fundamental parameters of traffic stream and various methods of measurement of these parameters.
2	**Microscopic traffic flow modelling:** Car-following models, Lane changing models, gap acceptance models; Vehicle arrival models.	5	Introduction to various microscopic and car following models of traffic flow.
3	**Uninterrupted flow and intersection control:** Capacity and Level of service LOS, Urban Street, Multilane highways, Freeway operations, Corridor analysis. Principles of traffic control, Traffic signs and road markings, Uncontrolled intersection, Channelization, Traffic rotary, Grade separated intersection.	10	To understand capacity and level of service concepts of various traffic facility and to know various control techniques.
4	**Traffic signal design:** Elements of traffic signal, Design principles of a traffic signal, Evaluation of a traffic signal, Capacity and LOS analysis of a signalized I/S: Coordinated traffic signal.	7	To know principles of traffic signal design and its coordination.
5	**Specialised traffic studies:** Parking Studies, Accident Studies: Congestion studies, Toll operation, Pedestrian studies.	9	To understand principles of various specialized traffic studies.

Text Books:

1. Roess, RP., McShane, WR. and Prassas, ES. (1998), Traffic Engineering, Prentice Hall.
2. Papacostas, C. S. (1987), Fundamentals of Transportation Engineering, Prentice Hall.
3. Kadiyali, LR (1987), Traffic Engineering and Transportation Planning, Khanna.
4. Khanna, S. K. and Justo, C. E. G. (1991), Highway Engineering, Nemchand.

Reference books

1. May, A. D. (1990), Fundamentals of Traffic Flow, Prentice Hall.
2. Highway Capacity Manual (2000), Transportation Research Board, USA.
3. Pingnataro, G. J. (1970), Principles of Traffic Engineering, Mc Graw - Hill.