



ACADEMIC YEAR: 2018-2019(Odd)

Subject Code	CE6006	L	P	T	C
Subject Title	TRAFFIC ENGINEERING AND MANAGEMENT	3	0	0	3
Year / Dept / Sem	IV / CIVIL / VII	Regulation Year	2013		
Faculty Name / Desg / Dept	Mr. R.JANARTHANAN M.E., / Assistant Professor / CIVIL				
Course Prerequisite	1. The students must have more knowledge about basic fundamentals of highway engineering. 2. They have more details about traffic signals and traffic signs.				

SYLLABUS

CE6006	TRAFFIC ENGINEERING AND MANAGEMENT	L T P C 3 0 0 3
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UNIT I TRAFFIC PLANNING AND CHARACTERISTICS

Road Characteristics – Road user characteristics – PIEV theory – Vehicle – Performance characteristics – Fundamentals of Traffic Flow – Urban Traffic problems in India – Integrated planning of town ,country ,regional and all urban infrastructure – Towards Sustainable approach.– land use & transport and modal integration.

UNIT II	TRAFFIC SURVEYS	10
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Traffic Surveys – Speed, journey time and delay surveys – Vehicles Volume Survey including non-motorized transports – Methods and interpretation – Origin Destination Survey – Methods and presentation – Parking Survey – Accident analyses -Methods, interpretation and presentation – Statistical applications in traffic studies and traffic forecasting – Level of service – Concept, applications and significance.

UNIT III	TRAFFIC DESIGN AND VISUAL AIDS	10
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Intersection Design - channelization, Rotary intersection design – Signal design – Coordination of signals — Grade separation - Traffic signs including VMS and road markings – Significant roles of traffic control personnel - Networking pedestrian facilities & cycle tracks.

UNIT IV TRAFFIC SAFETY AND ENVIRONMENT 8

Road accidents – Causes, effect, prevention, and cost – Street lighting – Traffic and environment hazards – Air and Noise Pollution, causes, abatement measures – Promotion and integration of public transportation – Promotion of non-motorized transport.

UNIT V	TRAFFIC MANAGEMENT	8
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Area Traffic Management System - Traffic System Management (TSM) with IRC standards — Traffic Regulatory Measures-Travel Demand Management (TDM) – Direct and indirect methods –

Congestion and parking pricing – All segregation methods- Coordination among different agencies
– Intelligent Transport System for traffic management, enforcement and education.

TOTAL: 45 PERIODS

TEXTBOOKS:

1. Kadiyali.L.R. "TrafficEngineering andTransportPlanning", KhannaPublishers, Delhi, 2013
2. Indian Roads Congress (IRC) Specifications: Guidelines and Special Publications on Traffic Planning and Management.
3. Salter. R.I and Hounsell N.B, "Highway Traffic Analysis and design", Macmillan Press Ltd.1996.

REFERENCES:

1. Fred L. Mannering, Scott S. Washburn and Walter P.Kilareski, Principles of Highway Engineering and Traffic Analysis, Wiley India Pvt. Ltd., New Delhi, 2011
2. Garber and Hoel, "Principles of Traffic and Highway Engineering", CENGAGE Learning, New Delhi, 2010
3. SP:43-1994, IRC Specification, "Guidelines on Low-cost Traffic Management Techniques" for Urban Areas, 1994
4. John E Tyworth, "Traffic Management Planning, Operations and control", Addison Wesley Publishing Company, 1996
5. Hobbs.F.D. "Traffic Planning and Engineering", University of Brimingham, Peragamon Press Ltd, 2005
6. Taylor MAP and Young W, "Traffic Analysis – New Technology and New Solutions", Hargreen Publishing Company, 1998.

Course Objectives (CO)	CO1: To give an overview of traffic engineering,traffic regulation,management and traffic safety with integrated approach in traffic planning as well.
Expected Course Outcomes (ECO)	At the end of the course, the students should be able to: ECO1:The Students will be able to analyze traffic problems and plan for traffic systems various uses. ECO2:The Students will be able to Design Channels, Intersections, signals and parking Arrangements ECO3:The Students will be able to Develop Traffic management Systems ECO4:The Students will be able to Understand the fundamental traffic flow theoriesand identify basic traffic variables and their relationships including speed, density and flow. ECO5:The Students will be able to Design signalized intersections including isolated,coordinated and roundabouts. Assess, evaluate and justify methods of traffic management and control. ECO6:The Students will be able to Evaluate traffic impacts on the environment and safety.

Mapping of CO & PO(Specify the PO's) - *(Fill the col.s with the legend given below)*

Programme Outcomes of Civil Engineering

- a. Graduates of Civil Engineering program will be able to apply the fundamental knowledge of mathematics, science and engineering to solve problems pertaining to Civil Engineering.
- b. Graduates of Civil Engineering program will be able to identify, analyze, formulate, and solve

civil Engineering problems in accordance with Indian Standard codes of practice.												
c. Graduates of Civil Engineering program will be able to design a system component, or process to meet desired needs within realistic constraint such as economic, environmental, social, political, ethical, health safety, manufacturability, and sustainability.												
d. Graduates of Civil Engineering program will able be to design and conduct experiments, as well as to analyze and interpret data.												
e. Graduates of Civil Engineering will be able to use the techniques, skills, and modern civil engineering tools, necessary for engineering practice.												
f. Graduates of Civil Engineering program will be able to incorporate specific contemporary issues into the identification, formulation, and solution of specific civil engineering problems.												
g. Graduates of Civil Engineering program will be able to work on the basis of broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.												
h. Graduates of Civil Engineering program will be able to understand the role of Civil Engineers and ethical responsibility.												
i. Graduates of Civil Engineering program will be able to function on multidisciplinary teams.												
j. Graduates of Civil Engineering program will be able to deliver effective verbal, written, and graphical communications.												
k. Graduates of Civil Engineering program will be able to recognize the need for, and an ability to engage in life-long learning.												
l. Graduates of Civil Engineering program will be able to perform economic analysis, quality checks, time/labour management and cost estimates related to design, construction, operations and maintenance of systems in the civil technical specialties.												

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	3	-	-	2	1	-	-	-	-	1
CO2	1	3	3	1	-	-	-	-	-	-	-	1
CO3	2	1	-	-	-	-	-	-	-	-	-	1
CO4	3	1	1	-	-	2	-	-	-	-	-	1
CO5	-	3	2	1	-	-	-	-	-	-	-	1
CO6	1	2	2	-	-	-	-	-	-	-	-	1

S.No	Topic Name	Book – P. No	Teaching Aids	No of hrs	Cumulative hrs
UNIT I TRAFFIC PLANNING AND CHARACTERISTICS					
1.	Road characteristics	T1 1-7	Class room teaching	1	1
2.	Road user characteristics	T1 11-13	Class room teaching	1	2
3.	PIEV theory	T1 12-13	Class room teaching	1	3
4.	Vehicle characteristics	T1 20-24	Class room teaching	1	4
5.	Performance characteristics	T1	Class room	1	5

		13-19	teaching		
6.	Fundamentals of traffic flow	T1 553-559	Class room teaching	1	6
7.	Urban traffic problems in india	T1 830-835	Assignments	1	7
8.	Integrated planning of town ,country,regional and all urban infrastructure- towards sustainable approach	T1 637-643	Class room teaching	1	8
9.	Land use & transport and modal integration	T1 661	Class room teaching	1	9
UNIT II TRAFFIC SURVEYS					
1.	Traffic surveys – speed ,journey time and delay surveys	T1 25-40	Class room teaching	2	11
2.	Vehicles volume survey including non-motorized transports	T1 45-63	Class room teaching	1	12
3.	Origin destination survey –methods and presentation	T1 64-67	Class room teaching	2	14
4.	Parking survey	T1 68-78	Class room teaching	1	15
5.	Accident analyses – methods ,interpretation and presentation	T1 411-483	Class room teaching	2	17
6.	Statistical applications in traffic studies and traffic forecasting	T1 87,171-176	Assignments	1	18
7.	Level of service – concept ,applications and significance	T1 520-524	Class room teaching	1	19
UNIT III TRAFFIC DESIGN AND VISUAL AIDS					
1.	Intersection design – channelization	T1 226-251	Class room teaching	1	20
2.	Rotary intersection design	T1 251-267	Class room teaching	1	21
3.	Signal design – coordination of signals	T1 334-371	Class room teaching	3	24
4.	Grade separation	T1 267-278	Class room teaching	1	25
5.	Traffic signs including VMS and road markings	T1 305-317	Class room teaching	2	27
6.	Significant roles of traffic control personnel	T1 832-834	Assignments	1	28
7.	Networking pedestrian facilities & cycle tracks	T1 835	Class room teaching	1	29
UNIT IV TRAFFIC SAFETY AND ENVIRONMENT					
1.	Road accidents- causes ,effect, prevention and cost	T1 411-483	Class room teaching	2	31
2.	Street lighting	T1 484-502	Class room teaching	1	32
3.	Traffic and environment hazards – air pollution	T1 850-852	Seminars	2	34
4.	Noise pollution, causes, abatement measures	T1 844-850	Seminars	1	35

5.	Promotion and integration of public transportation	T1 834	Class room teaching	1	36
6.	promotion of non – motorized transport	T1 835	Class room teaching	1	37
UNIT V TRAFFIC MANGEMENT					
1.	Traffic system management (TSM) with IRC standards	T1 504	Class room teaching	1	38
2.	Traffic regulatory measures	T1 504-508	Class room teaching	2	40
3.	Travel demand management (TDM) – direct and indirect methods	T1 508-511	Class room teaching	1	41
4.	Congestion and parking pricing	T1 287-304	Class room teaching	2	43
5.	All segregation methods – coordination among different agencies	T1 304-308	Class room teaching	1	44
6.	Intelligent transport system for traffic management ,enforcement and education	T1 887-889	Class room teaching	1	45

	<i>Prepared by</i>	<i>Approved by</i>
Signature		
Name	Mr.R.JANARTHANAN	Prof.P.SURESH KUMAR
Designation	Assistant Professor / CIVIL	HOD /CIVIL
Signed date		

LEGEND:

METHODOLOGY TO MAP OBJECTIVE WITH OUTCOME

Course outcomes are achieved through

- a. Suitable Analogies.
- b. Class room teaching.
- c. Assignments.
- d. Tutorials
- e. Weekly, monthly and model exams.
- f. Brain storming.
- g. Group discussion and role play.
- h. Seminars