

Branch Name:	Transportation Engineering
Program Code:	ET211
Course Name:	Traffic Engineering and Design
Course Code:	2ET2110102T
Pre-requisite Course:	Traffic engineering, Transportation Engineering

Course Objective:

1. To provide an insight on traffic and its components, factors affecting road traffic and the design of intersection.
2. To explain sampling of data, analysis and interpretation of data in conducting various surveys.
3. To illustrate the design of signals and explain the redesigning of existing signals.
4. To provide an insight on traffic regulations.

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Introduction: Basic components of traffic and their characteristics, Fundamental variables of traffic and their interrelationship, headway - measurement techniques	5	10
2	Highway Capacity, Level of Service – Measurement Techniques, HCM Methods, Design hourly volumes and speed, its uses	5	15
3	Transportation surveys, Urban Transportation Planning	5	10
4	Merging – Diverging Flow, Weaving Flow, Length Calculations	5	10
5	Traffic Control Devices, Rules, Signs, and Signals – Signal Cycle Time Calculations, Isolated and Co-Ordinated Signals	6	15
6	Traffic planning and design – for pedestrians, intersections	6	10
7	Traffic Management: TSM Techniques	3	10
8	Parking survey, characteristics and interpretation and design	5	10
9	Introduction to Simulation in traffic engineering design	5	10

Reference Books:

1. L.J.Pingnataro, Traffic Engineering; Theory and Practice. Prentice Hall, Englewood Cliffs, 1973.
2. M.Wohl and B.V.Martin, Traffic System Analysis for Engineering and Planners, McGraw-Hill. New York, 1983.
3. D.R.Drew, Traffic Flow Theory and Control, McGraw Hill. New York 1968.
4. W.R.McShane, R.P.Roess and E.S.Prassas, Traffic Engineering, Prentice Hall, New Jersey, 1990.
5. R.J.Salter, Highway Traffic Analysis and Design, McMillan, Hampshire, 1989.
6. Highway Capacity Manual, Transportation Research Board, Washington D.C., 1997, 2000
7. Partho Chakraborty and Animesh Das, Principles of Transportation Engineering, PHI
8. S.C. Saxena, Traffic Planning and Design, Dhanpat Rai Pub., New Delhi.

Open Ended Problems:

1. Design of signal for Isolated Intersection – A case study of urban area
2. Design of co-coordinated signals - A case study of urban area
3. Design of on Street Parking / Parking plot – A case study of urban area

Course Learning Outcome:

On completion of the course, students would be able to

1. Able to acquire and apply knowledge of traffic, its components, factors affecting road traffic intersection design.
2. Able to apply the knowledge of sampling data in conducting various surveys and analysis.
3. Capable of understanding traffic movements and designing islands, intersections and road lightings.
4. Capable of designing signals, redesigning the existing signals.
5. Able to remember traffic regulations.

Field work: Identification of problematic spots for traffic flow and suggesting suitable remedial measures.
Its presentation with group discussion.

Field visit: A visit to full cloverleaf junction or any other important traffic infrastructure.

Course Learning Outcomes (CLO):

After successful completion of the course the students shall be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Able to acquire and apply knowledge of traffic, its components, factors affecting road traffic intersection design.	L-1, L-2
CLO2	Able to apply the knowledge of sampling data in conducting various surveys and analysis.	L-1, L-2, L-3
CLO3	Capable of understanding traffic movements and designing islands, intersections and road lightings.	L-1, L-2, L-3
CLO4	Capable of designing signals, redesigning the existing signals.	L-1, L-2, L-3, L-6
CLO5	Able to remember traffic regulations.	L-1, L-2

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with Pos & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	M	M	M	M			M				H	M	M	M	
CLO2	M	M	M	M								M	M	M	M
CLO3	M	M	M	M	H	M				L		M	M	M	M
CLO4	M	M	M	M		M	M					M	M	M	
CLO5	M	M	M	M					M			M	M	M	M

H: High, M: Medium, L: Low