GUJARAT TECHNOLOGICAL UNIVERSITY

BRANCH NAME: CIVIL ENGINEERNIG
SUBJECT NAME: TRAFFIC ENGINEERING (DEPARTMENT ELECTIVE II)
SUBJECT CODE: 2170613
B.E. 7thSEMESTER

Type of course: Department Elective II

Prerequisite: knowledge of road transportation

Rationale: Knowledge and understanding of the basic concept of Traffic Engineering is highly essential for the engineers designing and executing the road laying projects in order to make road transport system safe and workable. Students are expected to perform various traffic surveys, analyze data and interpret the results and design of traffic control device appropriately in order to apply their knowledge in designing efficient and safe road transport systems.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
				Theory Marks			Practical Marks			
L	T	P	C	ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	1	0	4	70	20	10	30	0	20	150

ESE-End Semester Exam, PA-Progressive Assessment, E-External, M-Mid semester, V-Viva (External) , I-Internal, ALA-Active Learning Assignment, OEP-Open Ended Problem**.**

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Traffic Characteristics: (i) Road user's characteristics - general human characteristics, physical, mental and emotional factors, factors affecting reaction time, PIEV theory. (ii) Vehicular characteristics :(static and dynamic), Characteristics affecting road design-width, height, length and other dimensions. Weight, power, speed and braking capacity of a vehicle.	8	20
2	Traffic Studies: - Traffic volume count, methods of traffic volume count, Manual, mechanical, videography, passenger car unit. Presentation of traffic volume count. Speed studies, spot speed studies speed and delay studies and its presentation .Origin and destination studies. Necessity of parking studies types of parking off street parking, on street parking, Accident studies, causes of accidents, accident records condition and collision diagram, preventive measures.	14	30
3	Traffic regulation: - traffic signs types of traffic signs, regulatory , mandatory, warning signs route marker, lane marking, lane width	10	20

	standards as IRC . Necessity of traffic signals criteria for providing traffic signals types of traffic signals. Methods of designing traffic signals.		
4	Street Lighting: (i) Methods of light distribution. (ii) Design of street lighting system. (iii)Definitions- Luminaire, foot candle, Lumen, utilization and maintenance factors. (iv) Different types of light sources used for street lighting. (v) Fundamental factors of night vision.	**10**	**15**
5	Traffic geometrics:- basic geometric elements, cross roads, rotary intersections grade separated intersection, clover leaf, fully and partial, terminal facilities	**6**	**15**

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	**30**	**20**	**10**	**10**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books :-
1. Traffic Engineering and Transport Planning by L.R. Kadiyali, Khanna Publishers, Delhi
2. Traffic Engineering by Matson, W.S.Smith & F.W. Hurd
3. G.J. Pingnataro, Principles of Traffic Engineering
4. D.R.Drew, Traffic Flaw Theory
5. W.R. Mchsne and R.P. Roess "Traffic Engg"
6. Wohl & Martin, Traffic System

Course Outcome:

After learning the course the students should be able to:

i) Conduct different types of Traffic Surveys

ii) Explain the reasons of accidents and their preventive measures

iii) Design of traffic signals at intersections and rotary intersection.

iv) Aware of various traffic regulation and control devices.

List of Experiments: NIL

Design based Problems (DP)/Open Ended Problem:
      1) Visit to nearby road and conduct traffic volume count survey
      2) Collect data related to the road accidents and prepare report
      3) Conduct traffic speed study at busy road.

Major Equipment: NIL

List of Open Source Software/learning website: www.nptel.ac.in

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.