GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology		Branch/Spec.	Civil Engineering	
Semester	VII		Version	2.0.0.0	
Effective from Academic Year	2016-17		Effective for the batch Admitted in	2014-15	
Subject code	2CI716	Subject Name	**Elective Paper – I (Transportation Engineering - I)**		

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		1		4	Theory	40	60	100
Hours	3		2		5	Practical	35	15	50

Pre-requisites:

Basic Transportation System

Learning Outcome:

Students will learn about the Transportation surveys and its related studies.

They will be able to learn Accident Studies and be able to carry out Road Safety Audit.

They will be able to learn different Traffic Control devices and its Management techniques.

Theory syllabus

Unit	Content	Hrs
1	**Introduction to Transportation Engineering:-** • History of transportation Engineering • Introduction of Traffic Engineering & transportation Engineering • Modes of transportation, • Civil engineering involvement in transportation, • Basic concepts of traffic flow, Speed-Volume-Density relationship • Homogenous and Heterogeneous traffic flow • Concept of PCU	4

2	**Transportation Surveys & Methodology and Analysis:-**
	• O-D survey
	• Spot-speed survey (Using Enoscope and Radar Speedometer)
	• Traffic volume counts
	  ➢ Classified volume counts,
	  ➢ Turning movement count
	• Parking survey
	• Travel time and Delay study
		6

3	**Accident Studies:-** • Accident situation in India & World • Collection of accident data • Factors affecting the accidents & its characteristics • Road safety audit • Safety measures	08
4	**Introduction of Transportation Software's:-** TRIPS, TRANS-CAD, VISSIM and MX ROADS	08
5	**Highway Capacity & Level of service:-** • Introduction of highway capacity • Level of service concept by HCM method and IRC recommendation	04
6	**Regulations:-** • Basic Principles of regulations, • Regulations concerning speed, vehicles, parking, driver, traffic, Enforcement, Educations and Environmental. • Vehicle Operating Cost	03
7	**Traffic Control Devices and Management techniques:-** • Signs, Signals, Markings, Islands, channelization • Scope of traffic management techniques • One way streets • Tidal flow arrangements • Bus bays & bus stop locations • Car pooling and Ride sharing techniques • Restrictions on turning movement • Road pricing • Entry fee • Parking Area Control • Pedestrian Flow Control	04
8	**Intersections:-** • At-Grade intersection • Grade separated Intersections • Rotary Intersection	02

	• Channelized and unchannelized Intersection • Design of Three and four arm junctions.	

Practical content
Term work shall be based on the above mentioned course content. Presentation with group discussion on its analysis and interpretations

Text Books	
1	S. K. Khanna & CEG Justo; Highway Engineering; Nemchand Brothers, Roorkee
2	L R Kadiyali and N B Lal; Principles and Practices of Highway Engineering; Khanna Publishers, Delhi

Reference Books	
1	G V RAO; Principles of Transportation & Highway Engineering; TMH
2	S.C. Saxena; Traffic Planning and Design; DhanpatRai Pub., New Delhi
3	ParthoChakraborty&Animesh Das; Principles of Transportation Engineering; PHI
4	C. S. Papacostas; Fundamental of Transportation System Analysis; PHI
5	James H. Banks; Introduction to Transportation Engineering; WCB-McGraw Hill, New York