No	Information of Transportation Engineering I	
1.	Unit Name : Transportation Engineering I	
2.	Unit Code : CE 31017	
3.	Classification : Engineering Subject	
4.	Credit Hours : 2.5	
	2 for lecture : (2 hours x 15 weeks)	
5.	Trimester/Year Offered : 1/3	
6.	Pre-requisite (if any) : None	
7.	Mode of Delivery : Lecture , Tutorial and Assignment	
8.	Assessment System and Breakdown of Marks ::	
	Coursework / Tutorial	20%
	Assignment	10%
	Final Examination	70%
	Total	100%
9.	Academic Staff Teaching Unit :	
10.	Objective of Unit: The objective of this course is to :- Gain a solid understanding of the principle of highway engineering and traffic analysis.	
11.	Learning Outcomes of Unit: On completion of this unit, students shall be able to: (a) Discuss the fundamental issues in highway transportation (b) Solve the factors influencing road vehicle performance (c) Compute current design practices for geometric alignment of highways (d) Calculate the thickness of the individual layers of pavement.	
12.	Synopsis of Unit: The unit is intended to recognize about highway engineering and traffic analysis, highway pavement material design and performance. The unit is intended to design for road vehicle performance and geometric design of highways.	
13.	**Topic 1:Introduction to Highway Engineering and Traffic Analysis** Introduction Highway and the Economy The Highway Economy Supply Chains Economic Development	

	Highways, Energy, and the Environment Highways as Part of the Transportation System Highway Transportation and the Human Passenger Transportation Modes and Traffic Congestion Highway Safety Demographic Trends Highways and Evolving Technologies Infrastructure Technologies Vehicle Technologies Traffic Control Technologies Scope of Study **Topic 2:Road Vehicle Performance** Introduction Tractive Effort and Resistance Aerodynamic Resistance Rolling Resistance Grade Resistance Available Tractive Effort Maximum Tractive Effort Engine-Generated Tractive Effort Vehicle Acceleration Fuel Efficiency Principles of Braking Braking Forces Braking Forces Ratio and Efficiency Antilock Braking Systems Theoretical Stopping System Practical Stopping System Distance Travel During Driver Perception/Reaction

	Topic 3: Geometric Design of Highways Introduction Principles of Highway Alignment Vertical Alignment Vertical Curve Fundamentals Stopping Sight Distance Stopping Sight Distance and Crest Vertical Curve Design Stopping Sight Distance and Sag Vertical Curve Design Passing Sight Distance and Crest Vertical Curve Design Underpass Sight Distance and Sag Vertical Curve Design Horizontal Alignment Vehicle Cornering Horizontal Curve Fundamentals Stopping Sight Distance and Horizontal Curve Design Combined Vertical and Horizontal Alignment **Topic 4: Pavement Design** Introduction Pavement Types Pavement System Design Pavement materials Pavement Maintenance
14.	Main References: FRED L. MANNERING. SCOTT S. WASHBURN (5th ed)