

Transportation Engineering – II

Course Code CE-342	Credit Hours 2-1
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Course Description

This course introduces students with basic elements and features of roads. It covers traffic facilities, geometric design of highways, pavement material characterization, pavement structural design and construction.

Text Book:

1. Principles of Transportation Engineering by Partha Chakroborty & Animesh Das (1stEdn)
2. Course Pack has been prepared based upon the reference material.

Reference Book:

1. Transportation Engineering by Ashford and Wright
2. Transportation Planning and Traffic Engineering, Edited by C. A. O'Flaherty (1stEdn)

Prerequisites :

CE-241 Transportation Engineering - I.

ASSESSMENT SYSTEM FOR THEORY

	Without Project (%)	With Project/Complex Engineering Problems (%)
Quizzes	15	10-15
Assignments	10	5-10
Mid Terms	25	25
Project	-	5-10
End Semester Exam	50	45-50

ASSESSMENT SYSTEM FOR LAB

Lab Work/ Psychomotor Assessment/ Lab Reports	70%
Lab Project/ Open Ended Lab Report/ Assignment/ Quiz	10%
Final Assesment/ Viva	20%

Teaching Plan

Week No	Topics/Learning Outcomes
1	Introduction to Highway Engineering <ul style="list-style-type: none">• Classification of Roads• Road Signs and Safety Pavement Markings and Delineators

2	Properties of Traffic Engineering Elements <ul style="list-style-type: none"> • Vehicle Characteristics • Human Factors and Driver Characteristics • Road Characteristics
3	Traffic Flow Parameters and models <ul style="list-style-type: none"> • Fundamentals of Traffic Flow Uninterrupted Traffic Flow
4	Interrupted Traffic Flows Shock waves
5-6	Highway Geometric Design and Applications of AI in Traffic Engineering and Highway Asset Performance Monitoring/Evaluation
7-8	Traffic Signal Design
9	Mid Semester Exam
10	Construction of Roads and Plant/Equipment
11-12	Material Characterization
13	Asphalt Mix Design
14	Pavement Analysis
15-16	AASHTO Flexible Pavement Design Method
17-18	End Semester Exam

Practical

Experiment No	Description
1	Aggregate Gradation Test
2	Impact Value of Aggregates
3	Los Angles Abrasion Test
4	S G & Absorption Test of Coarse Aggregates
5	Shape Test of Aggregates
6	Lab CBR Test
7	Penetration test of bitumen
8	Ductility test of bitumen
9	Softening point test of bitumen
10	Flash and fire point test of bitumen.
11	Viscosity test for bituminous materials
12	Marshall stability and flow test