

B. Tech Civil Engineering				
Course code: Course Title	Course Structure		Pre-Requisite	
CE338: Advanced Transportation Engineering	L 3	T 1	P 0	CE305: Transportation Engineering

Course Objective: This course aims to expose the students to advanced topics of transportation engineering: the process of transportation planning, urban transport technology, aspects of transport economics and financing, and guidelines for pavement design and maintenance.

S. No.	Course Outcomes (CO)
CO1	To expose students to carry out various planning studies for travel demand estimation.
CO2	To expose students to the features of different modes of urban transportation and urban infrastructure.
CO3	To expose students to various aspects of transportation economics and finance.
CO4	To equip students with the knowledge of pavement design.
CO5	To expose students to identify pavement defects and their rectification methods.

S. No	Contents	Contact Hours
UNIT 1	Transportation system planning: transportation policy, types of surveys, OD matrix, travel demand forecasting process, trip generation, modal split analysis, trip distribution, trip assignment.	10
UNIT 2	Urban transport technology: mass and rapid transit system, introduction to intelligent transportation system (ITS), public transport policy, intermediate transport modes. Introduction to BRT, Mono rail, sky bus, metro. Grade separated interchanges such as flyovers, under passes, overpasses, concept of integrated inter model transit system.	10
UNIT 3	Transport economics: vehicle operations cost, running cost, pollution cost, value of travel time, road damage cost, congestion cost, accident cost. Highway financing: pay as you go method, credit financing, private financing, BOT, BOOT, dedicated road funds, road pricing, tolls, advantages and limitations.	10
UNIT 4	Criteria of pavement design, comparison of flexible and rigid pavement, study of distress in pavements, Design of flexible and rigid pavement as per guidelines.	10

REFERENCES

S. No	Name of Books/ Authors/ Publishers	Year of
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		Publication/ Reprint
1.	Khanna, S.K., Justo, C.E.G., and Veeraragavan A. "Highway Engineering", Nem Chand & Bros., Roorkee, U.K	2014
2.	Kadiyali, L. R., "Traffic Engineering and Transportation Planning", Khanna Publishers, New Delhi	2018
3.	Sharma, S.K., "Principles, Practice and Design of Highway Engineering including Airport Pavements," S. Chand and Company, New Delhi	2012
4.	Khanna S.K., Arora M.G. and Jain S.S., "Airport Planning and Design", Nem Chand & Bros., Roorkee, U.K	2022