

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
CE-503	Urban Transportation Planning	PCC	4	3	1	0	50	100	150

**Course Outcomes:**

At the end of the course the students will be able to:	
CO1	Explain the urban transportation system planning for conceptual aspects.
CO2	Assess the properties of highway materials in the laboratory.
CO3	Understand the Traffic Assignment for the transport network.
CO4	Describe alignment and geometry of pavement as per Indian Standards according to topography.
CO5	Explain the importance of Airport and Harbours Infrastructure.

**Detailed Syllabus****Section-A**

**Unit 1:** Urban Transportation System planning, conceptual aspects – Transportation Planning Process-I, Evaluation and Choice-I, Sequence of activities involved in transport Analysis-I. Trip Generation Analysis: Introduction, Details of Trip Generation-I, Trip Production Statistical Analysis-I, Category Analysis or Cross Classification-I. Geometric design of highways: the highway cross sectional elements, camber-sight distance, types of sight distances, design of horizontal alignments, super elevation, widening of pavements on horizontal curves, transition curves, design of vertical alignments, gradients, summit. **(12 Hrs)**

**Unit 2:** Highway Materials: Desirable properties, testing procedures, standards and standard values relating to soil, stone aggregates, bitumen and tar, fly- ash/pond-ash. Role of filler in bituminous mix, materials of filler. Specifications of dlc and pqc for rigid pavement. **(8 Hrs)**

**Unit 3:** Traffic Assignment: Description of transport Network-1, Route choice Behaviour, The minimum path, Route Assignment techniques-2, examples. Highway Construction and Equipment's, highway construction of rigid and flexible pavements including types of road rollers, specifications of compaction of different layers of bituminous roads, modern pavers for CC roads. Roller compacted concrete road construction. **(13 Hrs)**

**Section-B**

**Unit 4:** Design of flexible and rigid pavements and their conceptual aspects as per IRC. Factors affecting design and performance of CC pavements. Introduction of Railway Engineering: Types and selection of gauges, selection of alignment, ideal permanent ways and cross sections in different conditions, drainage, salient features and types of components viz. rails, sleepers, ballast, rail fastenings. **(10 Hrs)**

**Unit 5:** Introduction of Airports: Requirements to airport planning, airport classifications, factors in airport site selection, airport size planning of airport: requirements of airport- terminal area, runway length etc. **(7 Hrs)**

**Text Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Highway Engineering	Khanna SK & CG Justo	Nem Chand & Brothers	13th (2018)
2	Highway Engg.	LR Kadyali, Khanna	Tech Publications	3rd (2017)