CE/BOS/CE E73/0210

K L UNIVERSITY

ADVANCED TRANSPORTATION ENGINEERING (CE E73)

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SYLLABUS

UNIT – 1 Introduction to Transportation Engineering

Elements of Transportation Engineering (e.g.: vehicle, driver, way, terminal, and control), Transportation modes, Development and transportation, various aspects of transportation engineering (e.g., pavement design, traffic engineering, transport planning, public transportation, etc.)

UNIT-2 Layout, Orientation, and Geometric Design

Geometric Design of highways and railways (e.g., horizontal alignment, vertical alignment, etc.), Geometry of hill roads, Orientation of runways, and geometry of taxiways, Curve layout

UNIT-3 Pavements and Rail Tracks

Types of pavements, Analysis and design of flexible pavements, Pavement drainage, Construction and maintenance of flexible pavements, Introduction to design of rail tracks

UNIT-4 Traffic Engineering

Characterizing traffic flow (e.g. density, speed, flow), Data collection techniques for traffic parameters and delay studies, Introduction to traffic flow theory (including description of speed-density, speed-flow, and flow density relations), Introductions to concept of capacity and level of service

UNIT-5 Travel Demand Analysis and Transportation Planning

The planning process, Sequential demand analysis, Models of trip generation, distribution, traffic assignment, and modal split

TEXT BOOKS:

1. Highway Engineering by S.K.Khanna & C.J.Justo, Nemchand & Bros., 7th Edition (2000).
2. Principles and practices of highway Engineering by Dr. L. R. Kadiyali & Dr. N. B. Lal Khanna publishers – (2003).

REFERENCE BOOKS:

1. Principles of pavement design – Yoder & wit zorac – Jhonwilley & Sons.

CODES:

1. IRC Code for flexible pavement – IRC – 37 -2001.
2. IRC Code for Rigid pavement – IRC – 58 – 2002.