

CE/BOS/ CE 434/0513

**K L UNIVERSITY**  
**ADVANCED PAVEMENT DESIGN ENGINEERING (11 – CE 434)**

L	T	P	Cr
3	0	0	3

**Pre – requisite: 13 - CE 305**

**SYLLABUS**

**Material Characterization:** Characterization of test types, Plate- Load Tests, Triaxial Compression Test, CBR Test, Stabilometer and Cohesionmeter. Tests for Bituminous Mixtures: Modulus of Rupture, Indirect Tensile Test, Layered input Parameter Tests, Resilient Modulus Test, Complex (Dynamic) Modulus Test, Diametrical Resilient Modulus, Asphalt Mix Stiffness (Shell Nomograph), Creep Test, Wave Propagation Techniques, CBR-Modulus correlation, Typical Modulus Values, Poisson's Ratio. Fatigue Testing and Permanent Deformation. **Design of Flexible Pavements:** Design of Flexible Airport Pavements: Corps of Engineers (CBR) Method, FAA, CDOT, The Asphalt Institute Method.

Design of Flexible Highway Pavements: Differences between Airport and Highway Pavements, Differences in Design Methods, AASHO Flexible Pavement Design, Multi Layer Elastic Analysis, The asphalt Institute Design. **Design of Rigid Pavements:** Design of Rigid Airport Pavements: Determination of Modulus of Subgrade Reaction, Modulus of Rupture, Factor of Safety, Design Charts, PCA, Corps of Engineers Method, FAA. Base courses, compaction requirements, Joints and Reinforcement Requirements, Joints at Intersections, Design of Steel Reinforcement, Continuously Reinforced concrete pavements, Use of eel Section and Junction of Flexible and Rigid Pavements. Design of Rigid Highway Pavements: Development of Design, Test Roads, Definition of Pavement types, Design Factors, Load Stresses, Thickness Design, Jointing and Reinforcement Requirements, Joints, Load-transfer Devices, Continuously Reinforced Concrete Pavements, Approach slabs, Subgrade and Sub bases, Slip-Form Construction.

**TEXT BOOKS:**

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

**REFERENCE BOOKS:**

1. Pavement Analysis and Design – Yang H. Huang, Pearson
2. Relevant codes and handouts of abroad practices