CE/BOS/CE C209/0210

K L UNIVERSITY
STRUCTURAL ANALYSIS (CE C 209)

SYLLABUS

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3	1	0	4

UNIT – 1   Statics

Introduction to Mechanics of deformable bodies, statics, kinematics and dynamics, resultant of parallel forces, Equilibrium of forces, support conditions, free body diagram

Determinate Plane Truss: Simple trusses, forces in truss members, Analysis of forces in members of simple truss by method of joints, Method of sections

UNIT – 2   Energy Theorems

Principle of superposition, Maxwell's reciprocal theorem, Betti's theorem, Principles of virtual work, Application of virtual work, Castigliano's theorems, Applications of castigliano's theorem.

UNIT – 3   Deflection

Relation between curvature, slope and deflection, Deflection curves, Deflection by moment area method, Deflection by conjugate beam method, unit load method

UNIT – 4   Propped Cantilevers and Fixed Beams

Analysis of propped cantilevers with point load, partially loaded u.d.l and uniformly varying load, fixed beam with point load, udl, Unsymmetrical concentrated load and varying load, Three moment equations

UNIT – 5   I.L.D for Determinate Structures

Influence line for reactions, simply supported, over hang, I L D for shear force in cantilever, simply supported, I L D for B. M cantilever, over hang and simply supported beams, position and magnitude of maximum shear force and B.M for concentrated load and udl, series of concentrated loads, absolute maximum S.F and B.M

TEXT BOOKS:

1. Indeterminate Structural Analysis by C. K. Wang, McGraw Hill Book Company

REFERENCE BOOKS:

1. Basic Structural Analysis by C S Reddy, Tata McGraw Hill publishing Company ltd. New Delhi.
2. Structural analysis (vol 1 and 2) by Vazirani and Ratwani, Khanna Publishers