GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. Semester I
Civil Engineering (Structural Engineering)

Subject: - Advanced Structural Analysis

Sr. No.	Course Content
1	Introduction: Principles of Virtual Work. Concepts of Flexibility: Analysis of Pin jointed and Rigid Jointed Frames, Grids by Member Approach
2	Stiffness methods: Analysis of Plane truss, plane frames, grids, space truss, space frame and composite structures by member approach. Special problems such as member discontinuities, non prismatic members, curved members, and beams on elastic supports, secondary effects due to temperature changes, Pre-strains and end displacements semi- rigid connections, plastic analysis, and effect of shear deformations by stiffness method, sub-structuring, Programming techniques for solution of large number of simultaneous equations.
3	Introduction to Non-linearity in structure and non-linear analysis.

REFERENCE BOOKS:

1. Weaver William, Gere James M., " Matrix analysis of Framed Structure", CBS Publishers, 1/e/1986
2. Wang C. K., " Intermediate Structural Analysis", McGraw Hill Co. (International Edition)
3. Jenkins W. W., " Matrix and Digital Computer Methods in Structural Analysis", McGraw Hill.