

AMC-8 : STRUCTURAL ANALYSIS

1. SHEAR FORCES AND BENDING MOMENT

Beam, Types of Loads, Types of Supports, Shear Force and Bending Moment, Sign Convention, Shear Force and Bending Moment Diagrams, S.F. and B. M. Diagrams for Simply Supported Beams, S. F. and B.M. Diagrams for Overhanging Beams, Relationship between Rate of Loading, Shear Force and Bending Moment, Graphical Method of Plotting S. F. and B. M. Diagrams, Uniformly Distributed Loads

2.DEFLECTION OF BEAMS

Introduction, Relationship between Curvature, Slope and Deflection, deflection Curves, Macaulay's Method, Deflection Curve by Macaulay's Method, Propped Cantilevers, Deflections by Moment Area Method, Sign Convention, Slope and Deflection for Cantilever, Slope and Deflection for simply Supported Beam, Deflections by Conjugate Beam Method, Deflection by strain Energy, Impact Loading on Beams, Laminated Spring, Deflection Due to Shear

3. FIXED AND CONTINUOUS BEAMS

Introduction, Fixing Moments for a Fixed Beam of Uniform Section, Effect of Sinking of Support, Effect of Rotation of a Support, Slope and Deflection at a point, by Moment Area Method, Introduction, Analysis of Continuous Beams, Reactions at the supports, Effect of Sinking of Supports

4. COLUMNS AND STRUTS

Introduction, Euler Crippling Load-Column with One End Free and the Other End Fixed, Column with both ends fixed, Column with One End Fixed and the other Hinged, Limitation of Euler's Formula, Column with Initial Curvature, Column Carrying Eccentric Load, Laterally Loaded Columns, Empirical Formulae

5. RIVETED CONNECTIONS

Introduction, Riveted Connections, Types of Riveted Joints, Failure of Riveted Joints, Strength of Riveted Joints, Permissible Stresses in Rivets, Design of Riveted Joints, Riveted Joints in Cylindrical and Spherical Shells, Structural Connections, Riveted Joints Subjected to Moment Acting in the Plane of the Joint, Riveted Joint Subjected to Moment Acting at Right Angles to the Plane of the Joint

6.WELDED CONNECTIONS

The welding process, types of welds, intermittent fillet welds, combined stresses in weld, eccentric welded connection

