

**Shantilal Shah Engineering College, Bhavnagar**  
**Applied Mechanics Department**

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Date: 26/03/2024

**Civil Engineering [BE / PDDC – 4<sup>th</sup> Semester]**

**Odd Semester: Syllabus of Class Test (April – 2024)**

#	Subject Code	Name of Subject	Syllabus – Topic / Units
1	3140603/ 2950603	Structural Analysis - I	<p><b>Unit-1: Fundamentals of Statically Determinate Structures:</b> <b>Basics:</b> Types of statically determinate &amp; indeterminate structures, static and kinematic indeterminacy, stability of structures, principle of superposition, Maxwell's reciprocal theorems.</p> <p><b>Framed structure:</b> Computation of internal forces in statically determinate framed structures such as <b>plane frame only</b>.</p> <p><b>Unit-2: Strain energy &amp; Displacement of Statically Determinate structures</b> <b>Strain Energy:</b> Resilience, strain energy due to axial loads &amp; flexure, proof resilience, modulus of resilience, impact loads, and sudden loads</p> <p><b>Unit-3: Direct and Bending stresses + Column &amp; Struts</b> <b>(A) Direct and Bending stresses</b> <b>Basics:</b> Members subjected to eccentric loads, kernel of section – <b>[Only Theory]</b></p> <p><b>(B) Columns and Struts</b> <b>Basics:</b> Buckling of columns, different end conditions, effective length, least radius of gyration <b>Applications:</b> Euler's and Rankine's formulae, columns with initial curvature, eccentrically loaded columns, columns with lateral loading.</p> <p><b>Unit-4: Statically Indeterminate beams</b> <b>Basics:</b> Types of statically indeterminate beams, Consistent Deformation method - <b>[Propped Cantilever beam]</b></p>

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**Subject Co-ordinator**  
**(Prof. K. A. Mehta)**