

**Unit I****Chapter 1 : Working Stress Method 1-1 to 1-16**

**Syllabus :** Concept of reinforced concrete, Working Stress Method (WSM) of design for reinforced concrete, permissible stresses as per IS-456-2000; stress-strain curve of concrete and steel characteristics of concrete steel reinforcement. Concept of balanced, under reinforced and over reinforced sections. Analysis design of singly reinforced and doubly reinforced rectangular beams for flexure, shear by WSM, Analysis and design of cracked and un-cracked RCC column sections by WSM.

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**Unit II****Chapter 2 : Limit State Method 2-1 to 2-5**

**Syllabus :** Introductions to limit state method of design as per IS-456-2000; concepts of probability and reliability, characteristic loads, characteristic strength, partial safety factors for loads and material, introduction to various limit states.

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**Unit III****Chapter 3 : Limit State of Collapse – Flexure, Shear, Bond and Torsion 3-1 to 3-80**

**Syllabus :** Limit state of collapse in flexure, shear and Limit state of serviceability in deflection and cracking, design of singly and doubly reinforced rectangular and T sections for flexure, design of members in shear and bond, design of beam subjected to bending and torsion. Requirements governing reinforcement detailing. Deflection and crack width calculation for RCC members.

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### Unit IV

#### Chapter 4 : Design of Slabs using LSM      4-1 to 4-51

**Syllabus :** Design of one way, one way continuous slab and two way slabs with all end conditions as per IS-456-2000.

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### Unit V

#### Chapter 5 : Limit State of Collapse - Compression 5-1 to 5-14

**Syllabus :** Limit state of collapse compression for short and slender column. Members subjected to combined axial and uniaxial as well as biaxial bending. Development of interactive curves and their use in column design.

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### Unit VI

#### Chapter 6 : Design of Foundations      6-1 to 6-56

**Syllabus :** Isolated square and rectangular footings subjected to axial load and moments. Design of combined rectangular pad footings, slab beam type footing. Design of Raft foundations (No numerical to be asked on raft foundations in the exam).

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