

OBJECTIVES:

To inform about the methods of design through working stress and limit state methods.

To use the above two methods for the design of Concrete beams and slabs under various conditions.

To use the limit state method for design of a concrete staircase.

Case studies and models wherever applicable.

UNIT I DESIGN OF CONCRETE MEMBERS AND WORKING STRESS**DESIGN OF BEAMS****12**

Concept of Elastic method, Ultimate Load Method and Limit State Method – Advantages of Limit State Method over other methods. Analysis and Design of Singly and Doubly reinforced rectangular and flanged beams for bending.

UNIT II LIMIT STATE DESIGN OF BEAMS**12**

Analysis and design of singly and doubly reinforced rectangular and flanged beams for Bending – Design of Continuous beams using IS code co-efficient.

UNIT III LIMIT STATE DESIGN OF SLABS**7**

Behavior of one way and two way slabs – Design of one way and two way slabs for various edge conditions - Corner effects.

UNIT IV DESIGN OF CIRCULAR SLABS**7**

Design of Simply supported and fixed Circular slabs subjected to uniformly distributed loads.

UNIT V DESIGN OF STAIRCASE BY LIMIT STATE METHOD**7**

Types of Staircases – Design of Dog Legged Staircase.

OUTCOMES:

At the end of the course, the student should be able to:

Understand the different concepts of WSM and LSD methods using the codal provisions.

RC beams and slabs to be designed by applying the above concepts.

Dog legged staircase design using LSD.

EQUIRED READING

1. S.N. Sinha, "Reinforced Concrete Design", Tata McGraw Hill Publishing Co. Ltd, New Delhi, 1998.
2. Shah, "Reinforced Concrete", Vol. 1 and 2, Charotar Publishing House, Anand, 1998.

REFERENCES:

1. P. Dayaratnam, "Design of Reinforced Concrete Structures", Oxford and IBH Publishing Co., 1983.
2. C. Sinha and S.K. Roy, "Fundamentals of Reinforced Concrete", S.Chand & Co., New Delhi, 1983.
3. Dr. B.C. Punmia, "Reinforced Concrete Structures", Vol, 1 & 2 Laxmi publication, Delhi, 2004.
4. IS 456 "Indian Standard, Plain and Reinforced Concrete, Code of Practice, Bureau of Indian Standards, 2000.
5. S. Unnikrishnan Pillai and Devados Menon, " Reinforced Concrete Design" – Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1999.

