

5th Semester	RCI5C001	Design of Concrete Structures	L-T-P 3-0-0	3 Credits
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Module I**(10 Classes)**

Properties of concrete and reinforcing steel, philosophy, concept and methods of reinforced concrete design, introduction to limit state method, limit state of collapse and limit state of serviceability, application of limit state method to rectangular beams for flexure, shear, bond and torsion

Module II**(8 Classes)**

Design of doubly reinforced beams, design of T and L beams, design of one way and two way slabs, design of staircases.

Module III**(8 Classes)**

Design of short and long columns with axial and eccentric loadings, Design of isolated and combined column footings

Module IV**(8 Classes)**

Retaining walls, various forces acting on retaining wall, stability requirement, design of cantilever and counterfort retaining walls,

Module V**(6 Classes)**

Design of water tanks, design requirements, design of tanks on ground, under ground and elevated water tanks.

Books:

1. Design of Reinforced Concrete Structure by N. Subramanian, Oxford University Press
2. Limit State Design by A.K.Jain, Neemchand & Bros
3. Reinforced Concrete Design by S U Pillai & D. Menon, McGraw Hill
4. Design of concrete structures by J.N.Bandyopadhyay, PHI
5. Limit State Design of Reinforced Concrete -P.C Verghese
6. Reinforced Concrete Design by S.N.Sinha, McGraw Hill
7. RCC Design-B.C.Punmia, A.K.Jain and A.K.Jain-Laxmi Publications

Digital Learning Resources:

Course Name	Design of Reinforced Concrete Structures 12 weeks
Course Link	(https://nptel.ac.in/courses/105/105/105105105/)
Course Instructor	PROF. NIRJHAR DHANG, IIT Kharagpur