



# DESIGN OF REINFORCED CONCRETE STRUCTURES

## **PROF. NIRJHAR DHANG**

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**INTENDED AUDIENCE** : Students of Civil Engineering and Architecture

**INDUSTRIES APPLICABLE TO** : This course will be recognized by design consultancy firms and construction industries.

## **COURSE OUTLINE :**

Design of reinforced concrete structures is an introductory design course in civil engineering. In this course, basic elements governed by bending, shear, axial forces or combination of them are identified and are considered as building blocks of the whole structure. Different methods of design will be briefly described before introducing the limit states of collapse and serviceability. The design will be done as per IS 456:2000

## **ABOUT INSTRUCTOR :**

Prof. Nirjhar Dhang (born 1962) is currently Professor of the Department of Civil Engineering, Indian Institute of Technology, Kharagpur, where he teaches Bridge Engineering, Structural Health Monitoring & Control, Design of Reinforced Concrete Structures. He works in the field of structural engineering particularly in the area of concrete, structural health monitoring & control and railway bridges applicable for high speed rail. He has done many consultancy and research project work.

## **COURSE PLAN :**

**Week 01** : Introduction, Different methods of design of reinforced concrete structures

**Week 02** : Working stress method

**Week 03** : Limit state of collapse - flexure

**Week 04** : Design of singly reinforced beam

**Week 05** : Design of doubly reinforced beam

**Week 06** : Limit state of collapse - shear

**Week 07** : Design for shear

**Week 08** : Design of slab

**Week 09** : Design of compression members

**Week 10** : Design of footing

**Week 11** : Design of staircase

**Week 12** : Limit state of serviceability