



SYNERGY SCHOOL OF ENGINEERING, DHENKANAL
LESSON PLAN
SESSION 2026-2027
DEPARTMENT OF CIVIL ENGINEERING

Discipline: Civil Engineering	Semester: 5th/W 2026	Name of the Faculty: Satya Prakash Rout Email: satyaprakash.13.ce.rout@gmail.com
Subject: Design of RCC Structures	No. of Days/week: 03	Start Date: 04/7/26 End Date: 05/11/26

Week	Class Day	Theory Topics
1st	1st	Introduction to the Design philosophies. Shear, Bond and Development length in Design of RCC member.
	2nd	Design Philosophies, Design of Singly Reinforced Beam using LSM
	3rd	Design Philosophies, Design of Doubly Reinforced beam for Flexure using LSM.
2nd	1st	Nominal shear stress in RCC section, Design shear strength of concrete.
	2nd	Design of shear reinforcement, Minimum Shear Reinforcement.
	3rd	Provisions of IS 456 2000, forms of shear reinforcement
3rd	1st	Types of bond, Bond stress, check for bond stress
	2nd	Determination of Development length in tension and compression members
	3rd	Check as per codal provisions, Anchorage value of 90o hook, Lapping of bars.
4th	1st	Simple numerical on: Shear reinforcement, Adequacy of section for shear
	2nd	Introduction to serviceability limit state check
	3rd	Introduction to Design of axially loaded RCC column
5th	1st	Definition and classification of column, Limit state of compression members, Effective length of column.
	2nd	Definition and classification of column, Limit state of compression members, Effective length of column continuation
	3rd	Provisions of IS 456 2000 for minimum steel, cover
6th	1st	Provisions of IS 456 2000 for maximum steel, spacing of ties etc.
	2nd	Design of axially loaded short column - Square,
	3rd	Design of axially loaded short column – Rectangular
7th	1st	Design of axially loaded short column – Circular
	2nd	Assignment check and doubt clear session
	3rd	Introduction to design of RC flanged beam. General features of T and L beams, Advantages, Effective width as per BIS 456 2000
8th	1st	Design of singly reinforcement T beam, Stress and Strain diagram, Depth of neutral axis, Moment of resistance, T and L beams with neutral axis in flange only
	2nd	Design of singly reinforcement T beam, Stress and Strain diagram, Depth of neutral axis, Moment of resistance, T and L beams with neutral axis in flange only
	3rd	Simple numerical on location of neutral axis, Effective width of flange
9th	1st	Simple numerical on location of neutral axis, Effective width of flange

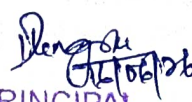
Satya Prakash Rout
11/6/26



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	2nd	Introduction to Design of slab.
	3rd	Design of simply supported one-way slab for flexure and checks, as per the provisions of BIS 456
10 th	1st	Design of simply supported one-way slab for Shear and checks, as per the provisions of BIS 456
	2nd	Design of simply supported one-way slab for deflection and checks, as per the provisions of BIS 456
	3rd	Design of one-way cantilever slab flexure including checks for Development length and Shear stress.
11 th	1st	Design of one-way cantilever Chajjas flexure including checks for Development length and Shear stress.
	2nd	Design of two-way simply supported slab
	3rd	Design of two-way simply supported slab continuation
12 th	1st	Introduction to design of dog-legged staircases
	2nd	Problem solving and doubt Discussion
	3rd	Introduction to design of footing
13 th	1st	Provisions for designing and LSM design
	2nd	Introduction to design of footing for axially loaded column
	3rd	Design of footing for axially loaded column only
14 th	1st	Problems on design of footing for axially loaded column only.
	2nd	Minimum Eccentricity, Design of Footing for uni-axial bending as per IS 456 provisions
	3rd	Problem solving on design of Footing for uni-axial bending as per IS 456 provisions
15 th	1st	Design of column with uni- axial moment as per IS 456 provisions
	2nd	Problem solving on design of, column with uni- axial moment as per IS 456 provisions
	3rd	Problem solving and doubt Discussion and semester question discussion.


PREPARED BY


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