

**DEPARTMENT/INSTITUTE/DIRECTORATE: CIVIL ENGINEERING**Name of Teacher: **Prof. Dr. Naeem Aziz Memon** Batch: **20CE(A+D)** Year: **3rd** Semester: **6th**Subject: **Reinforced and Prestressed Concrete**Course Code: **CE336**Semester Starting Date: **03-07-2023**Semester Suspension Date: **20-10-2023****Course Learning Outcomes (CLOs):**

Upon successful completion of the course, the student will be able to:

CLO No.	Description	Taxonomy level	Associated PLO
1	DESIGN various reinforced concrete structural members	C6	3
2	DESIGN various prestressed concrete members	C6	3

Sr. #	Description of Topic	CLO's	No. of Lec. Req.
1.	Doubly reinforced concrete beams	1	1
2.	Analysis and design of simply supported doubly reinforced concrete beams	1	3
3.	Shear in reinforced concrete beams	1	1
4.	Design of shear reinforcement for simply supported beams	1	3
5.	Column, types of columns, design considerations	1	1
6.	Analysis and design of short columns	1	3
7.	Footing, types of footing, design considerations	1	1
8.	Design of isolated square & rectangular footings	1	3
9.	Design of combined & strap footings	1	3
10.	Design of raft/mat footing	1	3
11.	Two-way slabs, design considerations	1	1
12.	Design of two-way solid slabs	1	3
13.	Staircase, design of staircases	1	3
14.	Prestressed concrete, Basic concept of prestressed concrete	2	1
15.	Advantages and applications of prestressed concrete	2	1
16.	Classification and methods of prestressing	2	2
17.	Properties and importance of high strength materials used in prestressed concrete	2	1
18.	Analysis of prestress, Basic assumptions	2	1
19.	Analysis of prestressed concrete members based on stress concept	2	3
20.	Concept of Load balancing, Analysis of prestressed concrete members based on load balancing concept	2	3
21.	Losses of Prestress	2	1
22.	Lump sum and detailed estimation of prestress losses	2	3
23.	Design of prestressed concrete members for flexure and shear	2	3
	Total Lectures		48

Signature of Teacher:

Dated: 03/07/2023

Remarks of DMRC: **APPROVED**

Signature of Chairman:

Dated: 01/08/2023