Course-Plan

School of Engineering Department of Civil Engineering Course Code: CE320 L:3 T:1 P:0 Course Name: Structural Design-I

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1.ABSTRACT:

Structural Design-I generally consists of study of Reinforced Concrete Design. The aim of the course is to understand the behavior of concrete and reinforced steel under different load conditions, environment etc. This course will give the knowledge of structural behavior, analysis and design of concrete and its application in different fields.

2. OBJECTIVE:

The Course will try to introduce the overall concept of structural design of reinforced concrete structure which will help the student to understand and design the different structural members of a R.C.C structure

3. PREREQUISITES OF THE COURSE: Basic mathematics, Strength of Materials, Structural Analysis.

4. COURSE SYLLABUS

Properties of concrete & reinforcing steel. Limit state design philosophy. Durability, serviceability, shear, bond, flexure & deflection consideration. Singly reinforced and doubly reinforced beams, T beams, and continuous beam, simple & continuous slab. Columns subjected to centric & eccentric loading, long & short columns. Design philosophy of footings, isolated & combined footings. Design of retaining walls. Introduction to working stress method of design, introduction to the design of water retaining structures.

5. COURSE OUTLINE AND TENTATIVE SCHEDULE

Module No.	Lecture Topic	No. of Lectures
Module 1	Properties of concrete & reinforcing steel	3 L
Module 2	Limit state design philosophy. Durability, serviceability, shear, bond, flexure & deflection consideration	3 L
Module 3	Singly reinforced and doubly reinforced beams	6L
Module 4	T beams, continuous beam	6 L
Module 5	Simple & continuous slab	6 L
Module 6	Columns subjected to centric & eccentric loading, long & short columns	8 L
Module 7	Design philosophy of footings, isolated & combined footings.	6 L
Module 8	Design of retaining walls	5 L
Module 9	Introduction to working stress method of design	4 L
Module 10	Application to the design of water retaining structures	5 L
	Total Number of Lectures	52 L

6. GRADING POLICY

The assessment of is based on revised guidelines on continuous evaluation with relative grading. The break-up of the scheme is as follows

SI .	Mode of assessment	Туре	Marks	Duration	Syllabus
1	Test 1	Written/Viva/PPT/Assignment	25	45 minutes	From beginning
2	Test 2	Written/Viva/PPT/Assignment	40	120 minutes	From beginning
3	Test 3	Written/Viva/PPT/Assignment	25	45	From Test-II till Test-III

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				minutes	
4	Test 4 End Term	Written	60	180 minutes	From Test-III till Test IV and the course instructor may include some units of the syllabus covered under Test-I and Test-II
Grand total		150 marks			

7. REFERENCE BOOK

Text Books

- 1. Pillai, S.U. & Menon, D. Reinforced Concrete Design (Tata McGraw-Hill, 2009)
- 2. Varghese, P.C. Limit State Design of Reinforced Concrete (Prentice Hall of India, 2007)

Reference Books:

- 1. Punmia, B.C. Reinforced Concrete Structures Vol. I (Standard Book House, 1998)
- 2. Jain, A.K. Reinforced Concrete Structures Vol. I &II (Lakshmi Pub, 1990)
- 3. IS 456 2000, BIS.

8. PEDAGOGY

Online Teaching-learning methods to be used Lecture and Discussion Presentations Viva Assignment Quiz

9. COURSE OUTCOME

Upon completion of the course, Students are expected to attain the following outcomes

- 1) Understanding of codes and design philosophies to the design of rc members and elementary structures.
- 2) Apply and develop the knowledge of structural analysis and material strength.

- 3) Design of different structural elements.
- Ability to make decisions, provide a space for autonomous thought, and support productive teamwork and develop communication techniques using modern engineering technologies

CO-PO LINKAGE

СО	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C01	Understanding of codes and design philosophies to the design of rc members and elementary structures.	3	-	-	-	-	-	-	1	-	-	-	2	2	-	-
CO2	Apply and develop the knowledge of structural analysis and material strength.	3	3	-	-	-	-	-	1	-	-	-	2	2	-	-
CO3	Design of different structural elements	3	-	3	-	-	-	2	1	-	-	-	2	3	2	-
C04	Ability to make decisions, provide a space for autonomous thought, and support productive teamwork and develop communication techniques using modern engineering technologies.	3	2	3	-	3	-	2	1	3	3	-	2	3	3	3
CE320		3	2.5	3	-	3	-	2	1	3	3	-	2	2.5	2.5	3

Instructor: D.B.Sonowal

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