

**B.E. Semester: VII
Civil Engineering**

Subject Name: DESIGN OF SPECIAL STRUCTURES I (CV704-A)

A. Course Objective:

- To provide a coherent development to the students for the courses in sector of Reinforced Concrete Designing
- To present the foundations of many Special engineering concepts related designing of structures
- To give an experience in the implementation of designing concepts which are applied in field of structural engineering
- To involve the application of scientific and technological principles of design of buildings according to limit state method of design

B. Teaching /Examination Scheme

Teaching scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract/ Tut.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
03	02	0	05	05	03	70	30	20	30	150

C. Detailed Syllabus:

MODULE – I RC Structure Design

UNIT-I Wind Load Analysis

- Loading standards as per I.S, distribution & flow of loads, lateral load due to wind as per IS: 875(Part – III), load combinations, guide lines for preparation of structural layout for building.

UNIT-II Design RC Water Tanks.

- Design & detailing of Underground Rectangular and Circular Water Tank
- Design & Detailing of Elevated circular & rectangular RC water tanks.
- Design & Detailing Intz Tank

UNIT-III Design Retaining Wall

- Design & Detailing of Cantilever Retaining wall for various ground Conditions
- Design & Detailing of Counter Fort Retaining Wall for Various Ground Conditions

UNIT-IV Design of Silos

- Design and detailing of silos.

D. Lesson Planning

Unit no	Title of the Unit	Minimum Hours	Weightage (%)
I	Wind Load Analysis	12	25
II	Design RC Water Tanks.	14	30
III	Design Retaining Wall	10	25
IV	Design of Silos	9	20
TOTAL		45	100

E. List of Tutorial

Sr. No.	Analysis, design and detailing of following structures any two
1	G+3 building with dead load, live load and wind load
2	Design RC Water Tanks.
3	Design Retaining Wall
4	Design of Silos
5	Any other special structure

Term Work

- Analysis, Designing and Detailing of G+3 RC Frame Structure Considering Dead load, Live load, and Wind Load
- Analysis, Designing and Detailing of RC Water tank
- Analysis, Designing and Detailing of Retaining wall
- Analysis, Designing and Detailing of Silo

F. Instructional method and pedagogy (Continuous Internal Assessment Scheme) (CIA)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.

- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms carries marks
- Internal exam of 30 marks will be conducted as a part of mid semester evaluation.
- Experiments shall be performed in the field related to course contents.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

G. Students Learning Outcomes:

- The students will gain an experience in the implementation of designing on engineering concepts which are applied in field Structural Engineering.
- The students will get a diverse knowledge of design practices applied to real life problems

H. Recommended Study Materials

Reference Books and IS Codes:

1. Shah and Kurvey; Limit State theory & Design of Reinforced Concrete
2. Dr. B.C.Punamia, A.K. Jain; RCC Designs; Laxmi Publication
3. S.N.Sinha ; Reinforced Concrete Design, Tata McGrawhill
4. A.K.Jain; Design of Concrete Structures, Nemchand Publication
5. IS: 456-2000 Indian Standard code of practice for plain and reinforced concrete, Bureau of Indian Standards, New Delhi.
6. IS: 3370-Indian Standard code of practice for concrete structures for storage of liquids, Bureau of Indian Standards, New Delhi