

CE-7001 Advance Structural Design –I (RCC) For credits & marks refer scheme

Unit - I

Design of Multistory Buildings - Sway and non-sway buildings, shear walls and other bracing elements.

Unit - II

Earth Retaining Structures: Cantilever and counter fort type retaining walls.

Unit - III

Water Tanks: Tanks on ground and underground tanks: square, rectangular, circular tanks, overhead tanks: circular and intze tanks.

Unit - IV

Silos and Bunkers: Introduction, design of rectangular, square and circular bunkers, design of silos by Airy's theory and Janssen's theory.

Unit - V

T-beam & Slab bridges- for highway loading (IRC Loads). Prestressing concepts materials, systems of prestressing & losses. Introduction to working and limit state design.

Reference books :

1. R.C.C. by O.P. Jain Vol. II
2. R.C.C. by B.C. Punmia
3. Essentials of Bridge Engineering – D.J. Victor
4. Bridge Engineering - Ponnuswamy
5. Advanced R.C.C. Design by N.K. RAJU
6. N.Krishna Raju, Prestressed Concrete, Tata McGraw Hill, New Delhi.
7. Pre stresses concrete – T.Y. Lin Relevant IS codes

Practical work:

The detailed design and drawing of various structural components given below as per the syllabus:

1. Design of multistory buildings (sway and non-sway buildings), shear walls and other bracing elements.
2. Cantilever and counter fort type of retaining walls
3. Water tanks: underground and on ground tanks (square, rectangular, circular), overhead tanks and intze tanks
4. Silos (rectangular, square and circular)
5. Bunkers (rectangular, square and circular)
6. T-beam
7. Slab bridges for highway as per IRC loading
8. Prestressed concrete members