Course Number and Name

**BCE052 - INDUSTRIAL STRUCTURES**

Credits and Contact Hours

**3 & 45**

Course Coordinator's Name

Dr. S.J. Mohan

Text Books and References

**TEXT BOOKS:**

1. Purushothaman P ,"Reinforced Concrete Structural elements", Tata McGraw-Hill, 1984.

**REFERENCES:**

1. Pasala Dayaratnam,"Design of Steel Structure", Wheeler publishers Allahabad , 1990.
2. Planning industrial structures Dunham, Industrial Structures McGraw-Hill Book Co; 1st edition (1948)
3. Henn W. Buildings for Industry, vols.I and II, London Hill Books, 1995.
4. Handbook on Functional Requirements of Industrial buildings, SP32 – 1986, Bureau of Indian Standards, New Delhi 1990.
5. Course Notes on Modern Developments in the Design and Construction of Industrial Structures, Structural Engineering Research Centre, Madras, 1982.

Course Description

- This course deals with some of the special aspects with respect to Civil Engineering structures related to industries

| Prerequisites | Co-requisites |
|---|---|
| Reinforced Concrete Structures - I | NIL |

required, elective, or selected elective (as per Table 5-1)

Course Outcomes (COs)

| | |
|---|---|
| CO1 | Prepare the layout for industrial buildings |
| CO2 | Design for functional requirements |
| CO3 | Design steel girder, bunker and silos |
| CO4 | Design RC structures like chimneys, silos and folded plates |
| CO5 | Design prestressed precast concrete units. |

Student Outcomes (SOs) from Criterion 3 covered by this Course

| COs/SOs | a | b | c | d | e | f | g | h | i | j | k |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | H | | M | M | | | | | | | |
| CO2 | | | H | H | | | | | | | |
| CO3 | | | H | H | | | | | | | |
| CO4 | | | H | H | | | | | | | |
| CO5 | | | H | H | | | | | | | |

List of Topics Covered

**UNIT I GENERAL 8**

Specific equipments for industries like Engineering. Textile, Chemical etc., - Site layout and external facilities classification of industries minimum standards internal calculation – Materials – Works.

**UNIT II FUNCTIONAL REQUIREMENTS 10**

1. Lighting – Natural and artificial – protection from the sun – sky light.
2. Services, Layout, wiring fixtures, cable and pipe bridges – Electrical installations – lighting - Substations - effluent.
3. Ventilation and fire protection, ventilation & air – conditioning, fire escapes and, chutes, fire alarms, extinguishers and hydrants.

**UNIT III PLANNING & DESIGN 9**

(Requirement of factory and other rules)

Layout stages. Loading Design of single bay and design of multi bay multi storied frames in RCC and steel – Analysis of industrial structures.

**UNIT IV DESIGN OF APARTMENT STRUCTURES 10**

Cranes - Different types - principles - design of girder – open web and solid web bunkers – silos – R.C. ducts.

**UNIT V CONSTRUCTION TECHNIQUES 8**

Expansion joints- design of machine foundations and other foundations as per I.S. Code - Water proofing – roof drainage – joints – sound, shock proof mountings.