Kadi Sarva Vishwavidyalaya's

LDRP Institute of Technology & Research

Gandhinagar-382 015

B.E. Semester: IV

Department of Civil Engineering

Subject Name: Building Construction (CV404-N)

A. Course Objectives:

- Identify the various Building Components in detail.
- Concepts, principles and procedures related to building construction system.
- Effectively able to execute building construction work.
- Carry out construction with safety and quality in construction.

B. Teaching /Examination Scheme

Teaching scheme				Total Credit	Evaluation Scheme				
L	T	P	Total		Theory		Mid Sem Exam	CIA	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks
03	00	00	03	03	03	70	30	20	120

C. Detailed Syllabus:

1. **Shallow Foundations:**

   Basic of foundation, function, types.

2. **Masonary Construction:**

   (a) Stone Masonary: Technical terms, lifting appliances, joints, types random (un-coursed) rubble, coursed rubble, dry rubble masonry, Ash

   Masonry- Ashlar fine, chamfered fine.

   (b) Brick Masonary: Technical terms, bonds in brick work- English bon single &

double Flemish bond, garden wall bond, raking bond, Dutch bond.

(c) Composite Masonary: Stone facing with brick backing, brick facing with concrete backing.

(d) Hollow concrete blocks and construction

(e) Cavity walls: Brick cavity walls, position of cavity at foundation, roof and at opening levels.

(f) Lintels & arches: Lintels – types, construction. Arches – technical terms types – brick, arches, rough, axed, stone arches, flat – semi circular

3. Doors and Windows:

(a) Doors: Location, technical terms, size, types, construction, suitability.

(b) Windows: Factors affecting selection of size, shape, location and no. of windows, types, construction, suitability, fixtures and fastenings.

(c) Ventilators: Ventilators combined with window, fan light.

4. Stairs and Staircases :

Definition, technical terms, requirements of good stair, fixing of going and rise of a step, types of steps, classification, example – stair planning, elevators, escalators.

5. Floorings :

Introduction, essential requirements of a floor, factors affecting selection of material, types of ground floors, brick, flag stone, tiled cement- concrete, granolithic, terrazzo, marble, timber flooring, upper floor- timber, timber floor supported on RSJ, flag stone floor resting on RSJ, ack arch floor, reinforced concrete floor, ribbed floor, pre cast concrete floor.

6. Roofs and Roof Covering :

Introduction, requirements of good roof technical terms, classification, types of roof coverings for pitched roof. A.C. sheet roofs – fixing of A.C. sheets, laying of big six sheets, G.I. Sheets roofs, slates, flat roof – advantages, disadvantages, types of flat terraced roofing.

7. Formwork:

Form work for R.C.C. wall, slab, beam and column, Centering for arches of large spans and dams, design features for formwork, and Slip formwork, False work for bridges.

8. Temporary works :

Timbering in trenches, types of scaffoldings, shoring, underpinning

9. Wall Finishes:

Plastering, pointing and painting.

10. Special Treatments:

Fire resistant, water resistant, thermal insulation, acoustical construction and anti-termite treatment.

11. Control of Ground Water in Excavations:

Methods- pumping, well points, bored wells, electro-osmosis, injections with cement, clays
and chemical, freezing process, vibro-flotation

12. Coffer Dams:

Definition, uses, selection of coffer dams, types of coffer dams, design features of coffer dams; leakage prevention, economic height.

13. Caissons:

Definition, uses, construction material, types of caissons, loads on caisson, design features of
caissons, floating of caissons, cutting edges, sinking of caisson, tilting of caisson, caisson diseases

D. Lesson Planning:

Sr. No.	Title of the Unit	Minimum Hours	Weightage
1.	Shallow Foundation	2	4
2.	Masonary Construction:	9	20
3.	Doors and Windows:	4	9
4.	Stairs and Staircases	3	7
5.	Floorings	4	9
6.	Roofs and Roof Covering :	4	6
7.	Formwork	3	7
8.	Temporary works	3	7
9.	Wall Finishes	2	5
10.	Special Treatments	2	5
11.	Control of Ground Water in Excavations:	3	7
12.	Coffer Dams	3	7
13.	Caissons	3	7

Term Work:

Term work shall be based on the above mentioned course content.

Field Visit:

Field visit based on course content are Suggested.

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.

The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

G. Student Learning Outcome:

On the successful completion of this course the course helps student to understand the basics of Building Construction and helpful to the construction of industry.

H. Recommended Study Materials

(A) Reference Books:

1. Dr. B. C. Punamia ,Building Construction, Laxmi Publication Delhi.
2. Sushil Kumar, Building Construction.
3. Dr. S.C. Rangwala, Building Construction, Charotar Pub. House.
4. Gurucharan Singh, , Building Construction
5. National Building Code

6. IS 6313-1981/2001/2001 part 3
7. IS 2212-1991
8. IS 2250-1981
9. IS 1237-1980
10. IS 1081-1960
11. IS 1661-1972

(B) Web Materials:

1. http://www.nptel.iitm.ac.in