



# KAMALDNP

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## Building Construction — Complete Syllabus

BTEUP Diploma in Civil Engineering • 3rd Semester • Session 2026-27

Subject 3.6 (Practicum/Theory) • Total 100 Marks • 3 Credits • L 2 – P 2

**Note:** The 3rd-semester scheme totals imply this subject's 40 internal marks sit under Theory assessment (the extracted table's column alignment is garbled — see NOTES).

### Examination Scheme

| Code                        | Paper                 | Type              | L - P | Credits | Internal | External          | Total |
|-----------------------------|-----------------------|-------------------|-------|---------|----------|-------------------|-------|
| 3.6                         | Building Construction | Practicum/ Theory | 2 - 2 | 3       | 40       | Theory 60 (3 hrs) | 100   |
| Building Construction Total |                       |                   |       | 3       | 40       | 60                | 100   |

### What This Subject Aims To Do

To identify the different components of a building, understand different types of foundation and their significance, know different types of masonry and their construction, and understand the importance of communications (doors, windows, stairs) in building planning.

### Unit-Wise Complete Topic List

| Unit | Topic                           | Periods | Marks Share |
|------|---------------------------------|---------|-------------|
| 1    | Overview of Building Components | 4       | 15%         |
| 2    | Construction of Substructure    | 5       | 20%         |

|   |                                        |   |     |
|---|----------------------------------------|---|-----|
| 3 | Construction of Superstructure         | 6 | 20% |
| 4 | Building Communication and Ventilation | 7 | 25% |
| 5 | Building Finishes                      | 6 | 20% |

### Unit 1 — Overview of Building Components (4 Periods, 15%)

**Topics:** Classification of buildings as per National Building Code Group A to I; as per types of constructions — load bearing structure, framed structure, composite structure; building components — functions of building components; substructure — foundation, plinth; superstructure — walls, partition wall, cavity wall, sill, lintel, doors and windows, floor, mezzanine floor, roof, columns, beams, parapet.

### Unit 2 — Construction of Substructure (5 Periods, 20%)

**Topics:** Job layout: site clearance, layout for load bearing structure and framed structure by centre line and face line method, precautions; earthwork: excavation for foundation, timbering and strutting, earthwork for embankment, material for plinth filling, tools and plants used for earthwork; foundation: functions of foundation, types of foundation — shallow foundation, stepped footing, wall footing, column footing, isolated and combined column footing, raft foundation, grillage foundation; deep foundation — pile foundation, well foundation and caissons; pumping methods of dewatering, deep wells, well points, cofferdams (introduction only).

### Unit 3 — Construction of Superstructure (6 Periods, 20%)

**Topics:** Stone masonry: terms used in stone masonry — facing, backing, hearting, through stone, corner stone, cornice; types of stone masonry: rubble masonry, ashlar masonry and their types; joints in stone masonry and their purpose; selection of stone masonry, precautions to be taken in stone masonry construction; brick masonry: terms used in brick masonry — header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb; bonds in brick masonry — header bond, stretcher bond, English bond and Flemish bond; requirements of good brick masonry; junctions in brick masonry and their purpose and procedure; precautions to be observed in brick masonry construction; comparison between stone and brick masonry; tools and plants required for construction of stone and brick masonry; hollow concrete block masonry and composite masonry; scaffolding and shoring: purpose, types of scaffolding, process of erection and dismantling; purpose and types of shoring, underpinning; formwork: definition of formwork, requirements of formwork, materials used in formwork, types of formwork for slabs, beams, columns, stripping time for removal of formwork as per IS 456.

## Unit 4 — Building Communication and Ventilation (7 Periods, 25%)

**Topics:** Horizontal communication: doors — components of doors, full paneled doors, partly paneled and glazed doors, flush doors, collapsible doors, rolling shutters, revolving doors, glazed doors; sizes of door recommended by BIS; windows: component of windows, types of windows — full paneled, partly paneled and glazed, wooden, steel, aluminum windows, sliding windows, louvered window, bay window, corner window, clear-storey window, gable and dormer window, skylight; sizes of windows recommended by BIS; ventilators; fixtures and fastenings for doors and windows — material used and functions of window sill and lintels, shed / chajja; vertical communication: means of vertical communication — stair case, ramps, lift, elevators and escalators; terms used in staircase — steps, tread, riser, nosing, soffit, waist slab, baluster, balustrade, scotia, hand rails, newel post, landing, headroom, winder; types of stair case (on the basis of shape): straight, dog-legged, open well, spiral, quarter turn, bifurcated, three quarter turn and half turn; (on the basis of material): stone, brick, R.C.C., wooden and metal.

## Unit 5 — Building Finishes (6 Periods, 20%)

**Topics:** Floors and roofs: types of floor finishes and its suitability — Kota, marble, granite, ceramic tiles, vitrified, chequered tiles, paver blocks, concrete floors, wooden flooring, skirting and dado; process of laying and construction, finishing and polishing of floors; roofing materials — RCC, Mangalore tiles, AC sheets, G.I. sheets, corrugated G.I. sheets, plastic and fibre sheets; types of roof: flat roof, pitched roof — king post truss, queen post truss, terms used in roofs; wall finishes: plastering — necessity of plastering, procedure of plastering, single coat plaster, double coat plaster, rough finish, neeru finishing and Plaster of Paris (POP); special plasters — stucco plaster, sponge finish, pebble finish; plaster board and wall claddings; precautions to be taken in plastering, defects in plastering; pointing — necessity, types of pointing and procedure of pointing; painting — necessity, surface preparation for painting, methods of application.

## Practical Work

- Demonstration of tools and plants used in building construction.
- To prepare layout of a building: two rooms building with front verandah.
- To construct brick bonds (English bond only) in one, one and half and two brick thick: (a) walls for L, T and cross junction; (b) columns.
- Demonstration of the following items of work at a construction site (a report of these activities will be submitted by the students): (a) timbering of excavated trenching; (b) laying damp proof courses; (c) construction of masonry walls; (d) laying of tile flooring on an already prepared lime concrete base; (e) plastering and pointing exercise; (f) constructing RCC work; (g) pre-construction and post construction termite treatment of building and woodwork; (h) interlocking tiles.

## Reference Books (as listed in the syllabus)

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- S. P. Arora and Bindra., Building Construction, Dhanpat Rai Publication, Delhi.
- Sushil Kumar., Building Construction, Standard Publication.
- Rangawala, S. C., Building Construction, Charotar Publication, Anand.
- Punmia B. C., and Jain A. K., Building Construction, Firewall Media.
- D.V. Gupta, Vikram Singh, Building Construction, Asian Publishers, Muzaffarnagar, ISBN: 978-93-91541-27-9.
- Sharma S. K., Building Construction, S. Chand and Co. Pvt. Ltd., New Delhi.
- Janardan Zha, Building Construction, Khanna Publication.
- Bhavikatti S. S., Building Construction, Vikas Publication House Pvt. Ltd., Delhi.
- Mantri S., A to Z Building Construction, Satya Prakashan, New Delhi.

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Source: BTEUP 2nd Year curriculum (folder2627), approved in C.D.C. meeting held on 16.07.2026. Topic lists follow the official syllabus; short explanations are the author's own plain-English summaries, not syllabus text.

Please confirm with your own polytechnic for any local changes.

