

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Transportation Engineering

Semester: 3

Subject Code

Subject Name CONSTRUCTION TECHNOLOGY

Sr. No.	Course content
1.	INTRODUCTION : 1.1 Introduction of various Civil Engineering structures. 1.2 Functions of various components of building and other structures.
2.	FOUNDATIONS : 2.1 Classification and types of foundations 2.2 Selection of the suitable type of foundation for required structure and as per situation. 2.3 Foundations in black cotton soil, loose soils etc. 2.4 Timbering in trenches 2.5 Failures in foundation Precautions & remedial measures.
3.	MASONRY : 3.1 Types of Brick and stone masonry. 3.2 Selection of suitable type of masonry 3.3 Construction procedures . 3.4 Mortar - Types & specific uses.
4.	CONCRETING : 4.1 Production of concrete, transportation, placing, compaction, curing 4.2 Properties of fresh concrete : list of tests and acceptance limits 4.3 Properties of hardened concrete : list of tests and acceptance limits 4.4 Concrete in different situations viz. hot weather, cold weather, under water etc. 4.5 Special types of concrete : light weight concrete, mass concrete, polymer concrete, fiber reinforced concrete, prestressed concrete 4.6 Deterioration of concrete, prevention and repair technology of concrete. 4.7 Precast concrete units
5.	SCAFFOLDING AND CENTERING : 5.1 Purpose & types of scaffolding and centering 5.2 Suitability of scaffolding as per situations and type of structures. 5.3 Erection of centering for different component
6.	BUILDING COMPONENTS : 6.1 Door, window, ventilator, cup-board, wardrobe, etc. 6.2 Floors, types and methods of construction, floor finishes. 6.3 Roof, roof coverings and false ceilings. 6.4 Vertical circulation (stair, ramp & lift)

7.	BUILDING ITEMS : 7.1 Plastering & pointing- its purpose, various types, construction procedures, advantages and disadvantages, suitability of each. 7.2 Damp proof course (DPC) 7.3 Anti-termite measures and treatments 7.4 Construction joints-need and materials used. 7.5 Grouting- its purpose, construction procedures, advantages and disadvantages. Examples of specific uses. 7.6 Guniting-its purpose, construction procedures, advantages and disadvantages. Specific situations & application.
8.	CONSTRUCTION MACHINARIES : 8.1 Purpose, advantages and disadvantages. 8.2 Machineries used for earthwork and for other construction works. 8.2.1 Their details, special features, suitable uses, specifications.
9.	SAFETY MEASURES : 9.1 Importance of various Laws/Norms/Regulations/Acts for safety. 9.2 Precautions and precautionary measures. 9.3 Post-accident procedures. Give examples.
10.	BUILDING MAINTENANCE : 10.1 Purpose, need, importance, methods 10.2 Causes and types of defects in buildings 10.3 Preparation of report on maintenance work including estimating. 10.4 Remedial measures and execution procedure of any one type of building maintenance work.
11.	SEISMIC RESISTANCE FOR MASONRY STRUCTURES : 11.1 Fundamentals of earthquake resistance for masonry structures 11.2 Classification of damaged masonry structure 11.3 Identification of category of damaged masonry structure. 11.4 Drawings and latest bye laws for earthquake prone masonry building 11.5 Selection of materials and Proportion of mortar for Earthquake prone structures 11.6 Methods of repairing and retrofication of Earthquake damaged structure 11.7 Provision of bands in masonry structures as per IS-4326

TERM WORK :

SKETCHES FOR :

- Foundations - various types, layout plan, timbering in trenches
- Brick and stone masonry work.
- Scaffolding works and centering.
- Form work
- Doors, Windows, Ventilators, Wardrobe.
- Floors including wooden floor.
- Roofs, false-ceiling
- Stairs and ramps
- Drawings of earthquake prone masonry building

FIELD WORK :

- Exercise for giving layout using foundation plan of a given building on site.
- Exercise for pre-casting the P.C.C. & R.C.C. simple units.
- Exercise for carrying out different types of masonry.

FIELD VISITS :

- Arrange field visits at construction site where following works are in progress:
 - (a) Excavation for foundations
 - (b) Concreting
 - (c) Masonry
 - (d) Plastering, pointing
- Visit to site where special machineries are used in construction work and prepare report.

REFERENCE BOOKS :

- | | |
|---|------------------------|
| 1. Building construction | Sushil Kumar |
| 2. Building construction | Sharma & Kaul |
| 3. Building Construction | Moorthy |
| 4. Building Construction | Arora |
| 5. Building Construction | B.C. Punmia |
| 6. Building Construction | Jha & Sinha |
| 7. Construction Planning, equipment and methods | R.L.Peurifoy |
| 8. Properties of concrete | A.M.Neville |
| 9. Civil Engineering Practice (I,II, III) | Kaushik, Asawa & Ahuja |
| 10. Concrete form construction | B.B.Tarporwala & Sons |
| 11. All relevant Indian Standards | B.I.S., Delhi |
| 12. Building Construction | S.C.Rangwala |
| 13. Building Construction | A.M.Mitchel |
| 14. Building Construction | Himington |
| 15. Concrete & Concreting | A.Tretyker |
| 16. Plastering | Sheyel |

