

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	BTech Civil Engineering
Course Code:	2CL202CC25
Course Title:	Construction Technology
Course Type:	Core
Year of Introduction:	2025-2026

L	T	Practical Component				C
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Course Learning Outcomes (CLOs):

At the end of the course, the student will be able to –

1. identify construction methods of sub-structure of buildings (BL3)
2. choose appropriate construction methods of super-structure of buildings (BL3)
3. categorise various types of building services (BL4)
4. justify use of appropriate construction equipment and advanced construction methods. (BL5)

Unit	Contents	Teaching hours (Total 30)
Unit-I	Introduction to Civil Engineering Structures Types and components of buildings, bridges, roads, hydraulic structures, tunnels.	03
Unit-II	Construction of Sub-structure Components of Buildings Types and functions: excavation, foundations, temporary supporting structures, anti-termite, damp-proofing.	07
Unit-III	Construction of Super-structure Components of Buildings Types and functions: masonry, RC elements, openings, roofing, stairs; scaffolding and formwork; finishing: types, functions of plastering, pointing, flooring, cladding, painting, structural glazing.	08
Unit-IV	Building Services Importance and functions: mechanical, electrical and plumbing, HVAC, firefighting, elevators, escalators.	04
Unit-V	Construction Tools, Plants and Equipment Types: earth moving, hauling, hoisting, compacting, concreting, pumping and dewatering, asphalt laying, piling, tunnelling.	06
Unit-VI	Advanced Construction Methods Caissons, cofferdam, piles, RE wall, diaphragm wall, box pushing, 3D printing.	02

Self-Study:

The self-study contents will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings/
References:

Sarkar, S.B. *Construction Technology*, Oxford University Press
Peurifoy, R. L. & Schexnayder, C. J. *Construction Planning, Equipment and Methods*, Tata McGraw Hill.
Chudley, R. & Greeno, *Building Construction Handbook*, Butterworth Heinemann Ltd.
Mckay, W. B. *Building Construction Metric Vol. I to IV*, Orient Longman.
Bindra, S. P. & Arora, S. P. *Building Construction*, Dhanpat Rai.
Punmia, B. C. *Building Construction*, Laxmi Publications.
Rangwala, S. C. *Building Construction*, Charotar Publication.
Goyal, M. M. *Handbook of building construction: The Essential Source of Construction Practice*, Amrendiya Consultancy.

Laboratory work:

Laboratory work will be based on the above syllabus with minimum 05 exercises to be incorporated.

Suggested List of Experiments:

Sr. No.	Name of Experiments/Exercises	Hours
1	Model of sub-structure/super-structure components of a building	08
2	Preparation of a model/chart for temporary structures	08
3	Planning and detailing of building services	05
4	Preparation of report/poster/chart for construction equipment	05
5	Preparation of presentation on advanced construction method	04