Lok Jagruti Kendra University
University with a Difference

Diploma in Civil Engineering

LJ Polytechnic

Course Code:025050202

Construction Technology

Programme / Branch Name			Diploma in Civil Engineering			
Course Name	Construction Technology				**Course Code**	025050202
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
ESC: Engineering Science Courses PCC: Program Core Courses
OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week				**Evaluation Scheme**			
L	**T**	**P**	**Total Credit**	**CCE**	**SEE (Th)**	**SEE (Pr)**	**TOTAL**
3	0	2	4	50	50	50	150

Legends:
L: Lectures T: Tutorial P: Practical
CCE: Continuous & Comprehensive Evaluation
SEE (Th): Semester End Evaluation (Theory)
SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisites

- ✓ Civil Engineering Workshop
- ✓ Building Materials

3. Rationale

Construction Technology is an important subject for Diploma in Civil Engineering, which deals with the construction process of foundation, sub-structure, and superstructure. The students should be able to visualize the concepts of different building components and gain knowledge about the maintenance of buildings required in construction work. The subject also involves the study of construction equipment and temporary works required to facilitate the construction process. Students are supposed to supervise the construction of buildings effectively which is essential to provide a fault-free service from contractors. The ability to perform the task of supervising the construction of buildings will be improved. This subject helps in a better understanding of the various subjects of this course in later stages.

4. Objectives

- ✓ To develop a concept about various building components and their functions.
- ✓ To understand foundations and their suitability.
- ✓ To understand the types of brick masonry works.
- ✓ To study temporary works required to facilitate the construction process.
- ✓ To understand the concept of damp-proofing, water-proofing and termite-proofing.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1.	**Introduction**	1.1. Importance of Construction Technology 1.2. Types of Buildings 1.3. Structural System of Building 1.4. Comparison of Load Bearing Structure with Framed Structure 1.5. Important Building Components and Their Functions	• Explain the Importance of Construction Technology in Civil Engineering. • Identify Various Building Components. • Understand the Functions of Building Components. • Compare Structural Systems of Any Building.	15	04
2.	**Foundations**	2.1. General 2.2. Purposes of Foundation 2.3. Types of Foundations 2.4. Causes of Failure of Foundations and Preventive Measures 2.5. Equipment's used for Excavation and Earthmoving Work	• Understand the Type of Foundations with Their Purposes. • Selection of Appropriate Equipments for the Foundations Work. • Identify Causes of Failure of Foundation and Provide Their Remedial Measures.	20	10
3.	**Brick Masonry & Plasterwork**	3.1. General- Brick Masonry 3.2. Terminologies Used in Masonry Work 3.3. Types of Brick Masonry 3.4. Tools Used in Brick Masonry 3.5. Bonds in Brickwork 3.6. General- Plasterwork 3.7. Terminologies Used in Plasterwork 3.8. Tools Used in Plasterwork 3.9. Methods of Plastering 3.10. Types of Plaster Finishes 3.11. Defects in Plastering	• Knowledge about Brick Masonry and Plaster Work. • Identify the Tools Used for Brick Masonry and Plaster Work. • Gain Knowledge about the Types of Brick Bonds. • Explain the Methods of Plastering and Plaster Finishes.	30	13
4.	**Temporary Works**	4.1. General - Scaffolding 4.2. Component Parts of Scaffolding 4.3. Types of Scaffolding 4.4. General – Formwork 4.5. Requirements of Formwork	• Get Knowledge About Types of Scaffolding and Formwork. • Identify the Components Parts of Scaffolding and	15	06

		4.6. Materials Used for Preparing Formwork 4.7. Formwork for Column Footings, Columns and Floors	Formwork. • Assemble the Components Parts of Formwork for Beam, Column and Slab.		
5.	**Building Works**	5.1. General-Flooring 5.2. Components of a Floor 5.3. Materials for Construction Floor 5.4. Selection of Flooring Materials 5.5. Types of Flooring 5.6. General- Damp Proofing 5.7. Causes of Dampness 5.8. Effects of Dampness 5.9. Materials Used for Damp-Proofing 5.10. Methods of Damp-Proofing 5.11. General- Water Proofing 5.12. Reasons and Preventive 5.13. Measures for Water Leakage 5.14. Water Proofing of Flat 5.15. Roofs 5.16. General-Termite Proofing 5.17. Types of Termites 5.18. Methods of Termite-Proofing	• Understand the Concepts of Flooring, Damp Proofing, Water Proofing and Termite Proofing. • Explain the Methods of Flooring, Damp Proofing, Water Proofing and Termite Proofing. • Identify the Materials Used for Flooring, Damp Proofing, Water Proofing and Termite Proofing.	20	09
				Total Hours	**42**

6. List of Practicals / Exercises

The practicals/exercises have been properly designed and implemented in an attempt to develop different types of skills, so that students can acquire the competencies/programme outcomes. Following is the list of practicals/exercises.

Sr. No.	Practical / Exercises	Key Competency	Hours
1.	**Draw the sketches & write purposes of** (a) Components of building (b) Type of foundations (c) Bonds in brickwork (d) Tools used in brick masonry (e) Tools used in plaster work (f) Types of scaffolding (g) Damp-proofing, water-proofing & termite-proofing	Sketch work	8
2.	Prepare a report on the comparison of load bearing structure and framed bearing structure.	Knowledge of structures	2
3.	Assemble brick masonry in english bond and flemish bond. (Minimum of 3 courses)	Brick bonds	2
4.	Prepare a cement mortar for laying of brick masonry and plasterwork.	Cement mortar preparations	2
5.	Identify the formwork materials with their dimensions used for slab, beam and column. Prepare a report on it with photographs.	Identification of formwork materials	2
6.	Conduct a market survey for construction tools & equipment regarding cost & suitability required for foundation, brick masonry, and plasterwork. Prepare a report on it.	Knowledge of tools & equipment	2
7.	Identify the materials & methods used for damp-proofing work & prepare a report on it.	Damp proofing work	2
8.	Identify the materials & methods used for water-proofing work & prepare a report on it.	Water proofing work	2
9.	Identify the materials & methods used for termite-proofing work & prepare a report on it.	Termite proofing work	2
10.	Identify the defects in the building with its remedial measures.	Defects in building	2
11.	Construction site visit of any residential or commercial building where excavation, foundation, concrete, brick masonry, plastering, flooring work are in progress.	Understand construction work	2
		Total Hours	**28**

7. Suggested Specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1.	Introduction	40	40	10	0	0	10
2.	Foundations	35	35	20	0	0	10
3.	Brick Masonry and Plasterwork	40	45	15	0	0	0
4.	Temporary Works	40	40	20	0	0	0
5.	Building Works	40	40	20	0	0	0

Legends: R: Remembering U: Understanding
App: Applying C: Creating
E: Evaluating An: Analyzing

8. Textbooks

1) Building Construction by S.C Rangwala, Charotar Publication.

9. Reference Books

1) Building Construction by S.P Arora & Brindra, Dhanpat Rai Publications, New Delhi.
2) Building Construction, by B.C Punmia, Laxmi Publication, New Delhi.
3) Construction Technology by Subir K Sarkar & Subhajit, Oxford University Press.

10. Open Sources (Website, Video, Movie)

1) www.nptel.ac.in
2) LJP-Civil-Construction Technology (YouTube)