Lok Jagruti Kendra University
University with a Difference

Diploma in Architectural Assistantship

LJ Polytechnic

Course Code:025080302

Building Construction

Programme / Branch Name			Diploma in Architectural Assistantship			
Course Name	Building Construction				**Course Code**	025080302
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 / Credits				**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

- ✓ No prerequisite required

3. Rationale

This course essentially imparts the knowledge of construction technology for construction of buildings and related components, at an introductory level. This course further introduces the student to interpret the drawings and get familiar with the functions and requirements of building components. The students will get an exposure to the general construction practices by undertaking site visits.

4. Objectives

- ✓ To introduce various materials to be adopted for different construction activities and tools.
- ✓ To understand the preparation and curing process of various construction materials.
- ✓ To understand the various building elements and its technical terms.
- ✓ To introduce construction activities so that they can be made available whenever required.
- ✓ To determine construction project planning and include every activity in a sequential order.
- ✓ To apply building construction principles and practices while planning buildings and supporting their construction.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1.	**Foundation**	1.1. Importance of Building Construction 1.2. Bearing Capacity of Soil 1.3. Increasing The Bearing Cappacity of Soil 1.4. Foundation 1.5. Objects of Foundation 1.6. Classification of Foundation 1.7. Shallow Foundation and its Types Such as Spread, Combinned, Strap, Raft and grillage Foundation 1.8. Deep Foundation and its Types Based on Function Such as Load-bearing, Non-Load Bearing, Compaction, Sheet, Anchor, Fender and Better Pile 1.9. Types of Deep Foundation Based on Material Such as Concrete, Steel, Timber, Composite and Sand Pile 1.10. Causes of Failure of Foundation	• Explain the Concept and Principles of Foundation. • Prepare The Sketches of Different Types of Foundation.	20	06
2.	**Masonry Construction**	2.1. Introduction 2.2. Definitions in Stone Masonry 2.3. Joints in Stone Masonry 2.4. Classification of Stone Masonry 2.5. Definitions of Brick Masonry 2.6. Bonds in Brickwork 2.7. Bonds at Connections 2.8. Supervision of The Brickwork 2.9. Comparision of Brickwork and Stonework	• Describe The Main Principles and Features of Brick Masonry Construction. • Describe The Main Principles & Features of Stone Masonry Construction. • Draw Drawings Showing Various Types of Bonds in Brick Masonry Construction. • Prepare Detail Drawings of Various Types of Joints in Stone Masonry Construction. • Compare Stone Masonry & Brick	10	10

			Masonry in respect of Their Construction & Use.		
3.	**Openings**	3.1. Lintels 3.1.1. Definition 3.1.2. Materials for Lintels 3.2. Arches 3.2.1. Definition 3.2.2. Technical Terms 3.2.3. Types of Arches 3.2.4. Classification of Arches According to Shape 3.2.5. Classification of Arches According to Number of Centers 3.3. Doors, Windows and Ventilations 3.3.1. Technical Terms 3.3.2. Types of Doors 3.3.3. Types of Windows 3.3.4. Ventilators 3.4. R.C.C. Construction 3.4.1. Properties 3.4.2. Advantages 3.4.3. Formwork & its Requirements 3.4.4. Materials Used in Formwork	• Explain The Function of Different Types of Openings Like Lintels, Arches, Doors, Windows and Ventilators. • Describe The Types of Different Kinds of Openings With Sketches With Their Limitation. • Describe The Main Principles and Advantages of R.C.C. Construction. • Explain The Different Purposes of Formwork.	40	12
4.	**Staircase**	4.1. General 4.2. Technical Terms 4.3. Types of Stairs 4.4. Stairs of Different Materials 4.5. Requirements of A Good Stair	• Identify The Different Components of Stairs. • Enlist The Various Materials Used in The Construction of Stairs. • Classify The Different Types of Stairs.	20	06
5.	**Sloping Roofs**	5.1. Requirements of A Good Roof 5.2. Classification of Roofs 5.3. Pitched or Sloping Roofs 5.4. Types of Pitched Roofs 5.5. Single Roof Such as Lean-To Roof, Couple Roof, Couple-Close Roof and Collar Beam Roof	• Identify The Various Components of Sloping Roof. • Classify Different Types of Roofs. • Describe The Features of Steel Sloping Roof Truss.	10	08

		5.6. Double or Purlin Roofs 5.7. Trussed Roofs Such as King-Post Truss, Queen-Post Truss, Steel Trusses and Composite Trusses 5.8. Advantages of Steel Trusses Over The Timber Trusses			
				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.	Practicals / Exercises	Key Competency	Hours
1.	One sheet of foundation using drafting techniques with the help of various drafting instruments. Prepare drawing sheet showing lines with suitable intensity and architectural lettering.	To understand various types of footings and pile foundations.	04
2.	Prepare two sheets on masonry construction using drafting techniques with the help of various drafting instruments. Prepare drawing sheets showing lines with suitable intensity and architectural lettering.	To understand the construction of brick masonry and stone masontry.	08
3.	Prepare two sheets on openings using drafting techniques with the help of various drafting instruments. Prepare drawing sheets showing lines with suitable intensity and architectural lettering. The sheets inludes plan, elevation ansd section of each element.	To understand various building elements such as lintels, arches, doors, windows & ventilators.	06
4.	One sheet on staircase using drafting techniques with the help of various drafting instruments. Prepare drawing sheet showing lines with suitable intensity and architectural lettering.	To understand various staircases and its technical terms.	04
5.	Two Sheets on sloping roofs using drafting techniques with the help of various drafting instruments. Prepare drawing sheet showing lines with suitable intensity and architectural lettering.	To learn the technical terms of roofs and its types.	06
		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.	Foundation	20	30	30	00	10	10
2.	Masonry Construction	15	25	35	00	15	10
3.	Openings	25	25	30	00	10	10
4.	Stairs	15	15	35	10	10	15
5.	Sloping Roof	20	25	20	10	10	15

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

8. Textbooks

1) Building Construction, S.C. Rangwala, Charotar Publishing House Pvt. Ltd.

9. Reference Books

1) Building Construction, S.P. Arora, S.P. Bindra, Dhanpat Rai publication
2) Building Construction, Barry, Wiley Publications
3) Building Construction, B.C. Punmia, Laxmi publications Limited
4) Building Construction, W.B. McKay, Peason Publication

10. Open Sources (Website, Video, Movie)

1) http://www.constructionknowledge.net
2) http://houseconstructiontips.com