Lok Jagruti Kendra University
University with a Difference

Diploma in Architectural Assistantship

LJ Polytechnic

Course Code:025080204

Advanced Building Materials

Programme / Branch Name	Diploma in Architectural Assistantship					
Course Name	Advanced Building Materials				**Course Code**	025080204
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	0	3	50	50	-	100

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

- ✓ Building Materials

3. Rationale

This course deals with some more types of materials used in the construction industry. Various factors affecting the selection of materials for given situations are also discussed. This course, thus, helps the student to understand the application of modern materials.

4. Objectives

- ✓ Identify various building materials according to their requirements and applications.
- ✓ Select and apply various building materials according to use, site specifications, and available market forms and sizes, color, etc.
- ✓ Exploring the characteristics of each material.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1.	**Floor and Wall Finishes**	1.1. Definitions 1.2. Types of Flooring and Materials Used for Flooring 1.3. Factors Affecting Choice of Flooring Materials 1.4. Objects of Plastering 1.5. Requirements of Good Plaster 1.6. Mortar for Plastering 1.7. Defects in Plastering 1.8. External Finishes 1.9. Special Materials for Plastered Surfaces 1.10. Wall Paper	• Enlist Various Floor Finishes and Their Uses With Neat Sketches • Mention Various Types of Flooring • Describe Various Factors Affecting the Selection of Floor Finishes	25	10
2.	**Ceiling and Roofing Materials**	2.1. Requirements & Uses of the Following Ceiling Materials: 1. Plywood 2. Hardboard 3. Fiberboard 4. Gypsum Plaster & Plaster Boards 5. Glass Roof Tiles 6. Thermocole Sheets 7. Fiber Glass 2.2. Requirements & Uses of the Following Roofing Materials: 1. Sheets for Roof Coverings 2. Mangalore Tiles 3. PVC Sheet 4. Acrylic Sheet	• Enlist Various Ceiling Materials • Explain Various Types of Ceiling Materials and Their Requirements • Give Sizes, Uses & Requirements of Various Roofing Materials • Explain Various Types of Roofing Materials With Neat Sketches	20	10
3.	**Paints, Varnishes & Distempers**	3.1. Painting and Objectives of Painting 3.2. Characteristics of an Ideal Paint 3.3. Ingredients of an Oil Borne Paint 3.4. Types of Paints 1. Aluminum Paint 2. Anti-Corrosive Paint 3. Cellulose Paint 4. Cement Paint 5. Emulsions	• Define Painting and Its Objectives. • Give Characteristics of an Ideal Paint. • Give Composition of an Oil Borne Paint. • Enlist Various Types of Paints. • Describe Types of Paints. • Explain the Uses and Requirements of	25	10

		6. Oil Paints 7. Water-Based Paints 8. Plastic Paints 9. Rubber Paint 3.5. Failure of Paint 3.6. Defects in Painting 3.7. Varnishing & Its Objectives 3.8. Characteristics of an Ideal Varnish 3.9. Ingredients of a Varnish 3.10. Types of Varnishes, Requirement & Uses of Different Types of Varnishes 3.11. Distempering & Its Properties 3.12. White Washing 3.13. Colour Washing	• Various Types of Paints & Varnishes.		
4.	**Ferrous and Non-ferrous Metals**	4.1. Introduction 4.2. Cast Iron – Types, Properties & Uses 4.3. Wrought Iron- Types, Properties & Uses 4.4. Uses of Steel 4.5. Properties of Mild Steel 4.6. Market Form of Steel 4.7. Aluminium 4.8. Properties & Uses of Aluminium 4.9. Market Forms of Aluminium	• Explain Various Ferrous Metals • Describe Different Forms of M.S. Sections With Neat Sketches • Give Various Categories of Steel • Explain the Properties of Specified Steel • Explain Properties & Uses of Aluminium	10	04
5.	**Miscellaneous Materials**	5.1. Fixtures and Fastenings For Doors and Windows 5.2. Properties & Uses of Plastics 5.3. Properties and Application of FRP 5.4. Sound Absorbent Materials 5.5. Earthenware Products 5.6. Stoneware Products 5.7. Terra Cotta and Porcelain 5.8. Glazing	• Explain Uses of Fixtures and Fastenings For Doors and Windows • Explain Properties and Application of FRP • Explain Sound Absorbened Materials • Explain Various Types of Clay Products. • Describe Stoneware Products	20	08
				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
1	Market survey, sample collection of various building materials, the know-how of application, exploring the characteristics of each material	It should be properly designed to develop different types of advanced building materials used in building construction.
2	Site visits for studying and understanding the application of building materials	Exposure to developing the understanding and application of various building materials like wall finishes, floor finishes, ceiling materials, roofing materials & fixtures in the given project.
3	Project-based on the application of various building materials	Designed to develop the understanding and application of various building materials like wall finishes, floor finishes, ceiling materials, roofing materials & fixtures in the given project.

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.	Floor and Wall Finishes	20	35	40	05	-	-
2.	Ceiling and Roofing Materials	20	35	40	05	-	-
3.	Paints, Varnishes & Distempers	20	25	50	05	-	-
4.	Ferrous and Non-ferrous Metals	20	35	40	05	-	-
5.	Miscellaneous Materials	30	30	35	05	-	-

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

8. Textbooks

1) Engineering Materials (Material Science) by S.C Rangwala, Charotar Publications, Anand
2) Building Construction by B.C.Punmia, Laxmi Publications Pvt Ltd.

9. Reference Books

1) Indian Architect & Builder by Magazine/Journal Jasubhai Media Publications Ltd, Mumbai
2) Building Materials and Construction by S.K.Soni, S.K.Kataria & Sons

10. Open Sources (Website, Video, Movie)

1) www.nptel.ac.in
2) https://www.youtube.com/watch?v=kG8UXyN8qI4&list=PLcWeCCSvXbNkhAmvTYn4FOBwpy-mKhbem