



# योजना तथा वास्तुकला विद्यालय, विजयवाड़ा

## School of Planning and Architecture, Vijayawada

An Institute of National Importance, Ministry of Education Gov. of India

### Department of Architecture

Course: **BMC-1 Building Materials and Construction**

Class: **I Semester B.Arch, 2024-25 A.Y**

Instructors: **Dr.M.Kranti Kumar, Ar. Akanksha R Horo, Ar. Rohan A, Ar. Hiba T, Ar. Tanya P, Ar. MSR Srinivas**

Contact Periods/week: **05 [02 Lecture + 03 Studio]** Internal Assessment Marks: **50**

External Assessment (Theory Examination): **50**

Total Marks: **100**

Attendance: **75%** Minimum Passing Marks: **50% each in Internal & External Assessment, 50% in Aggregate**

### **Building Construction - Course Objective**

Focus on various building materials and construction techniques would be based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology. With time, each topic can also focus on latest trends in practice and usage of new technology/materials. Emphasis is given on load bearing building construction.

Each material would be taught in a manner such that its application would be discussed in a sequential manner, starting from foundation level, followed by plinth & others (*sill, lintel, sunshades, window/door openings, walling material, as a floor & flooring*) and culminating at roof and parapet wall.

### TEACHING PLAN

S.NO	WEEK	TOPIC	REMARKS
1	Week 1	<b>INTRODUCTION</b> <ul style="list-style-type: none"><li>✓ Importance of the subject for Architecture course</li><li>✓ Necessary drawing and drafting equipment, Stationery material</li><li>✓ Expectations and Learning outcomes</li></ul> <b>INTRODUCTION TO A BUILDING</b> <ul style="list-style-type: none"><li>✓ <b>Parts of a Building</b> – Horizontal and Vertical viz., Foundation, Plinth, Floor, Sill, Lintel, Floor, Column, Beam, Pier, Wall, Openings, Parapet, Stairs etc.</li><li>✓ Purpose and role of various parts of the building</li><li>✓ <b>Materials</b> used / required for various parts of a Building and for Construction in general</li><li>✓ Matrix of Building Parts and Building Materials</li></ul>	Lecture and Observations
2	Week 2	<b>SAND and CLAY</b> <ul style="list-style-type: none"><li>✓ Physical and Chemical properties</li><li>✓ Uses of the materials in Building Industry.</li><li>✓ Drawing Sheet and Drawing Board</li><li>✓ <b>Lines and Line weights</b> - Freehand drawing; <u><b>Drawing Assignment-1</b></u></li><li>✓ <b>Architectural Lettering</b></li></ul>	Lecture + Studio; Drg. Assignments- 1&2 to be worked upon and submitted by 3 <sup>rd</sup> Week  Internal Assessment -1

S.NO	WEEK	TOPIC	REMARKS
		<b><u>Drawing Assignment-2</u></b> ✓ Sheet Composition – Margins, Title and Signature Panel	
3	Week 3	<b>STONE and LIME</b> ✓ Physical and Chemical properties ✓ Types and availability of stone and Lime ✓ Manufacturing process of Lime Uses of the Materials in Building Industry	Lecture + Studio
4	Week 4	<b>METAL</b> ✓ Physical and Chemical properties ✓ Ferrous and Non Ferrous metals Introduction to the Market Survey	Lecture + Studio
5		<b>Field Work for UG Programmes (14-22 September 2024)</b>	
6	Week 5	<b>GLASS</b> ✓ Physical and Chemical properties ✓ Manufacturing of Glass ✓ Types of Glass Uses of the Materials in Building Industry	Lecture + Studio
7		<b>Mid Semester Examination (1 OCT 2024)</b>	Internal Assessment -2
8	Week 6	<b>TIMBER</b> ✓ Physical and Chemical properties ✓ Types of Timber Defects of Timber	Lecture + Studio
9	Week 7	<b>TIMBER</b> ✓ Seasoning of Timber ✓ Preservation of Timber ✓ Types of Joints ✓ Uses of the Materials in Building Industry	Drg. Assignment on Types of Joints
10	Week 8	<b><u>TEST – 1 (Theory and Drawing; 3 hour duration)</u></b>	Internal Assessment -3
11	Week 9	<b>CEMENT</b> ✓ Physical and Chemical properties ✓ Types of Cement _Manufacturing of Cement	Lecture + Studio
12	Week 10	<b>CEMENT</b> ✓ Manufacturing of Cement ✓ Uses of the Materials in Building Industry	Lecture + Studio
13	Week 11	<b><u>TEST – 2 (Theory and Drawing; 3 hour duration)</u></b>	Internal Assessment -3
14	Week 12	Presentation of the Market Survey	Internal Assessment -4
15	Week 12	Presentation of the Market Survey	Internal Assessment -4

**Tentative Break-up of Internal Assessment Marks**

S. No.	Stages of Evaluation	Weightage	Note
1	Drawing Assignments^^ (1)	5	1. The Marks allotted at each stage are tentative 2. New stages or categories of evaluation may be included if and when the need arises
2	Mid Term Assessment	20	
3	Test (Best One out of Two)##	10	
4	Presentation of Market Survey	15	
	<b>Total</b>	<b>50</b>	

**## Appearing for Test-1 and Test-2 is mandatory**

**^^ Drawing Assignments must be done in the Studio only**

**Reference Books:**

1. Monzon Stephan. A, Susan, Henderson. M, 2004, *Traditional construction patterns-design and detail rules of thumb*, A New Urban Guild Publication.
2. Ching Francis. D. K, Jarzombek. M. Mark, Prakash vikramaditya, 2007, '*A global history of architecture*', John Wiley and Sons Inc., New jersey.
3. Molnar John. P.E, 1987, *Building construction, Drafting and Design*, Van Nostrand Reinhold company Inc., USA.
4. Deplazes Andrea, 2005, *Constructing architecture, materials, processes structures, a handbook*, Birkhauser-Publishers for Architecture, Germany.
5. Bhopatkar. M. T, Shirole. D.S., 2007, *Practical building construction*, Anjali Prakashan publishers.
6. Barry, 1999, *The construction of buildings*, First East-West press edition. ( five volumes)
7. Chudley roy, Greeno roger, 2009, *Building construction handbook*, 7<sup>th</sup> Edition, Elsevier.
8. Arora. S.P., Bindra. S.P., 2009, *Text book of building construction*, Dhanpat Rai publications.
9. Ching francis. D.K., Adamus Cassandra, 2001, *Building construction illustrated*, 3<sup>rd</sup> Edition, John Wiley and Sons Inc.,
10. Duggal. S. K., 2008, *Building materials*, 3<sup>rd</sup> Edition, New Age International Publishers.
11. Kumar sushil, 2008, *Building construction*, 19<sup>th</sup> Edition, A.K. Jain Publishers.
12. Rangwala, 2012, *Building construction*, 13<sup>th</sup> Edition, Charotar Publications.
13. Mc kay, '*Building construction*'

**Course Instructors:**

**Sd/-**  
(M. Kranti Kumar)

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