School of Planning and Architecture: Vijayawada

(An institution of National Importance under the Ministry of Human Resource Development, Govt. of India)

Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

Department of Architecture

Course: B-ARCH	**Subject Code:** (ARC112) **Name**- Building Materials and Construction I	**Class:** 1st Yr B-Arch I Sem A.Y. 2025-26
Instructors:	Dr. Prashanti Rao, Ar. Komal Gilda, Ar. Siddesh Mundle, Ar. Rohan Agrawal	**Internal Assessment:** 50
		External Jury Exam: 50
Contact Periods/Week: 05 periods. (50 min each)		**Total Marks:** 100
Time Table:	Tuesday	**Credits:** 5
Attendance: Min 75%	**Min. Passing Marks:** 50% each in Internal & External Assessment, 50% in Aggregate	

Objective: To understand fundamental building materials in the context of various construction methods. The focus will be on the performance standards and codes of various building materials, wherein the application of each material will be discussed in detail, both in historical and contemporary contexts. The course will also cover the latest trends in practice and the use of new technologies and materials. Each material will be taught by discussing its application sequentially, from the foundation level to the roof and parapet wall.

LECTURE PLAN

S.NO	Week	TOPIC OF CLASS LECTURE & DISCUSSION	REMARKS
1	18- 22 August	Introduction to fundamental components of a building. Introduction to building construction and its components: Foundation, Plinth, Wall, Sill & Lintel levels, Roof, Doors/Windows/Ventilators, Staircases, Sunshades.	Lecture and Discussion
2	25-29 August	**Stone:** Source of the material, classification, tests and various grades available and their uses, physical and chemical properties.	Lecture
3	1-5 September	**Ferrous and Non-Ferrous**- Introduction to ferrous and non-ferrous metals—their properties, types, and applications in building components.	Lecture
4	8-12 September	**Plastics & Polymers:** Types, properties, and applications in the building industry.	Lecture
5	15-19 September	**Field Work-Study Trip**	
6	22-26 September	**Bricks:** Source of the material, classification, tests, various grades available, and their uses, physical and chemical properties.	Lecture
7	29-03 October	**Mid-Semester Week**	
8	6-10 October	**Hands-on Exercise- Bricks Unbound: Exploring Material, Form & Structure**	

9	13th-17th October	**Glass:** Composition, brief study on manufacture, properties, treatment, and uses. Types of glass.	Lecture
10	20th- 24th October	Diwali Holiday	
11	27th-31st October	**Timber:** Types, defects, seasoning, and preservation. Ecological impact. Study of engineered wood (plywood, block boards, particleboards). Application of timber in building components with joinery details. Terms defined: mitring, ploughing, grooving, rebating, veneering.	Discussion
12	3-7 November	**Joinery Lab: Designing Timber Connections**	**Timber Model Making Joinery Workshop**
13	10-14 November	**Concrete:** Manufacturing process, properties, classification of cast-in-situ and precast systems. Application in foundation, columns, beams, slabs, etc. CC blocks, fly ash bricks.	Lecture
14	17-21 Nov	**Cement Mortar:** Different grades, composition, preparation, and properties. Use and selection of mortar for different construction works.	Lecture
15	24-28 Nov	Market Survey	Survey
16	3rd December	Market Survey Submission and Presentation.	Presentation

Internal Assessment Evaluation

S. No.	Evaluation	Marks
1	Internal Test / Presentation (Assignment 1)	15
2	Mid-Term Assessment	15
3	Internal Test / Presentation (Assignment 2)	20
Total		**50**

Reference Books

1. Barry, R. (1999). *The Construction of Buildings Vol. 2*. 5th Ed. New Delhi: East-West Press.
2. Chudley, R. (2008). *Building Construction Handbook*. 7th Ed. London: Butterworth-Heinemann.
3. Foster, J. and Mitchell, S. (1963). *Building Construction: Elementary and Advanced*. 17th Ed. London: B.T. Batsford Ltd.
4. Hailey and Hancork, D. W. (1979). *Brick Work and Associated Studies Vol. II*. London: MacMillan.
5. McKay, W. B. (2005). *Building Construction Metric Vol., I-IV*. 4th Ed. Mumbai: Orient Longman.
6. Moxley, R. (1961). *Mitchell's Elementary Building Construction*. London: B. T. Batsford.
7. Rangwala, S. C. (1963). *Building Construction: Materials and types of Construction*. 3rd Ed. New York: John Wiley and Sons.
8. Sushil-Kumar, T. B. (2003). *Building Construction*. 19th Ed. Delhi: Standard Publishers.

Course Instructors:

sd/-
(Dr. Prashanti Rao)
(Ar. Komal Gilda)
(Ar Siddhesh Mundle)
(Ar Rohan Agrawal)

Head of Department:

sd/-
(Dr. D Srinivas)