



School of Planning and Architecture: Vijayawada

(An institution of National Importance under the Ministry of Human Resource
Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India)

Department of Architecture

Course: ARC212 - Building Materials and Construction III

Class: 2nd Yr B.Arch III - A Sem A.Y. 2024-25

Instructors: Asst.Prof. Vijesh Kumar V and Manali Basu (Sec A) and Dr. Nagaraju Kaja (Sec B)

Internal Assessment: 50

Contact Periods/ week: 2L + 3P periods.(50 min each)

External Theory Exam: 50

Time Table: Wednesday (Period 1 - 5)

Total Marks: 100

Credits: 5

Attendance: Min 75%

Min. Passing Marks: 40% each in Internal & External Assessment, 40% in Aggregate

Objective: (1.) Focus on various building materials and construction techniques would be emphasized 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.

(2.) To impart subject on application of each material in detail, both in the context of historical and contemporary methodology. It shall also on latest trends in practice and usage of new

Out Line of the Course: The construction details and techniques used in construction of doors, ventilators, RCC structures, Vault, domes and excavation for both in the context of historical and contemporary scenario.

LECTURE PLAN

WEEK	DATE	TOPIC OF CLASS LECTURE & DISCUSSION	TOPIC OF STUDIO WORK & ASSIGNMENTS / REMARKS
1	24-Jul-22	Types of doors and Typical parts and joineries based on the make (battened, ledged, braced, flush, panelled, framed and etc.)	Assignment 1: Types of Door (A4), Sheet 1: (a) Battened and Ledged Door; Battened, (b) Ledged and Braced Door; (C) Battened, Ledged, Braced and Framed Door
2	31-Jul-22	Classification based on usage (pivoted, single leaf, double leaf, revolving, swing, rolling shutter, safety doors, collapsible, etc.),	Sheet 3: Panelled Doors (Wooden and Glazed) Sheet 4: Sliding Doors
3	07-Aug-22	Classification based on hardware fixtures, joinery, door-fixing details, and types of materials used in doors (wood, metal, glass, aluminium, & PVC).	Sheet 5: Aluminium/ metal/UPVC/store-front Door Sheet 6: Revolving/Pivot Doors

4	14-Aug-22	Types of windows and ventilators based on the design (sliding, pivot, casement, louvered, fixed, bay window etc.)	Assignment 2: Types of Windows (A4), Sheet 7: Casement Window - Panelled and glazed (Fixed/ Movable/ Louvred) Sheet 8: Bay Window (Fixed and Movable)
5	21-Aug-22	Classification based on material (wood, steel, glass and aluminium) hardware fixtures, joinery, window fixing details.	Sheet 9: UPVC/Metal Window
6	28-Aug-22	Classification based on material (wood, steel, glass and aluminium) hardware fixtures, joinery, ventilator fixing details.	Sheet 10: Wooden/UPVC/Metal Ventilators
7	04-Sep-22	Introduction, Application of RCC in building components (foundation, columns, beams, slabs and walls)	Assignment 3: Market Survey on Doors and Windows Sheet 11: RCC Building Components (focus on Lintel and Cantiliver)
8	11-Sep-22	Typical details for RCC footing, pile foundation - precast pile, cast in situ piles, types of piles, method of driving piles, walls, column, beams, lintels, sunshades, floor and roof slabs (1 & 2 way slabs) cantilever.	Sheet 12: RCC Footing, Columns
9	18-Sep-22	Mid Semester Examination	
10	25-Sep-22	RCC filler slab and waffle slab.	Sheet 13: Beam, Slab (One way and Two way)
11	02-Oct-22	Principles and methods of construction including techniques and details of form-work. Construction of Masonry Vaults and Domes	Sheet 14: Masonry Vaults and Domes
12	09-Oct-22	Concepts of Reinforced Concrete Domes and Vaults with formwork design.	Sheet 15: RCC Vaults and Domes
13	16-Oct-22	Evaluation of Assignment 3	Presentation on Market Survey on Doors and Window products. Introduction to Assignment 3(Extended) part

14	23-Oct-22	Definition, problems in deep excavation, terms of timbering, methods of timbering, precautions to be taken in deep excavation, de-watering.	Sheet 16: Deep Excavation with supporting materials
15	30-Oct-22	Types of scaffolding, formwork (slab, arches, vaults and domes)	Sheet 17: scaffolding and Formwork
16	06-Nov-22	shoring and underpinning, precautions to be taken and methods adopted.	Assignment 3 (Extended): Photographical Study of Excavation, Scaffolding, Shoring and Underpinning
17	13-Nov-22	Studio Exercises Discussion	Portfolio Submission and Review

S. No.	Stages of Evaluation	Weightage
1	First stage: Assessment –1	15
2	Second stage: Mid-semester Examination	20
3	Third stage: Assessment –3	15
	Total	50

Reference Books:

1. Barry, R. (1999). The Construction of Buildings Vol.II. 5th Ed. New Delhi : East-West Press.
2. Bindra, S. P. and Arora, S. P. (2000). Building Construction: Planning Techniques and Methods of Construction, 19th Ed. New Delhi : Dhanpat Rai Publications.
3. BIS and relevant IS codes.
4. Ching, F. D. K. (2000). Building Construction Illustrated. 3rd Ed. Wiley.
5. Chudley, R. (2008). Building Construction Handbook. Noida : Elsevier.
6. McKay, W. B. (2005). Building Construction Metric Vol. 1–IV, 4th Ed. Mumbai :Orient Longman.
7. Meghashyam, K. K. (2005). Reinforced Concrete Constructions for 21st C. New Delhi :J.M. Jaina.
8. Rangwala, S. (2004). Building Construction. 22nd Ed. Anand : Charotar Publishing.
9. Rangwala, S. C. (1963). Building Construction: Materials and types of Construction, 3rd Ed. New York : John Wiley and Sons, Inc.
10. Sushil-Kumar, T. B. (2003). Building Construction. 19th Ed. Delhi : Standard Publications.

Course Instructors:

Asst. Prof. Vijesh Kumar V

Head of Department/Coordinator: