GANPAT UNIVERSITY

FACULTY OF ARCHITECTURE DESIGN & PLANNING

Programme	Bachelor of Design	Branch/Spec.	INSTITUTE OF DESIGN
Semester	I	Version	3.0.0.0
Effective from Academic Year	2021-22	Effective for the batch Admitted in	June 2021
Subject code	3IA04BMC	Subject Name	BUILDING MATERIALS AND CONSTRUCTION - I

Teaching scheme						Examination scheme (Marks)				
(Per week)	Lecture(DT)		S/W/T		Total		CIE	SE	UE	Total
	L	TU	S/W/T	TW						
Credit	2	-	2	-	4	Theory	40	20	40	100
Hours	2	-	2	-	4	Jury/Viva/TW/ TW	-	-	-	-

Objective:

- The Emphasis of the course is to orient students towards various aspects of "design execution" through hands on workshops, field visits and observation-based exercises.
- The course introduces basic building materials and components of building assembly.
- The focus is to familiarise students with commonly known building materials, understand their properties through practical working and learn about their application in building design.

Learning Outcome:

LO1: Identify and differentiate types of building materials with its properties & applications.
LO2: Identify building components from sub structure to super structure and understand the role of each building component in overall building assembly and structural system.
LO3: Analyse a design decision situation in the context of material choice

CONTENT & TEACHING UNITS

Unit	Content	HRS
1	(i) Building Basics-1: Understanding "building", its functions and classification, understanding building as an "integrated assembly of various components", understanding building as "structure", and understanding relationship between nature and structure (ii) Building Basics-2: History and evolution of building design & construction technology, materiality of buildings	16
2	PALETTE-1: SAND, CLAY, CEMENT, LIME, MORTAR PALETTE:2: BAMBOO, WOOD, STONE PALETTE:3: GLASS, METALS (i) Classification of Materials: different types of materials-natural/man-made, source of materials, use and application of different materials (ii) Properties of Materials: physical and chemical properties, manufacturing process, various tests to check strength of materials, different grades of materials, use and application of specific material	24
3	(i) Components of Building: Concepts of substructure and superstructure, identifying different building components and their role in building assembly: foundation, plinth, beam, column, wall, stairs, openings (door, window, ventilators), sill, lintel, weather shed, parapet, balcony: understanding their interrelationship as a complete system	32

	(ii) Load transferring systems: Introduction to load bearing, frame and composite structure (iii) Classification of building components (with their purpose and selection criteria): Introduction to - types of foundations, types of staircases, types of walls, types of openings	

Reference Books	
1	Ching, Frank (Francis D.K.), 2014.Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey.
2	Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated, patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey.
3	McKay W.B., 2005. Building Construction, Volume 1 to 4, Longman Group Ltd., London.
4	Barry, R, 1999. Building Construction, Volume 1 to 5, Blackwell Science Ltd.
5	Moxley R., 1961. Mitchell's Elementary Building Construction. B. T. Batsford, London.
6	Kumar, Sushil, 2003. Building Construction, 19th Ed. Standard Publishers, Delhi.
7	Sharma S.K., 2019. Civil Engineering construction Materials. Khanna Publishing, New Delhi
8	Rangwala, S. C., 1963. Building Construction: Materials and types of Construction. John Wiley and Sons, New York.

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

CIE- Continuous Internal Evaluation, SE-Summative Evaluation (Jury/Viva/TW/Theory Exam), UE-University Exams (Jury/Viva/TW/Theory Exam)