

SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA
(LECTURE PLAN for AY 2024-25)

Subject: **SUSTAINABLE GREEN BUILDING MATERIALS (MAAR 113)**

Class: M. Arch, I Semester

Teacher: Dr. Nagaraju Kaja
Internal Marks: 50

Dept: Architecture
External Marks: 50

Number of Hours:03
Total Marks: 100

Objective

To introduce the concepts of sustainable building materials and construction techniques

SL.NO	DATE	TOPIC OF CLASS/ LECTURE /DISCUSSION
1	Week 1	Introduction to Sustainable Building Materials: Environmental impact of building materials
2	Week 2	Physical, chemical properties of materials, key factors for considering materials
3	Week 3	Life cycle assessment of materials, Examples, Thermal properties and control
4	Week 4	Embodied energy for materials like steel, fly ash bricks, gypsum, steam cured bricks, mud, eco boards etc.,
5	Week 5	Classification of Building materials, selection of materials, Biodegradable & Non-Biodegradable Materials, bio materials - Concept of Recyclable and salvaged materials – Nontoxic materials, low VOC paints, adhesives, alternative flooring materials
6	Week 6	Internal Assessment I
7	Week 7	Field Trip/ Literature Review of building materials
8	Week 8	Traditional Building Materials & techniques – Introduction to traditional and alternative materials & construction techniques:
9	Week 9	Fly ash bricks, gypsum, steam cured bricks, mud, bamboo CSEB, steam cured blocks etc., & Cavity walls,
10	Week 10	Alternative building materials- Roofing Materials, core unit slabs, filler slabs, composite beam and panel, funicular shells, filler slabs, vaulted roofs
11	Week 11	Internal Assessment II
12	Week 12	Alternative building materials- Walls, reinforced concrete masonry, ferro-cement walls etc.
13	Week 13	Alternative building materials-foundations, High volume fly ash concrete, geo polymer concrete etc.
14	Week 14	Smart & innovative materials for green construction- GFRC, Mycelium, Hempcrete, timber Crete blocks, WPC, SCIP etc.,
15	Week 15	Latest technologies in construction- 3D printing, Building Integrated Photo Voltaic (BIPV), smart finishes for walls

Tentative Break-up of Internal Assessment:

S.No	Categories of Evaluation	Marks	Note
1	Internal test/ Individual Assessment	15	1. Marks allotted at each stage is tentative 2. New stages or categories of evaluation may be included if and when the need arises
2	Mid Term Exam	20	
3	Seminar Presentation	15	

References:

(Nagaraju Kaja)