



MANIPAL UNIVERSITY JAIPUR

School of Civil and Chemical Engineering

Department of Civil Engineering

Course Hand-out

Building Science and Technology | CV 1302 | 3 Credits

Session: Jul- Dec 2017 | Faculty: Dr. Gaurav Sancheti

Course Outcomes: At the end of the course, students will be able to

I302.1: Understand Characteristics of various materials used in construction and their uses.

I302.2: Learn Latest trend in materials used for construction in India and abroad

I302.3: Learn the manufacturing process, types, applications and testing procedures for materials used for load bearing purpose

I302.4: Explore efficient usage of materials in different areas of Civil Engineering.

I302.5: Explore other possibilities for sustainable materials in construction which can develop their skills for employability.

A. SYLLABUS

Introduction: Role of Building Materials, History, and recent Trends in construction,

Plastering, Painting and Flooring: Types, properties, White washing, Colour washing and distempering of walls. Plastic emulsion, Enamel and powder Coat painting of walls, Painting of wood and metal works, Granolithic, Concrete, Mosaic, Ceramic, Marble, Terrazzo and Synthetic material flooring,

Roofs: Sloped roofs – Leaning roofs, Coupled and Collared roofs; Timber trusses: King post and Queen post trusses;

Shoring, Underpinning, and Scaffolding.

Bricks & Tiles; Lime: Types and their application;;

Timber: properties, defects and preservation, Types and uses;

Tar, Bitumen and Asphalt, Modern Building Materials: Plastic, FRP, rubber, glass, Ferro-cement, glass, ceramics and paints;

Corrosion: types and Corrosion prevention methods;

Cements: Types, composition, properties and uses, physical tests on cement,

Concrete Technology: Ingredients of concrete, properties & tests on fresh and hardened concrete as per IS codes.

Foundation: Types of foundation, spread foundations, pile foundations, pier foundations, excavation of foundation.

Centring, Shuttering & Scaffolding: Types, methods and material used.

Types of Walls: Purpose and method of construction. Brick Masonry: Terminology, Materials used, Causes of failure of brick masonry, Types of bonds, Brick laying, Reinforced brickwork. Stone Masonry: Terminology used, Materials used, Cutting and dressing of stones, Types of stone masonry-Rubble and Ashlar, Joints of stone, Stone lining, maintenance of stone work, Artificial stones.

Damp Proofing: material used for damp proofing, methods of preventing dampness

Maintenance of Buildings: Types and corrosion prevent method, Causes and prevention of cracks in building, special repair of buildings, annual maintenance.

B. TEXT BOOKS

- I. Punmia B.C., Building Construction, Lakshmi Publications, New Delhi, 2008.

