

PCCE4203 **Building Materials and Building Constructions**

Module I

Bricks: Brick as a construction material and its importance, materials suitable for manufacture of bricks, methods of brick manufacture, types of bricks, qualities of a good brick, testing of bricks, uses of bricks.

Stone: Introduction, classification, composition and characteristics, useful Indian stone, method of quarrying and dressing

Cement: Classification, chemical composition, Manufacturing of cement, hydration, tests for cement, uses of cement, types of cement, *Mortar:* Definition, composition and uses of mortar.

Concrete: Quality of mixing water, Workability, Factors affecting workability, Measurement of workability, Segregation, Bleeding, Uniformity of mixing, Mixing time, vibration of concrete, concrete mix design, admixtures, Grade and strength of Concrete.

Module II :

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

Brick Masonry: Terminology used, Materials used, Causes of failure of brick masonry, Types of bonds, Brick laying, Joints in brickwork, Reinforced brickwork, Joint between old and new masonry, Maintenance of brick work.

Stone Masonry: Terminology used, Materials used, Cutting and dressing of stones, Types of stone masonry- Rubble and Ashlar, General principles of construction, Joints of stone, Stone lining, maintenance of stone work, Artificial stones.

Cavity walls: Purpose and method of construction.

Module III :

Damp Proofing: Causes and effects, materials used for damp proofing, methods of preventing dampness, Damp Proof Course.

Stairs: Terms used, types of stairs, essential requirements, wooden stairs, concrete stairs, metal stairs.

Flooring: Types of flooring and their construction- brick, stone, concrete, tile, mosaic, terrazzo, asphalt

Plastering: Definition. Materials used for plastering, types of plastering, methods of plastering, defects and remedial measures in plastering.

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

Text Books:

1. "Material of Construction ", D.N.Ghose, TMH Publishing Company Ltd.
2. "Engineering Materials" by S. C. Rangwala et al., Charotar Publishing House
3. A text book of Building Construction by S K Sharma and B.K Kaul, S Chand & Company Limited.
4. " Building Construction", Sushil Kumar, Standard Publishers Distributors, New Delhi

Reference Books:

1. "Properties of concrete" by A M Neville, Low Price Edition
2. "Building Construction" by S P Arora.
3. "Building Materials" by S.K.Duggal, TMH Publication.