

BUILDING MATERIALS AND CONSTRUCTION SYLLABUS

Course Code	23AC1401	Year	II	Semester	II
Course Category	Mandatory course	Branch	CIVIL	Course Type	Theory
Credits	-	L-T-P	3-0-0	Prerequisites	Engineering chemistry and Engineering Physics
Continuous Internal Evaluation	30 Marks	Semester End Evaluation:	--	Total Marks:	30 Marks

Course Objectives:

The objective of this course is to:

1. To learn the availability, types, uses and various tests for building materials.
2. To know about activities in building construction.

Course Outcomes:

Course will enable the student to:

CO	Statement	Blooms level
CO 1	Understand the process of making quality stones and bricks with their applications.	L2
CO 2	Assess quality of timber and steel in a detailed manner on the usage in the present-day construction.	L3
CO 3	Acquire the knowledge about paints, varnishes, distempers and acoustics of buildings.	L2
CO 4	Understand types of foundation and stone, brick & block masonry for the different construction activities in the building construction	L2
CO 5	Comprehend floors & roofs and application of damp proofing, scaffolding, shoring, underpinning and formwork.	L2

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3				2	2					2	3	2
CO2	2	2				2	2					2	2	2
CO3	3	3				2	2					2	3	2
CO4	2	2				2	2					2	2	2
CO5	1	1				2	2					2	1	2

Syllabus:

Unit No	Content	Mapped COs
I	STONES: Qualities of a good building stone; Stone quarrying; Tools for blasting; Materials for blasting; Process of blasting; Precautions in blasting; Dressing of stones.; Common building stones of India. BRICKS: Composition of good brick earth; Harmful ingredients in brick earth;	CO1

	Classification of bricks; Qualities of good bricks; Manufacturing of bricks; Comparison between clamp burning and kiln burning; Tests for bricks; Substitutes for bricks.	
II	TIMBER: Definition; Classification of trees; Structure of a tree; Defects in timber; Qualities of good timber; Decay of timber; Preservation of timber; Fire resistance of timber; Seasoning of timber; Market forms of timber; Industrial timber; Advantages of timber construction; Use of timber ; Bamboo as a Building Material. STEEL: General; Manufacture of steel; Uses of steel; Factors affecting physical properties; Defects in steel; Market forms of steel; Properties of mild steel; Properties of hard steel; Corrosion of ferrous metals.	CO2
III	PAINTS, VARNISHES AND DISTEMPERS: General; Painting; Varnishing; Distemping; White washing; Colour washing. ACOUSTICS OF BUILDINGS: Important Technical terms; Requirements of sound effects; Factors to be considered in Acoustics of building; Sound absorbing materials; Sound insulation.	CO3
IV	FOUNDATIONS: Concept of foundations; Factors affecting selection of foundations; Types of foundations; Strip, Isolated, Strap, Combined Footings, Grillage foundations, Piles and their classification; Foundation on black cotton soils. STONE, BRICK & BLOCK MASONRY: Technical terms; Classification of stone masonry; Classification of brick masonry; Plan, elevation and section of brick bonds up to two bricks thickness; Block masonry – Hollow concrete, Clay blocks.	CO4
V	FLOORS & ROOFS: Technical terms; Types of ground floors; Classification of roofs. DAMP PROOFING, SCAFFOLDING, SHORING, UNDER PINNING & FORMWORK : Causes of dampness; Methods of preventing dampness; Types of scaffolding; Types of shoring; Methods of underpinning; Types of formworks.	CO5

Learning resources:**Text books:**

1. Engineering Materials, (36th edition) by Rangwala, S.C., Anand Charotar Publishing House, 2009.
2. Building construction, (10th edition) by Punmia, B. C., Laxmi Publications, Bangalore, 2009.

Reference books:

1. Building construction and construction materials by Birdie, G.S. and Ahuja, T.D., Dhanpath Rai Publishing company, New Delhi, 1986.

E-learning resources:

<http://nptel.ac.in/courses.php>

<http://jntuk-coeerd.in/>