

Course Type	Course Code	Name of Course	L	T	P	Credit
DSC1	NCEC101	Building Materials and Building Construction	3	0	0	3

### Course Objective

The objective of the course is to understand the properties, behavior and the use of suitable construction materials, and building estimation.

### Learning Outcomes

Upon successful completion of this course, students will:

- Understand the basic properties, select suitable materials for buildings,
- Adopt suitable construction techniques,

Unit No.	Topics to be covered	Lecture Hours	Learning Outcome
1	Construction Materials: Introduction; Cement and cementitious materials; Aggregate: Types, Source, Classification and Characteristics; Concrete: Classification, Production, Proportioning and Mix Design, Quality control, Mechanical and durability properties; Ferrous and non ferrous Metals: types of steel, aluminum, polymeric materials and their civil engineering applications. Relevant ISO/Indian standards.	18	Understanding the basic properties and selecting the suitable building materials for different construction purposes.
2	Mortar: Classification and Characteristics; Destructive and Nondestructive tests;	05	Understanding the application of materials.
3	Building Construction /Techniques: Foundations: Function and Classifications; Brick Masonry; Wall, Doors and Windows; Stairs; Floors; Roofs; Plastering and Painting; Flooring; Formwork.	10	Understand the different construction procedures and techniques
4	Energy efficient building materials and constructions, Green building and ratings as per ISO/Indian standards	3	Development in building materials and construction towards sustainability
5	Estimation and Costing: Introduction; Methods of estimation; Estimation of Buildings; Schedule of rates; Rate analysis	06	Able to estimate the building structures and perform rate analysis.

### Text Books:

1. Varghese, P.C., (2015). Building Materials, 2nd Edition, PHI Learning Pvt. Ltd., New Delhi.
2. Arora, S.P. and Bindra, S.P. The Text Book of Building Construction, Dhanpat Rai Publishing Co Pvt Ltd
3. Dutta, B.N., Estimation and Costing, UBS Publishers' Distributors Ltd.

### Reference Books:

1. Neville, A.M. and Brooks, J.J. (2010). Concrete Technology, 2nd Edition, Prentice Hall, Pearson Education.
2. Gambhir, M.L. and Jamwal, N. (2014). Building and Construction Materials: Testing and Quality Control, McGraw Hill Education (India) Pvt. Ltd., New Delhi.
3. Relevant ISO/BIS standards.