

S. No.	Course Code	Course Name	Course Type	C d	L	T	P	Marks		
								Sessional	Final Exam	Total
6	CE-802(C)	Building Construction Materials and Drawing	PEC	3	3	0	0	50	100	150

**COURSE OUTCOMES**

At the end of the course the student will be able to :-

CO1	Describe the environmental impact of materials, conduct life-cycle assessments, and make informed material selections to optimize performance.
CO2	Evaluate basics of green design and understand sustainable development concept and practices in construction
CO3	Articulate the comprehensive understanding of structural steel, high tensile steel, carbon composites, and the use of plastics in construction.
CO4	Explain the various types of roofs, floors, doors, and window systems
CO5	Analyze the properties and characteristics of lime, bricks, cement, and mortar, and apply this knowledge to their selection and utilization in construction projects.

**Detailed Syllabus****Section-A**

**Unit 1:** Engineering Materials for Sustainability. Environmental impact of materials; life-cycle assessment; material selection to optimize performance; evaluation of green construction materials. Construction & Drawing - Introduction, various terms used, stone masonry-Dressing of stones, Classifications, safe permissible loads, Brick masonry-bonds, laying, structural brick work-cavity and hollow walls, reinforced brick work, Defects in brick masonry, composite stone and brick masonry, glass block masonry. (9 Hrs)

**Unit 2:** Green Building Materials and Indoor Environment Quality: Low emitting materials; Building and material reuse; Construction waste management; Regional materials; Life cycle cost assessment of building materials and products; Factors affecting indoor environment quality; Ventilation and filtration; Building materials and finishes. Design, production, application and quality control of construction materials unique to civil engineering. (9 Hrs)

**Unit 3:** Design, production, application, specification, and quality control of construction materials unique to civil engineering. Structural Steel, High Tensile Steel, Carbon Composites; Plastics in Construction; 3D printing; Recycling of Construction & Demolition wastes Prerequisite. (9 Hrs)

**Section B**

**Unit 4: Roofs and Floors-**Types of roofs, roof trusses-king post truss, queen post truss etc. Floor structures, ground, basement and upper floors, various types of floorings. **Doors and Windows-**Locations, sizes, types of doors and windows, fixtures and fasteners for doors and windows. (9 Hrs)

**Unit 5:** Construction Engineering Materials-Design, production, application, specification, and quality control of construction materials unique to civil engineering. Construction Engineering Materials- Lime, Bricks, Cement and Mortar. (9 Hrs)

**Textbooks**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Building construction illustrated	Francis D.K. Ching	Wiley India, USA,	6 <sup>th</sup> (2019)
2	A to Z Building Construction	Sandip Mantri	Satya Prakashan New Delhi	18 <sup>th</sup> (2020)

**Reference Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Building Construction	S. S. Bhavikatti	VPH Pvt. Ltd., New Delhi	1 <sup>st</sup> (2012)
2	Building Construction	S. C. Rangawala	Charotar Publication	33 <sup>rd</sup> (2016)