

Course code and Title : CE2030 – Civil Engineering Materials and Construction

2. Course category : PMT
3. Course credit : (3-1-0-4)
4. Prerequisite course : Nil
5. Consent of Teacher: Not required
6. Course instructor: Dr. Sunitha K Nayar, Room No. 118.

Course content

Building Construction

- Overview of building process; Foundations – deep and shallow foundations, shoring;
- Superstructure – Load bearing masonry, arches, lintels, scaffolding, formwork;
- Floors and roofs – Flat and pitched roofs, centering, floor finishes;
- Staircases and other elements of construction; Doors and windows;
- Framed construction – multi-storied buildings;
- Building services – vertical transportation, plumbing, electrical

Building Materials:

- Concrete – Concrete making materials, properties in fresh and hardened state, durability, special concrete;
- Steel – production, metallurgy, properties, and types;
- Bituminous materials – Types and properties of asphalt, bituminous concrete for pavement application;
- Masonry materials – Bricks, concrete blocks, lime and gypsum;
- Timber; Miscellaneous materials – Polymers and plastics, composites and smart materials;
- Failure mechanisms and degradation processes of materials

References:

- S. C. Rangwala, "Building Construction," Charotar Publishing House, Anand, 1993.
- R. Chudley, "Construction Technology – Volumes 1 and 2," 2nd Edition, Longman, UK, 1987.
- W. B. McKay, "Building Construction – Volumes 1, 2, 3, and 4," 5th Edition, Orient Longman, UK, 1993.
- Michael S. Mamlouk and John P. Zaniewski, "Materials for Civil and Construction Engineers," Addison Wesley Longman Inc., USA, 1999
- William D. Callister, Jr., "Materials Science and Engineering – An Introduction," 3rd Ed., John Wiley and Sons, New York, 1994.

- S. C. Rangwala, "Engineering Materials," Charotar Publishing House, Anand, 1993.
- A. V. Srinivasan and D. M. McFarland, "Smart Structures: Analysis and Design," Cambridge University Press, UK, 2001.

Grading system:

No	Grading Area	Points
1	Test-1	15
2	Test- 2	15
3	Assignments & Surprise Class Questions	20
5	Final Examination	50
	Total	100