

CE3211OE: BASICS OF CIVIL ENGINEERING**B.Tech. III Year II Semester**

Course Code	Subject Area	Category	Hours/Week			Credits	Maximum Marks		
			L	T	P		CIA	SEE	Total
CE3211OE	OEC	Open Elective	3	0	0	3	30	70	100
Contact Classes: 48		Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 48			

Course Objectives: The objectives of the course are:

- To explain the concepts of Civil Engineering.
- To Understand the Building Materials for construction
- To understand the concept of Transportation
- To explain the Soil Characteristics for best foundation
- To know the Drinking water Standards & Water Treatment Units.

Course Outcomes: On successful completion of this course, students should be able to:

- CO1: Identify different types of building materials for construction.
 CO2: Discuss types of Traffic Flow Characteristics.
 CO3: Identify the soil classification and its properties.
 CO4: Understanding the Drinking water and Waste water properties.
 CO5: Understanding the Layout and general outline of water treatment units.

UNIT-I, Building Materials for Construction

Bricks & Cement: qualities of good bricks, types of brick, ingredients of cement, types of cement, Grade of cement.

Concrete & Steel: Properties of cement concrete, types of concrete based on usage & properties and uses of various types of steel, Admixtures.

Building components: lintels, walls, stair cases, types of floors, types of roofs, doors, windows-material-types, Finishers-Plastering, Painting, Tiles.

UNIT- II Transportation Engineering

Highway: History and Importance of Highways, Classification of roads, highway cross section, types of Pavement. Traffic: Road safety-Traffic signals & its types. Road intersections & its types. Railway: Permanent way, Components parts its functions. Airway: Typical Airport layout, Factors for airport site selection.

UNIT – III Geotechnical Engineering

Soil formation and its three phase diagram, I.S. Classification of soils. Permeability & its Factors affecting, capillary rise. Compaction – factors affecting compaction. Geology- Different types & its properties of Rocks & Minerals.

UNIT - IV Water Resources & Irrigation Engineering

Hydrologic cycle, Forms of precipitation, measurement of precipitation by Symons rain gauge. Abstractions from precipitation: Infiltration, Evaporation & Runoff & their Factors affecting. Irrigation: Water requirement of crops, canal & its losses, Types of lining- Advantages and disadvantages.

Types of dams, Factors affecting selection of a dam site. Tunneling- Purposes of tunneling.

UNIT – V Environmental Engineering

Drinking Water: types of water demand – factors affecting water quality and testing – drinking water standards. Layout and general outline of water treatment units.

Waste water: Waste water treatment plant Flow diagram. Waste water collection, manholes & house drainage.

Air & Sound pollution – Effects & Controlling methods.

TEXT BOOKS

1. Building Construction by B. C. Punmia, Ashok Kumar Jain and Arun Kumar Jain –Laxmi Publications (P) ltd., New Delhi.
2. Transportation Engineering by Khanna & Justo
3. Geotechnical Engineering by Arora
4. Water Resources & Irrigation Engineering by SK Garg
5. Environmental Engineering by Dr.B.C.Punmia