

BASICS OF CIVIL ENGINEERING

MODULE-I (6 classes)

Introduction and Scope of Civil Engineering. Broad disciplines of Civil Engineering; Importance of Civil Engineering, Early constructions and developments over time, Development of various materials of construction and methods of construction.

Building Material and Building Construction:

Bricks: Brick as a construction material and its importance, qualities of a good brick, Stone: classification, composition and characteristics, Cement: Classification, tests for cement, uses of cement, types of cement, Concrete: Quality of mixing water, Workability, Compaction of concrete, concrete mix design, Grade and strength of Concrete. Fundamentals of R.C.C. and Prestressed concrete. Types of steels used in civil engineering works. Building Components and their basic requirements, Mortar, Stone masonry, brick masonry, roof, floors.

MODULE-II (6 classes)

Surveying: Linear measurement and chain survey: Use of chains and tapes for measurement of correct length of lines, direct and indirect ranging, Compass surveying: Use of prismatic compass, bearing of a line. Local attraction, Introduction to modern surveying instruments EDM and Total Station.

MODULE-III (6 classes)

Fundamental of soil and its classification, Foundations: Types of shallow and deep foundations with neat sketches. Fundamentals of Irrigation Engineering. Introduction of Hydraulics structure like canals, siphons, weirs, dams etc.

MODULE-IV (6 classes)

Transport, Traffic and Urban Engineering: Introduction to planning and design aspects of transportation engineering, different modes of transport, highway engineering, rail engineering, airport engineering, traffic engineering, urban engineering

TEXT BOOKS

- i. Basic Civil Engineering, S. Gopi, Pearson
- ii. Building Construction, Sushil Kumar, Standard Publishers Distributors
- iii. Surveying and Levelling by R. Subramanian, Oxford University Press

REFERENCE BOOKS

- i. Engineering Materials, S.C. Rangwala, Charotar Publishing House
- ii. Building Material and Construction, G C Sahu, Joygopal Jena, McGraw Hill
- iii. Surveying Vol-1 by R Agor, Khanna Publishers
- iv. Basic Civil Engineering, M.S. Palanichamy, McGraw Hill