## INTRODUCTION TO CIVIL ENGINEERING

Category: General (G) Mode of Delivery: Lecture – 3 Hrs/Week: Total hours: 45 Credit: 3

## **COURSE OUTCOMES**

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

- Explain importance of infrastructural development in building a nation.
- List out and explain various fields of civil engineering •
- Demonstrate the need of higher order thinking skills.
- Explain the functional, strength durability requirements of various infrastructures
- Demonstrate the phases of a construction project. •
- List out elements of a building and describe them

### **ROLE OF ENGINEERING IN SOCIETY** UNIT – 1

Basic human needs – Benefits derived from engineering - Historical development of Structures -Importance of infrastructural development -Scope and branches of Civil Engineering – Role of civil engineers - Government funding plans for construction - Opportunities for civil engineers.

### UNIT – 2 **ENGINEERING EDUCATION**

Expectations and aspirations of engineering students, Graduate engineering attributes, outcome based engineering curriculum, engineering skills -concepts and theories of learning - Higher order thinking skills, multiple intelligences, learning styles inventory, teaching/ learning process and methodologies.

### UNIT – 3 FEATURES OF INFRASTRUCTURES

Types of Infrastructure - Aspects considered in creating infrastructures - Functions, Importance of safety, stability, Durability, comfort and convenience – types of Materials used - buildings, Bridges, Roads, Railways, Airport, Harbour and Dams - Drainage and water supply system.

### UNIT – 4 **CIVIL ENGINEERING PROCESS**

Feasibility studies, preliminary investigations, client requirements; develop concept, planning, design, preparation of drawings, approval from statutory authorities, construction, operation, monitoring, maintenance, repair and rehabilitation.

### UNIT – 5 ELEMENT OF BUILDINGS

Types of buildings – Planning considerations in buildings (light, climate, safety) - Elements of a residential building - units of measurements - foundation, walls, laying of bricks, doors/windows, timber joints, gates, grills, plumbing lines, electrical wiring, air condition ducts, making model of a house.

## **Text Books:**

- 1. M.S. Palanichamy, "Basic Civil Engineering", 4th Edition, McGraw Hill Education (India) Private Limited, 2010.
- 2. L.S. Jayagopal and R. Rudramoorthy, "Elements of Civil And Mechanical Engineering", Vikas Publishing House Pvt Ltd, 2003

## **References:**

- 1. S.P. Arora and S.P. Bindra, "A Text book of Building Construction", Dhanpat Rai Publications (p) Ltd, 2010.
- 2. B. C. Punmia, "Building Construction", 10th Edition, Laxmi Publication, 2008
- 3. William C. Oakes and Les L. Leone, "Engineering Your Future: A Comprehensive Introduction to Engineering", Oxford University Press, 2014

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Total: 45 hours

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