

1/4 B.Tech. FIRST SEMESTER

CE1T4

INTRODUCTION TO CIVIL ENGINEERING

Credits: 2

Lecture: 2 periods/week

Internal assessment: 30 marks

Tutorial: --

Semester end examination: 70 marks

Objectives:

- To know the fundamentals of simple stress, strain and to develop the focus on bridges, dams and roads
- To get exposure with the various building materials
- To understand the behavior of different soils and to know about the fundamentals of Surveying

Learning outcomes:

At the end of the course the students will have known:

- The characteristics and behaviour of various building materials
- Physical properties of soils and suitability of foundation
- Basic principles of surveying, classification of roads, bridges and dams

UNIT – I

SIMPLE STRESS AND STRAINS:

Definition of Mechanics- External and Internal forces-Stress and Strain-Elasticity and Hook's Law- Relations between elastic constants.

UNIT – II

CIVIL ENGINEERING MATERIALS:

Classification of bricks, Manufacture of bricks, Laboratory and field tests on bricks, stones; Grades of Steel and Cement Concrete.

UNIT – III

MASONARY:

Bonds in Brick Masonry, Stone Masonry; Types of Flooring and Roofing.

UNIT – IV

SUB-STRUCTURE:

Soil –Types; Introduction to Foundations – Classifications; Bearing capacity of Soil - Improvement

UNIT – V

SURVEYING:

Objectives, Types, Principles of Surveying; Measurement of distances and angles

UNIT – VI

TRANSPORTATION ENGINEERING:

Roads- Classification; Road Network Patterns; Cross section of roads; Traffic signs

UNIT – VII

BRIDGES:

Necessity of bridges; Components; Classification; Preliminary data to be collected, selection of bridge site; Investigation for major bridges.

UNIT – VIII

DAMS:

Purpose of Dams; Components; Classification; selection of site for construction.

Learning resources

Text books:

1. Basic Civil Engineering by Palanichamy, M.S., Tata McGraw-Hill Publishing Company Limited, New Delhi, 2002.
2. Basic Civil Engineering Premalatha J. and Kasir., Coimbatore, 2005.

Reference books:

1. Basic Civil and Mechanical Engineering by Jayagopal,L.S. and Rudramoorthy, R., Vikas Publishing House Pvt. Ltd., New Delhi, 1999.
2. Basic Civil Engineering by Gopi, Satheesh, New Delhi Pearson 2010.