Kerala Technological university KTU First year B.tech Syllabus for **CE100Basics Of Civil Engineering**

Course No. : CE100

Course Name: Basics Of Civil Engineering
L-T-P-Credits: 2-1-0-3

Year of Introduction: 2015
Course Objectives:

1. To inculcate the essentials of Civil Engineering field to the students of all branches of Engineering.
2. To provide the students an illustration of the significance of the Civil Engineering Profession in satisfying societal needs.

Syllabus:

General introduction to Civil Engineering - Introduction to types of buildings, Components of a residential building, Introduction to industrial buildings; Introduction to planning of residential buildings - Simple building plans; Introduction to the various building area terms; Setting out of a building; Surveying – Principles, Objectives, Horizontal measurements with tapes, Ranging; Levelling – Instruments, Reduction of levels; Modern surveying instruments; Building materials – Bricks, cement blocks, Cement, Cement mortar, Steel; Building construction – Foundations, Brick masonry, Roofs, Floors, Decorative finishes, Plastering, Paints and Painting; Basic infrastructure and services – Elevators, Escalators, Ramps, Air conditioning, Sound proofing, Towers, Chimneys, Water Tanks; Intelligent buildings.

Expected outcome:

1. The students will be able to illustrate the fundamental aspects of Civil Engineering.
2. The students will be able to plan and set out a building.
3. Students will be able to explain the concepts of surveying for making horizontal and vertical measurements.
4. They will able to illustrate the uses of various building materials and explain the method of construction of different components of a building.
5. Students will be able to discuss about various services in a building.

Text Book:

1. Satheesh Gopi, Basic Civil Engineering, Pearson Publishers
2. Rangwala, Essentials of Civil Engineering, Charotar Publishing House

References:

1. Anurag a. Kandya, elements of civil engineering, charotar publishing house

2. Rangwala s c and ketki b dalal, engineering materials, charotar publishing house

3. Rangwala s c and ketki b dalal, building construction, charotar publishing house

4. Michael s mamlouk and john p zaniewski, materials for civil and construction engineering,pearson publishers

5. Mckay, w. B. And mckay, j. K., building construction volumes 1 to 4, pearson india
education services

6. R. Chudley, construction technology, vol. I to iv, longman group, england

7. R. Chudley and r. Greeno, building construction handbook, addison wesley,

longman group, england

Module 1 Contents

General introduction to civil engineering - various disciplines of civil engineering, relevance of civil engineering in the overall infrastructural development of the country.Introduction to types of buildings as per nbc; selection of site for buildings.Components of a residential building and their functions.Introduction to industrial buildings – office / factory / software development office / power house /electronic equipment service centre (any one related to the branch of study) students have to visit one such building and submit an assignment about the features of any one of the listed building related to their branch (not included for exam)..

Module 2 Contents

Building planning - introduction to planning of residential buildings- site plan, orientation of a building, open space requirements, position of doors and windows, size of rooms; preparation of a scaled sketch of the plan of a single storeyed residential building in a given site plan. Introduction to the various building area terms - computation of plinth area / built up area, floor area / carpet area - for a simple single storeyed building; setting out of a building.

Module 3 Contents

Surveying - principles and objectives of surveying; horizontal measurements – instruments used – tape, types of tapes; ranging (direct ranging only) – instruments

used for ranging. Levelling - definitions, principles, instruments (brief discussion only) - level field book - reduction of levels - problems on levelling (height of collimation only). Modern surveying instruments – electronic distance meter, digital level, total station, gps (brief discussion only).

Module 4 Contents

Building Materials - Bricks, Cement Blocks - Properties And Specifications.cement – Opc, Properties, Grades; Other Types Of Cement And Its Uses (in Brief). Cement Mortar – Constituents, Preparation. Concrete – Pcc And Rcc – Grades. Steel - Use Of Steel In Building Construction, Types And Market Forms. market forms.

Module 5 Contents

Building construction – foundations; bearing capacity of soil (definition only); functions of foundations, types - shallow and deep (sketches only). Brick masonry – header and stretcher bond, english bonds – elevation and plan (one brick thick walls only). Roofs – functions, types, roofing materials (brief discussion only). Floors – functions, types; flooring materials (brief discussion only). Decorative finishes – plastering – purpose, procedure. Paints and painting – purpose, types, preparation of surfaces for painting (brief discussion only).

Module 6 Contents

Basic infrastructure and services - elevators, escalators, ramps, air conditioning, sound proofing (civil engineering aspects only) towers, chimneys, water tanks (brief discussion only). Concept of intelligent buildings.