BUILDING PLANNING AND DRAWING

Course Code	18CVL36	Credits	03
Course type	PC	CIE Marks	50 marks
Hours/week: L-T-P	2-0-2	SEE Marks	50 marks
Total Hours:	40	SEE Duration	4 Hours for 100 marks

Course Learning Objectives (CLO's)

1. To understand and plan the geometry of building components like footings, stairs, doors and windows.
2. To understand principles of planning and building bye-laws.
3. To plan residential & public buildings according to bye-laws.
4. To understand the planning and design of water supply, sanitation and electrification.
5. To understand the commands used in AutoCAD to draw the above drawings.

Pre-requisites: NIL

PART A

08 Hours

Foundation: Introduction, Functions and requirements of a good foundation, Types of foundations, Preliminary investigation of soil, Safe Bearing Capacity of Soil, Introduction to spread, combined, strap, mat and pile foundations.

Masonry: Introduction, Classification of Masonry, Definition of terms used in Masonry, Introduction to classification and qualities of bricks, Bonds in Brick work - English Bond, Flemish Bond. Common building stones, their properties and uses, Classification of stone masonry

Roofs and Floors

Types of Roofs & Roofing materials, Flat roof (RCC), Types of pitched roofs, Wooden Truss, Steel trusses, Types of flooring, Factors affecting selection of flooring materials.

Case study:

1) Case study on foundation of existing prominent structures
2) Open end problems on the selection of foundation based on soil conditions
3) Open end problems on the types of tests to be adopted to identify the types of soils.

08 Hours

Doors, windows and ventilation

Location of doors and windows, Definition of technical terms, Types of Doors, Types of windows, Definition and classification of Lintels. Definition and Purposes of Ventilation.

Stairs, Lifts and Escalators

Definition of technical terms in stairs, Requirements of stair, Types of Stairs, Geometrical design of RCC Dog legged and open well stairs. Definition and essential requirements of Lifts and Escalators. **Study of different types of stairs**.

Case Studies:

1) Case studies on the most widely used type of doors, windows.
2) Introduction to new materials and its availability.

PART B

08 Hours

Preparation of drawings

To prepare drawings of Building components consisting of R.C.C column footing, wall footing and stairs (Dog legged and open well) – Plan and cross section. Doors and windows (Elevation and cross section).

Introduction to planning

Principles of planning, building byelaws, notations and symbols used in drawings, Types of buildings- Residential (load bearing and framed), public buildings.

Case Study: To measure and draw the existing staircase

08 Hours

Residential Buildings:

Preparation of Plan, elevation, cross section and schedule of openings for load bearing and framed structures - ground floor, first floor and two storey buildings Framed only using AUTO-CAD

Case Study: To measure and draw the plan elevation and section of given structure

08 Hours

Public Buildings:

Preparation of Plan, elevation, cross section and schedule of openings for public buildings like primary schools, offices, primary health centre using AUTOCAD

Building services:

Preparing a line diagram showing building services like water supply, sanitation and electrification for prepared plans of residences and public buildings using AUTOCAD

Case Study: To visit an existing public building and suggest modification as per present requirements.

Text Books:

1. Shah M.H and Kale C.M., “Building Drawing”, Tata McGraw Hill Publishing Co. Ltd.
2. Sushil Kumar “Building Construction”, Lakshmi Publications, New Delhi.

Reference Books:

1. National Building Code, BIS

2. Building byelaws from local Authority.
E-resourses (https://www.youtube.com/watch?v=1yrOsuXJ1zw&list=PLg_vTQj-xmoWKJqRRi81PKX6YVNE3KIwB&index=6**)**

Course Outcome (COs)

	At the end of the course, the student will be able to	**Bloom's Level**
1.	**Understand** the concepts of foundation, masonry, floors and roofs	**L2**
2.	**Plan** residential buildings following principles of planning.	**L3**
3.	**Plan** building components like footings, stairs, doors and windows.	**L3**
4.	**Understand** planning of public buildings.	**L2**
5.	**Understand** the planning and **design** of Water supply, sanitation and electrification.	**L2, L5**

	Program Outcome (POs)	**PO No.**
1.	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	**PO 1**
2.	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.	**PO 5**
3.	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	**PO 10**

Course delivery methods	**Assessment methods**
1. Lecture and Board	1. Assignments and Open Book Assignments
2. NPTEL/ Edusat	2. Quizzes
3. Power Point Presentation	3. Internal Assessment Tests
4. Videos	4. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	IA test*	Sheet Submission	Total Marks
Maximum marks: 50	30	20	50
*IA test is conducted at the end of semester for 4-hour duration for 100 marks and scaled down to 30 marks. Drawing sheets has to be submitted for UNIT II. Minimum marks required to qualify for SEE: 20 out of 50 marks			

Semester End Examination (SEE):

1.	It will be conducted for 100 marks for 4-hour duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.		
2.	Three questions to be set from Part A. Students have to answer two questions of 20 marks each in answer booklet.	40 marks	100 Marks
	Two questions to be set from Part B. The students have to answer any one question of 60 marks (Drawings to be done in AUTO CAD).	60 marks	
3.	Minimum passing marks to be scored in SEE: 20 out of 50 marks		