

ADVANCED CAD LABORATORY

I Semester: ST								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
BSTC11	Core	L	T	P	C	CIA	SEE	Total
		0	0	4	2	30	70	100
Contact Classes: Nil		Total Tutorials: Nil		Total Practical Classes: 36		Total Classes: 36		
I. COURSE OVERVIEW:								
<p>This course deals with the drawing of various structural drawings related to reinforced concrete structures using software package. This will help the students to expose the new software and also minute detailing of the structures. This will also help how to study the existing drawing and incorporate the improvements in the drawings as and when required.</p>								
II. COURSE OBJECTIVES:								
The student will try to learn:								
<ul style="list-style-type: none"> I. The use of various software tools for drafting of typical structures. II. The Design and drawings of the structural detailing of the RC elements. III. The structural drawings of various elements in the structures for preparing quantities. 								
III. COURSE OUTCOMES:								
After successful completion of the course, students should be able to:								
CO 1	Design basic structural elements like slabs, beams, columns and stair cases etc. for construction purpose.					Analyze		
CO 2	Analyze technical drawings using both CAD and basic manual tools.					Analyze		
CO 3	Develop the drawings of structural elements for different applications.					Apply		
CO 4	Build the different stages of the structure from scratch using engineering graphics techniques such as sectional projections, dimensioning and computer-generated drawings.					Apply		
CO 5	Make use of software packages for creating different structural Geometry.					Apply		
CO 6	Apply principles of technical drawings for producing different 3D models.					Apply		
IV. SYLLABUS:								
Week-I: DESIGN OF SLABS								
Program for design of slabs using Excel and detailing								
Week-II: DESIGN OF BEAMS								
Program for design of beams using Excel and detailing								
Week-III: DESIGN OF COLUMN USING EXCEL								
Program for design of column using Excel and detailing								
Week-IV: DESIGN OF FOOTING USING EXCEL								
Program for design of footing using Excel and detailing								

Week-V: DESIGN OF STAIRCASE USING EXCEL

Program for design of footing using Excel and detailing

Week-VI: INTRODUCTION TO SOFTWARES

Introduction to analysis and design software's

Week-VII: STRUCTURAL SYSTEMS

General Description-Type of structure, Unit systems, structure geometry and Co-ordinate system.

Week-VIII: COMMAND INPUTS

Commands- Using Edit Input-Command Formats-Text Input.

Week-IX: DEVELOPING GEOMETRY AND DIMENSIONING

PRE- Graphical Input Generation-Library- Geometry Generation – Dimensioning

Week-X: 3D MODEL DEVELOPMENT

POST – Graphical Post Processing – Animation – Icons – Isometric View – Zooming-Results of Analysis & Design – Query reports

V.TEXT BOOKS:

1. Terence M. Shumaker, David A., Madsen AutoCAD and Its Applications: Advanced AutoCAD, Goodheart-Wilcox, 12th Edition, 2005

VI.REFERENCE BOOKS:

1. Dr M.N. SessaPraksh and Dr. G.S. Servesesh, “Computer Aided Design Laboratory”, Laxmi Publications, 1st Edition, 2016.
2. Mastering Auto Cad 2016 and AutoCad LT from AUTODesk, 2016.

VII. WEB REFERENCES:

1. <https://structuralbd.com/dwg-file-sample/>
2. https://dwgmodels.com/construction_details/

VIII. E-TEXT BOOKS:

1. https://books.google.co.in/books/about/AutoCAD_and_Its_Applications.html?id=BAaznio6H5oC&redir_esc=y