



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

## COURSE CONTENT

ADVANCED CAD LABORATORY								
I Semester: ST								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
BSTD11	Core	L	T	P	C	CIA	SEE	Total
		0	0	4	2	40	60	100
<b>Contact Classes: Nil</b>	<b>Total Tutorials: Nil</b>	<b>Total Practical Classes: 36</b>			<b>Total Classes: 36</b>			
<b>Prerequisite: Computer Aided Engineering Drawing</b>								

### I. COURSE OVERVIEW:

This course deals with the drawing of various structural elements 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.

### II. COURSE OBJECTIVES:

The student will try to learn:

- 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.
- CO 2 Analyze technical drawings using both CAD and basic manual tools.
- CO 3 Develop the drawings of structural elements for different applications.
- CO 4 Build the different stages of the structure from scratch using engineering graphics techniques such as sectional projections, dimensioning and computer-generated drawings.
- CO 5 Make use of software packages for creating different structural Geometry.
- CO 6 Apply principles of technical drawings for producing different 3D models.

### IV. COURSE CONTENT:

#### 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, Good heart-Wilcox, 12<sup>th</sup> edition, 2005

**VI. REFERENCE BOOKS:**

1. Dr M.N. Sessa Prakash and Dr. G.S. Servesh, “Computer Aided Design Laboratory”, Laxmi Publications, 1<sup>st</sup> edition, 2016.
2. Omura, George, and Brian C. Benton. Mastering AutoCAD 2018 and AutoCAD LT 2018. John Wiley & Sons, 2017.

**VII. ELECTRONICS RESOURCES:**

1. <https://structuralbd.com/dwg-file-sample/>
2. [https://dwgmodels.com/construction\\_details/](https://dwgmodels.com/construction_details/)
3. [https://books.google.co.in/books/about/AutoCAD\\_and\\_Its\\_Applications.html?id=BAaznio6H5oC&redir\\_esc=y](https://books.google.co.in/books/about/AutoCAD_and_Its_Applications.html?id=BAaznio6H5oC&redir_esc=y)

**VIII. MATERIALS ONLINE:**

1. Course Template
2. Tutorial Question Bank
3. Assignments
4. Model Question Paper – I
5. Model Question Paper - II
6. Lecture Notes
7. Power point presentation