CAD Lab

(Syllabus)

Offering Branch	CE	Year: III	Sem: II
CourseCategory	Skill Enhancement course - **23SA8651**	Credits:	2
Course Type	Lab	Lecture-Tutorial-Practical	0-1-2
Prerequisites	Strength of Materials Structural Analysis	Continuous Evaluation	30
		Semester End Evaluation	70
		Total Marks	100

Course Objectives:

By the end of this course student will be able to

- Learn the usage of any fundamental software for design.
- Create geometries using a pre-processor.
- Analyze and interpret the results using a post-processor.
- Design and detail the structural elements.

Course Outcomes

Upon the successful completion of this course, the students will able to:

CO	Statement	BL
CO 1	Develop the geometric model of a real-world structure and represent its physical and structural elements accurately.	**L2**
CO 2	Perform analysis of the structure using appropriate computational methods and tools.	**L3**
CO 3	Interpret post-processed results to evaluate structural behaviour and performance.	**L3**
CO 4	Design structural elements and the overall system in accordance with relevant IS Codes, and produce detailed drawings and specifications.	**L4**

Course Articulation Matrix:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO 1	3	2	3	2	3	2			2	2		3	2
CO 2	3	2	3	3	3	2			2	2		3	2
CO 3	3	2	3	3	3	2			2	2		3	2
CO 4	3	3	3	3	3	2	3	3	2	2		3	2

List of Experiments:

1. Analysis and design of determinate structures using a software.
2. Analysis and design of fixed and continuous beams using a software.
3. Analysis and design of plane frames.

4. Analysis and design of space frames subjected to DL (Dead Load) and LL (Live Load).
5. Analysis and design of a residential building subjected to all loads (DL, LL, WL, EQL).
6. Analysis and design of roof trusses.
7. Design and detailing of built-up steel beams.
8. Development of a design program for foundation using Excel spreadsheets.
9. Detailing of an RCC beam.
10. Detailing of a steel built-up compression member.

Note: Drafting of all exercises is to be carried out using commercially available design software.

Learning Resource(s)
Text Book(s)
Analysis of Structures- Vol. I and II, V. N. Vazirani and M. M. Ratwani, Khanna Publishers, New Delhi**.**
Reference Book(s)
https://docs.bentley.com/LiveContent/web/STAAD.Pro%20UserManual-v18/en/STAAD.Pro_User_Manual_en.pdf
Web Materials:
https://onlinecourses.nptel.ac.in/noc20_ce37/preview

Faculty **HoD-CE**