



Kot Bhalwal, Jammu



Model Institute of Engineering
& Technology (Autonomous)
Lab Handout

LABORATORY HANDOUT

STRUCTURAL ANALYSIS I LAB (CE-313)

CE-3RD SEMESTER

ACADEMIC YEAR (2024-25)

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Department of Civil Engineering



Department of Civil Engineering

Model Institute of Engineering & Technology (Autonomous)

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Dr. Arun K. Gupta Teaching-Learning Centre

Version 1.1



Please Do Not Print Unless Necessary



Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
CE-313	Structural Analysis I Lab	PCC	1	0	0	2	50	-	50

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Determine deflection and slopes of beams.
CO2	Calculate the elastic properties of beam and displacement of curved beam.
CO3	Observe deflection of various joint trusses.
CO4	Use latest software to create and verify structural models.
CO5	Create model using Staad Pro to understand functioning of truss and tension member.

LIST OF EXPERIMENTS

S.No.	Title
1	Verify reciprocal theorem of deflection using a simply supported beam.
2	Compute vertical elastic displacements of curved members.
3	Determine horizontal elastic displacements of curved members.
4	Verify of moment area theorem for slopes and deflections of the beam.
5	Determine elastic properties of a beam.
6	Calculate deflections for truss- horizontal and various joints of pin- jointed truss.
7	Determine truss- vertical deflection for various joints of pin- jointed truss.
8	Create an interactive menu-driven model for members with concurrent 2D & 3D graphics generation.
9	Develop complex structural segment models using repetitive geometry.
10	Verify the model for frames under different loads and illustrate with 2D/3D drawings.
11	Verify the model for different isometric elements and illustrate with 2D/3D drawings.
12	Practice pull-down menus, tool-tip help, and floating toolbars with Staad Pro.
13	Practice important commands in Staad Pro for support specification, member offset, and member property specifications.
14	Learn and practice release, offset commands.
15	Learn and practice truss only commands.
16	Learn and practice tension Only.



ADDITIONAL WEB RESOURCES

1.	VLAB LINK: Structural Analysis I Lab by oracle which gives hands-on experience to the students. https://bsa-iiith.vlabs.ac.in/
2.	VLAB LINK: Structural Analysis I Lab by YouTube which gives hands-on experience to the students. https://www.youtube.com/watch?v=U1SXOcvphZg
3.	VLAB LINK: Structural Analysis I Lab by IIT Delhi which gives hands-on experience to the students. https://www.vlab.co.in/ba-nptel-labs-civil-engineering
4.	VLAB LINK: Structural Analysis I Lab by IIT Hyderabad which gives hands-on experience to the students. https://www.vlab.co.in/participating-institute-iiit-hyderabad

LAB REPORT INSTRUCTIONS

- Provide specific title of the lab experiment.
- Theory: Provide a concise abstract (typically 100-200 words) that summarizes the purpose, methods, key findings, and significance of the experiment.
- Materials/ Equipment: List all materials, components, and equipment used in the experiment. Include specifications when applicable.
- Software/Simulation Tools:
- Experimental Procedure: Describe the step-by-step procedure for conducting the experiment. Be detailed and clear in your instructions. Include diagrams or schematics to illustrate the setup, connections, and component placement. Explain any variations or adjustments made to the standard procedure.
- Observation & Calculations/Analysis: Detail the data you collected during the experiment. Include descriptions of measurements and any calculations made. Use tables, charts, or graphs to present data clearly. Discuss any trends, patterns, or significant observations. Interpret the data in the context of the experiment's objectives. Ensure that all figures, tables, and equations are correctly labeled.
- Results: Summarize the key findings of the experiment. Present results in a clear and organized manner using tables and graphs. Include units of measurement and labels for data points.
- Conclusion: Provide a concise summary of the experiment's key points and outcomes.

GRADING AND ASSESSMENT

- **Continuous Evaluation:** 30 marks
- **Final Demo & Viva:** 10 marks
- **Attendance:** 10 marks
- **Lab Overall Marks:** 50 marks

COURSE POLICIES

- **Attendance:** Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Late Submissions:** Manuals and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**



Monday (12:05 PM - 12:55 PM)

Friday (12:05 PM - 12:55 PM)

- **Contact Information**
Iiyas.civ@mietjammu.in

RUBRICS FOR LAB CONTINUOUS EVALUATION

Parameters	Performance			Marks
	Low	Medium	High	
Execution of the Experiment	Student was not able to setup and conduct the Experiment completely	Student was able to setup and conduct the experiment but measurement/results/observations were not correct	Students was able to set and conduct the experiment and the measurement/results/observations were not correct	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Record	Student was not able to describe the detailed procedure and could not record the measurement.	Student was able to describe the detailed procedure partially or with some inaccuracy.	Student was able to describe the detailed procedure accurately and record all measurements correctly.	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Viva Voice	Students could not demonstrate sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrated sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrate strong knowledge of foundation, functional or applied aspects related to the experiment during viva	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Total Marks				30