



Kot Bhalwal, Jammu

Model Institute of Engineering  
& Technology (Autonomous)  
**Lab Handout**

## LABORATORY HANDOUT

DESIGN OF STEEL STRUCTURES LAB (CE-613)

CE-6<sup>TH</sup> SEMESTER

ACADEMIC YEAR (2023-24)

**Sarvdaman Sharma**

Assistant Professor

Department of Civil Engineering



Department of Civil Engineering

Model Institute of Engineering & Technology (Autonomous)

Kot Bhalwal, Jammu - 181122

[www.mietjmu.in](http://www.mietjmu.in)



Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
CE-613	Design of Steel Structures Lab	PCC	1	0	0	2	50	-	50

### COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Conduct tests on steel bars.
CO2	Draw the sectional diagram of steel structures and various elements.
CO3	Design Steel beams.
CO4	Design Multi story steel structure.
CO5	Analyze Steel Trusses.

### LIST OF EXPERIMENTS

S.No.	Title
1	To determine tensile strength of steel bars.
2	To determine elongation of steel bars.
3	To study bend and re-bend test of steel bars.
4	To determine the deflection and bending stress of simply supported subjected to concentrated load at the center.
5	To conduct torsion test on mild steel specimen to find modulus of rigidity of the materials.
6	Draw the layout of different types of connections and joints.
7	Draw the plan and elevation of slab base.
8	Draw the plan and elevation of Gusset base.
9	Draw the neat sketch of column made by channel section with necessary arrangement of lacing and battening.
10	Draw the neat sketch of column made by angle section with necessary arrangement of lacing and battening.
11	Analysis and design of steel beams in Staad. Pro.
12	Design of Steel Stiffeners to a Steel Beam in Staad. Pro.
13	Creating 3D Model for Multi-storied Steel Structure in Staad. Pro.
14	Analysis of 3D Model for Multi storied Steel Structure in Staad. Pro.
15	Creating a 3D Model of steel truss in Staad. Pro.
16	Analysis of Steel Truss in Staad. Pro.



### ADDITIONAL WEB RESOURCES

1.	VLAB LINK: Design of Steel Structures Lab by IIT Madras which gives hands-on experience to the students. <a href="https://eerc01-iiith.vlabs.ac.in/List%20of%20experiments.html">https://eerc01-iiith.vlabs.ac.in/List%20of%20experiments.html</a>
2.	VLAB LINK: Design of Steel Structures lab by IIT Hyderabad which gives hands-on experience to the students. <a href="https://www.vlab.co.in/ba-nptel-labs-civil-engineering">https://www.vlab.co.in/ba-nptel-labs-civil-engineering</a>
3.	VLAB LINK: Design of Steel Structures Lab by IIT Madras which gives hands-on experience to the students. <a href="https://eerc01-iiith.vlabs.ac.in/List%20of%20experiments.html">https://eerc01-iiith.vlabs.ac.in/List%20of%20experiments.html</a>
4.	VLAB LINK: Design of Steel Structures lab by IIT Delhi which gives hands-on experience to the students. <a href="https://www.vlab.co.in/ba-nptel-labs-civil-engineering">https://www.vlab.co.in/ba-nptel-labs-civil-engineering</a>

### 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**  
[sarvdaman.civ@mietjammu.in](mailto:sarvdaman.civ@mietjammu.in)

### RUBRICS FOR LAB CONTINUOUS EVALUATION

Parameters	Performance			Marks
	Low	Medium	High	
<b>Execution of the Experiment</b>	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	
<b>Record</b>	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	
<b>Viva Voice</b>	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
	<b>0-2 Marks</b>	<b>3-6 Marks</b>	<b>7-10 Marks</b>	
<b>Total Marks</b>				<b>30</b>