

## Structure Mechanics Laboratory

**Purpose:** Laboratory contributes mainly as teaching aid or for Design Project activities in the Civil Engineering Department. It provides support in a wide range of specialized areas of Structural Mechanics, Stability Analysis, and Testing of Structural Dynamics to the students.

S. No.	Experiment Name	Equipment Used
1	To verify Clark Maxwell's reciprocal theorem	<ul style="list-style-type: none"> <li>• Clark Maxwell's Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Scale and Vernier's Calliper</li> </ul>
2	To verify the moment area theorems for the slopes and deflection of a given beam.	<ul style="list-style-type: none"> <li>• Simply Supported Beam Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Scale and Vernier's Calliper</li> </ul>
3	To determine the elastic displacements of the curved members experimentally and to compare these values with those obtained theoretically	<ul style="list-style-type: none"> <li>• Curved Members Apparatus</li> <li>• Dial Gauges</li> <li>• Vernier's Scale</li> <li>• Weights</li> </ul>
4	To determine the horizontal thrust and draw influence line diagram for horizontal thrust in a three hinged arch	<ul style="list-style-type: none"> <li>• Three Hinged Arch Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Scale and Vernier's Calliper</li> </ul>
5	To study the behaviour of different types of struts and to calculate the Euler's buckling load for each case	<ul style="list-style-type: none"> <li>• Column and Struts Apparatus</li> <li>• Dial gauges</li> <li>• Scale</li> <li>• Weights</li> </ul>
6	To determine the flexural rigidity (EI) of a given beam	<ul style="list-style-type: none"> <li>• Elastic Properties of Deflected Beam Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Vernier's Calliper</li> </ul>
7	To determine the deflection of a pin-jointed truss.	<ul style="list-style-type: none"> <li>• Deflection of Truss Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Vernier's Calliper</li> </ul>
8	Experiment on a two hinged arch for horizontal thrust & influence line for a horizontal thrust	<ul style="list-style-type: none"> <li>• Two Hinged Arch Apparatus</li> <li>• Dial gauges</li> <li>• Vernier's Calliper &amp; Scale</li> <li>• Weights</li> </ul>
9	Experimental and analytical study of a 3-bar pin jointed truss	<ul style="list-style-type: none"> <li>• Three Bar Pin Jointed Truss</li> <li>• Weight</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Vernier's Calliper</li> </ul>

10	Unsymmetrical bending of a cantilever beam.	<ul style="list-style-type: none"> <li>• Unsymmetrical Bending Apparatus</li> <li>• Dial gauges</li> <li>• Vernier's Scale</li> <li>• Weights</li> </ul>
11	Elastically coupled beam	<ul style="list-style-type: none"> <li>• Elastically Coupled Beam Apparatus</li> <li>• Weights</li> <li>• Hanger</li> <li>• Dial Gauge</li> <li>• Vernier's Calliper</li> </ul>
12	Sway in a Portal Frame	<ul style="list-style-type: none"> <li>• Portal Frame Apparatus</li> <li>• Dial gauges</li> <li>• Vernier's Scale</li> <li>• Weights</li> </ul>

## BRIDGE TRUSS MODEL



**Wagnaghat, Himachal Pradesh, India**

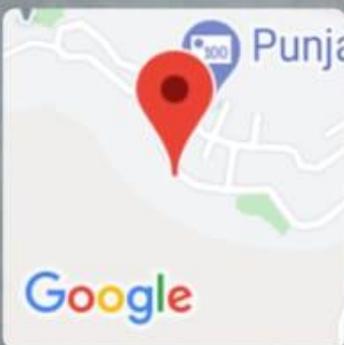
Civil Engineering Department , JUIT-Wagnaghat , Wagnaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 03:59 PM

## SIMPLY SUPPORTED BEAM APPARATUS



**Waknaghat, Himachal Pradesh, India**

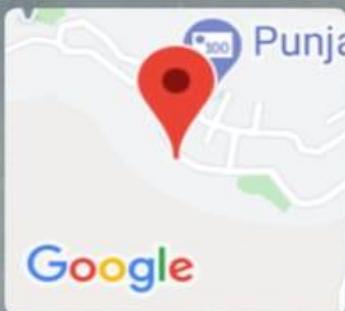
Civil Engineering Department , JUIT-Waknaghat , Waknaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 04:02 PM

## PORTAL FRAME APPARATUS



**Waknaghat, Himachal Pradesh, India**

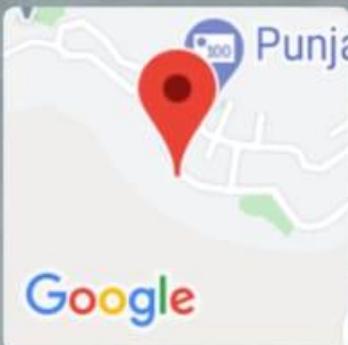
Civil Engineering Department , JUIT-Waknaghat , Waknaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 04:02 PM

## TWO HINGED ARCH APPARATUS



**Waknaghat, Himachal Pradesh, India**

Civil Engineering Department , JUIT-Waknaghat , Waknaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 04:02 PM

## THREE HINGED ARCH APPARATUS



Waknaghat, Himachal Pradesh, India

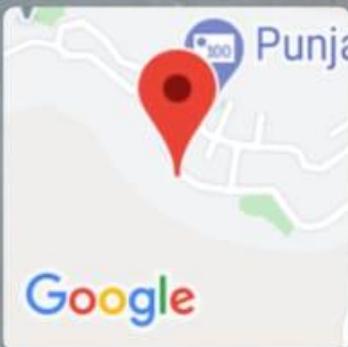
Civil Engineering Department , JUIT-Waknaghat , Waknaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 04:02 PM

## ELASTIC PROPERTIES OF DEFLECTED BEAM APPARATUS



**Wagnaghat, Himachal Pradesh, India**

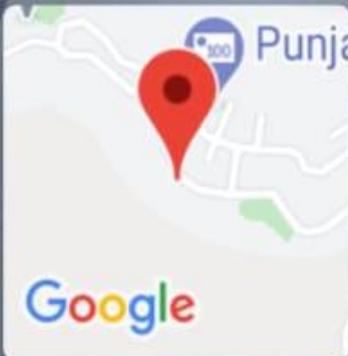
Civil Engineering Department , JUIT-Wagnaghat , Wagnaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 04:01 PM

## DEFLECTION OF TRUSS APPARATUS



**Wagnaghat, Himachal Pradesh, India**

Civil Engineering Department , JUIT-Wagnaghat , Wagnaghat,  
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 03:58 PM