

Bridge-it

1. Problem Statement:

Design a TRUSS BRIDGE using Popsicle sticks satisfying the stated constraints

2. Structure of Event:

Round 1: Teams should submit an abstract. The abstract will be having the one sided truss design of the model on an A3 sheet on first day within 30 min

Round 2: Preparation of model by using materials provided by the event coordinator in 4 hrs (30/01/2020)

Round 3: The structures made will be tested on the second day of the event (31/01/2020).

3. Materials:

1. Use Popsicle Sticks can have the following maximum dimensions: Length = 11 cm

Breadth = 1.2 cm

Thickness = 0.2 cm

2. Sticks can be altered physically by cutting or notching at any angle.

3. Only Fevicol can be used as adhesive, use of other adhesives may lead to disqualifications.

4. Use of threads is not allowed. As well as the use of excessive glue for the strengthening the Structure can lead to disqualification.

5. Each team will be provided with 250 popsicles sticks and 250 ml of fevicol, and extra materials will not be provided. All the accessories will be provided by event coordinator.

4. Overall Dimensions:

The Popsicle Bridge dimensions should be within the specified limits of:

Length = 56-60 cm

Width = 10-11 cm

Height = 12-16 cm

Weight: The bridge must weigh 250 grams or less.

5. Configuration of Models:

Clear distance: An 8cm high by 4cm wide clearance must be provided along the entire length of the bridge.

6. Testing the bridge:

1. The load will be applied that will be laid upon the span of the bridge.
2. The bridge model will be loaded till failure. The maximum deflection at the point of yielding and the load at that moment will be used to evaluate the structure.

7.Team Size: Maximum 3 students per team. **Construction:** Sticks can be stacked together length-wise to form stronger structural elements or to make long span elements. Maximum number of sticks that can stack together is four, at a joint not more than five stick are allowed. The structure should be single span with no intermediate support.

8.Judging and Scoring:

1. First the structure will be reviewed to check if it violates any rules mentioned above.
2. The scoring of the structure will be based on performance as well as aesthetics:
3. The bridge will be scored on how well the material has been used to support the load. The efficiency will be calculated as the ratio of ultimate load capacity and the bridge weight.
4. The bridge will also be scored on aesthetics. The judges will judge the bridge based on the detail to connections and members, the uniqueness of the design and its overall look.
5. The deflection of the bridge at yielding will be noted. If the deflection increases more than 10 mm, then the load at that deflection will be taken as the ultimate load

“In engineering, the best solution may not always be the biggest or strongest bridge.”

9.Scoring Criteria:

1.Deflection at yield (d) =

20% Efficiency (e) = 50%

Aesthetics (a) = 30%

Total Score (S) = d + e + a

2.Violating any of the conditions mentioned underneath, penalty will be imposed according to the judges and may lead to disqualification:

a. Weight exceeds the limit (Penalty of 20% of the total score)

b. Dimensional specifications are not met (Penalty of 10% of the total score)

c. Use of material, except the ones stated in rule (Penalty of 50% of the total score or can lead to disqualification)

In case of any discrepancies, the decision taken by the judges and the council will be the final verdict.

10.Entry fees: 150/-

11.Prize Money:-

1st prize:- 3000rs/-

2nd prize:- 2000rs/-

12.Coordinator: Harikrishna Gundagoni:- 7039212880

NOTE: The participants are expected to be present at the venue before the event commences. Late comers are liable to be disqualified. Certificate of participation will be awarded to all the participants. For any queries contact the event coordinators.

