

WINGS 2023

Competition Title: 'BRIDGEMANIA'

Rulebook



OVERVIEW

The **GOVERNMENT COLLEGE OF ENGINEERING [GECA]** is pleased to release its Bridge Mania competition as a part of **WINGS2K22** under **CIVIL ENGINEERING DEPARTMENT**. Students will design and build their own bridges out of popsicle sticks. The competition will be held on

VENUE

CIVIL DRAWING HALL (CDH), CIVIL ENGINEERING DEPARTMENT, GOVERNMENT COLLEGE OF ENGINEERING AURANGABAD.

ELIGIBILITY

The competition is open to all students of all branches of engineering and polytechnic. Students may submit entries as individuals or as a team. Team sizes will be limited to three (3) students per team.

PROBLEM STATEMENT

OBJECTIVE

The objective of this competition is to build a bridge made from Popsicle sticks that is the most efficient design possible and meets the given specifications.

Materials

Materials will be supplied on the spot of event, with following specifications.

1. One pack of 150 popsicle sticks.
2. Glue – Fevicol
3. White paper

NOTE:

- a. Sticks can be cut, trimmed but all sticks must be visible to inspection.
- b. No lamination of sticks is allowed.
- c. Use of material other than provided material is prohibited. (Participants can use required material as cutter, pen/pencil)

DESIGN & CONSTRUCTION

CONSTRUCTION:

1. The bridge should be made by the participants on the venue of event within the given time.
2. No readymade part of the bridge is allowed to use in the event.
3. Use of any guidance book, readymade bridge plan, smartphone or any other electronic gadget is strictly prohibited.

DIMENSIONS

1. Bridge should have minimum span of 500 mm.
2. It should be more than 100mm wide but less than 200mm.
3. There should not be projection of any part of bridge below greater than 50mm. from bottom of bridge deck.
4. Bridges will be loaded using a 10-16 diameter steel rod placed on top of the roadway (on deck) at the centre of the bridge. All bridges must be able to accommodate this rod.
5. Bridges must meet the additional requirements shown on the following pages for connection and geometric limitations.

OTHER RULES:

1. The Hot Wheels toy size car must be able to rolled across the bridge deck.
2. Each team should provide the banner on bridge showing the Group No. if required the team can give the name to their bridge.
3. Truss, Arched or combine bridge can be made.

Supporting deck specifications:

1. The supports will be simply supported.
2. The clear distance between supports will be 47 cm.
3. The participants should design the bridge as it should be able to rest on support with accordance with the given figure for supports.

TESTING:

PRIOR TO TESTING:

Judges will ensure that:

1. maximum 150 sticks has used.
2. only given sticks and glue has used.
3. each bridge has team banner representing the Group No.
4. Bridge has loading gap to provide rod as per specification
5. Each bridge has deck through which the specified car will pass.

Bridges not meeting these requirements may be disqualified

A. APPEARANCE

Criteria

Sr. No.	General Appearance	Remarks
1	Type of Bridge Design (symmetric)	<ul style="list-style-type: none"> • Okay: Non symmetric, Misshapen, twisted • Good: Mostly symmetrical, Proportions are good and minor irregularities • Excellent: Symmetrical, No irregularities, straight
2	Cleanness of glue	<ul style="list-style-type: none"> • Okay: Globbs/spilling over, easily visible • Good: Not easily visible some globbs. • Excellent: Barely visible, clean, tidy.
3	Cleanliness of connections	<ul style="list-style-type: none"> • Okay: connections hanging over edges, not proper overlapping • Good: Overlap nicely and not proper overlapping • Excellent: Clean and skilled joint connections

LOADING

- The load will be applied through a hook provided across the width of bridge in centre of the bridge.
- The Hooks will be loaded with the hanging loads.
- The initial weight will consists of weight of rod + Hanging bar + 3.0 Kg. load.

- The increment in load will at rate of 0.5 Kg/ 1Kg as Per stability found for the bridge.
- The bridge will be loaded up to failure of structure.
- Deflection at the Failure point load will be measured.

SCORING CRITERIA:

The total score will be divided into the following three criteria:

1. Structure – 25%
2. Deflection – 25%
3. Efficiency – 50%

The team scoring maximum total score will be winner of the competition.

PRIZES:

Three teams with maximum score will be chosen from the competition. Each winning team will be felicitated with the Trophy, Certificate and Cash prize.

IMPORTANT NOTE –The decision made by the judges will be final and will bound to all participants.

The EVENT HEAD has authority to make change in above event without prior notice,

- even though the participants will be informed according to it before the date of event.

Participation Fees:

- Participation Fees for Individual or a team of 3 – 300/-

Registration Link:

<https://forms.gle/qji4Taoiy1zU7daz7>

Venue: Government College of Engineering, Aurangabad

Visit: <http://www.gecawings.com/>

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