CONSTRUIRE-O-CRANE

“Give me a lever long enough and a fulcrum on which to place it and I shall move the world.”

- Archimedes

INTRODUCTION:

It’s all about the machineries which we are using. Cranes were invented and used by the ancient Greeks in the late 6th century BC. These days availability of land is less but demand for luxurious living is on rise. One of the probable ways to meet the people’s demand is by constructing high rise buildings in a safe and sound manner. This cannot be accomplished without the use of heavy machineries. Learn from the past and espouse the simple mechanism of gears and pulleys to construct a tower crane.

PROBLEM STATEMENT:

Design a tower crane with a hoist mechanism to lift the cubical blocks which are placed adjacent to a partially constructed building and complete its construction.

ELIGIBILITY:

- All students with the valid identity card of the respective institution can participate.
- Teams who have submitted the abstract of their model alone can participate.
GENERAL RULES:

- Team size – Maximum 3 per team.
- Participants can form team from different branch/university.
- Team should have at least one civil engineer.
- No two teams should have any common participant.
- Only one model is allowed per team.
- Each team can have a trial before commencing their first chance.

SPECIFIC RULES:

- The crane has to be placed/fixed adjacent to the partially built building which is provided in the arena.
- Once placed, the crane should not be touched during the course of run.
- Participants should maintain a proper distance from the arena.
- Any damage to the arena will lead to negative points.
- In case of any technical problem, the team can make the modifications, after which they can have a second chance, whose points will be considered for judging.
- If such modifications are required, the teams will be provided with 30 minutes to complete them.
- In case of tie, the Hinges team has the right to held more rounds. In such case, the task of that particular round will be given on spot.
- The decision of the Hinges team will be final and binding for all the teams.
- The organizers have the rights to change any or all of the above mentioned rules.
ARENA SPECIFICATION:

3D VIEW

TOP VIEW
SCORING POLICY:

Points secured = A + B – C – D

- A – Self weight of the tower crane
- B = n \times 4 \times m
  \begin{align*}
  n & \text{ – Number of blocks placed per m}\text{th storey} \\
  m & \text{ – Order of the storey}
  \end{align*}
- C = k \times 10
  \begin{align*}
  k & \text{ – Number of blocks fell down}
  \end{align*}
- D – Time

1. Teams having minimum value of A will be given 200 points and 50 points for the maximum value of A. All other teams will be given points based on the linear interpolation between these two.
2. The value of ‘n’ should not be less than 9 i.e. minimum numbers of blocks to be placed in a particular storey should not be less than 9.
3. The value of ‘D’ will be considered only if the team happens to attempt the second chance.

CERTIFICATE POLICY:

1. Certificate of appreciation will only be given to the winners.
2. Certificate of participation will be given to all the participants.

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