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UTAH

ISWS 2024

STUDENT SYMPOSIUM

Concrete Bowling

ISWS 2024 Local Competition

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ASCE
STUDENT CHAPTER

Objective

Student Teams design and fabricate a bowling ball out of concrete that is able to withstand a five-frame game of bowling. The bowling balls should be creative, durable, and efficient.

Participant Rules

- Each team consists of at least 2 members and a maximum of 5 members.
- Each member must be a registered participant of ISWS 2024.

Event Description

- Only one concrete bowling ball per team.
- Each member must bowl at least 1 frame.
- A game consists of 5 frames with the intent of knocking down 10 pins per frame.
- A member has 2 tries to knock down all 10 pins.
- If a member starts a frame, the same member must finish it.
- If the ball becomes damaged but can still adhere to the rules and can roll the length of the alley it can continue.
    - If it cannot, the team will receive the score they acquired up to the moment the ball failed.

Design Requirements

- The ball must be made of concrete. No resins or epoxies may be used.
- The ball must be able to roll down the alley.

- The ball must be between 8-to-9.5-inch diameter.
- The ball must weigh less than 16 pounds.
- A mix table must be submitted by March 23, 2024, to isws.usu.2024@gmail.com with subject line "Concrete Bowling Mix – [YOUR SCHOOL'S NAME]".
- If requirements are not met the team will be disqualified.

Scoring

Teams will be judged on the following criteria.

Design Requirements

- Teams that meet all design requirements as stated above will receive full points in the category.
- A late submission for mix design will result in a 10-point deduction.

Durability

- Ball will be weighed before and after the competition.
- If the ball loses less than 5% of its original weight, the team will receive full points in category.

Aesthetics

- The aesthetics will be judged on the day of the event along with a brief, informal presentation.
    - The Presentation shall be no more than 5 minutes and should focus on the team's mix design and aesthetic decisions.
- Each team shall select a theme that is easily distinguishable through the aesthetics of the bowling ball.
    - Pigment powder, paint, and concrete dye are allowed.
- If the bowling ball is aesthetically incomplete by the start of the event, the team will forfeit all aesthetic points.

Bowling Competition

- Standard bowling rules apply.
- Standard bowling pins will be used.
- No ramps or bumpers are allowed.
- Each team will bowl 5 frames. For each frame, the following scoring applies:
    - If 0 of pins are knocked over, they will get 0 points.
    - If 1-3 pins are knocked over, they will get 1 point.
    - If 4-6 pins are knocked over, they will get 2 points.
    - If 7-9 pins are knocked over, they will get 3 points.
    - If all 10 pins are knocked over, they will get 4 points.
- Failure to yield to the foul line will result in a score of 0 points for that roll.

Scoring Summary Table

Category	Maximum Points
Design Requirements	/30
Durability	/30
Aesthetics	/20
Bowling Competition	/20
Total	/100