



**MECHANICAL ENGINEERING STUDENTS' ASSOCIATION
(MESA)**

Department of Mechanical Engineering

Agnel Charities'

Fr. C. Rodrigues Institute of Technology, Vashi

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CALIBRE 2K22

ROCKET-X

GENERAL RULEBOOK

DATE: 8th April 2022

TIME: 11:00am - 2:00pm

VENUE: Fr. C Rodrigues Institute of Technology, Vashi.

REPORTING TIME: 30 minutes prior to commencement of the event

NO. OF MEMBERS IN EACH TEAM: Minimum 3

Maximum 5

ENTRY FEE: ₹200/- Per Team

PRIZE MONEY: 1st prize:- ₹4000/-

2nd prize:- ₹2000/-

EVENT COORDINATORS:

Leon Sam Benjamin - 9920730494

Pratiksha Pawar - 9324581782

Pratham Kumbhar - 9833778451

Shreya Patil - 8451813514

GENERAL RULES:

1. The event will have **limited entries**.
2. The competition will be conducted in **two** rounds.
3. This is a high octane technical event in which all of your technical and mechanical skills will be put to test.
4. Participants have to design and fabricate:
 - Rocket, which will only use **water and air** as its propellants.
 - Launcher, which will pressurize the rockets with water and air and release the rockets using a trigger or release mechanism.
5. All teams must abide by the **COVID-19 norms** at all times and failing to do so may lead to disqualification. All the participants must wear a mask and maintain social distancing at all times.

TO FABRICATE THE LAUNCHER:

Participants must complete the Fabrication of their Launcher **at home** by the 31st of March for the **successful fabrication of the Launcher** by the day of the event.

- Participants can include **metal components** in Launchers.
- Ideal dimensions and photos, **of an existing launcher**, will be **shared for reference**.
- The main body of the launcher must strictly be made from **PVC pipes**.
- **Spring and latching mechanisms** must be used for fabricating the release mechanism of the launcher.
- A **rim valve** (car tyre valve) must be added to the launcher to connect to the air pump.
- The launcher should be fabricated in such a fashion that it is able to handle pressure upto 80 psi.
- The joints which will be made using PVC tubes must be glued together using PVC glue only.
- There should be NO LEAKAGE of air and water once the Rocket is mounted onto the launcher and is being pressurized.

Please refer the link attached at the end to make the Launcher

Round 1

1. **In this round participants will have to fabricate the rocket.**
2. Participants will be constructing the rocket in college within the allotted time as **Round-1** of the event.
3. **No metal parts** must be used in the fabrication of the rocket.
4. Participants must use a **2L bottle** for the main body.
5. The fins and nose cone of the rocket can be made using any **non-metallic material**.
6. **Suitable weight** must be added to the rocket for maximum horizontal distance to be covered.
7. Only **air and water** are allowed as propellants.
8. Participants will be provided the following items needed to make the Rocket from the MESA inventory in limited quantities only.
 - Two 2L plastic bottles
 - Tape
 - Cardboard
 - Cutter
 - Clay
9. Participants strictly have to use the items provided by the MESA inventory and cannot use their own items to fabricate their rockets.

Round 2

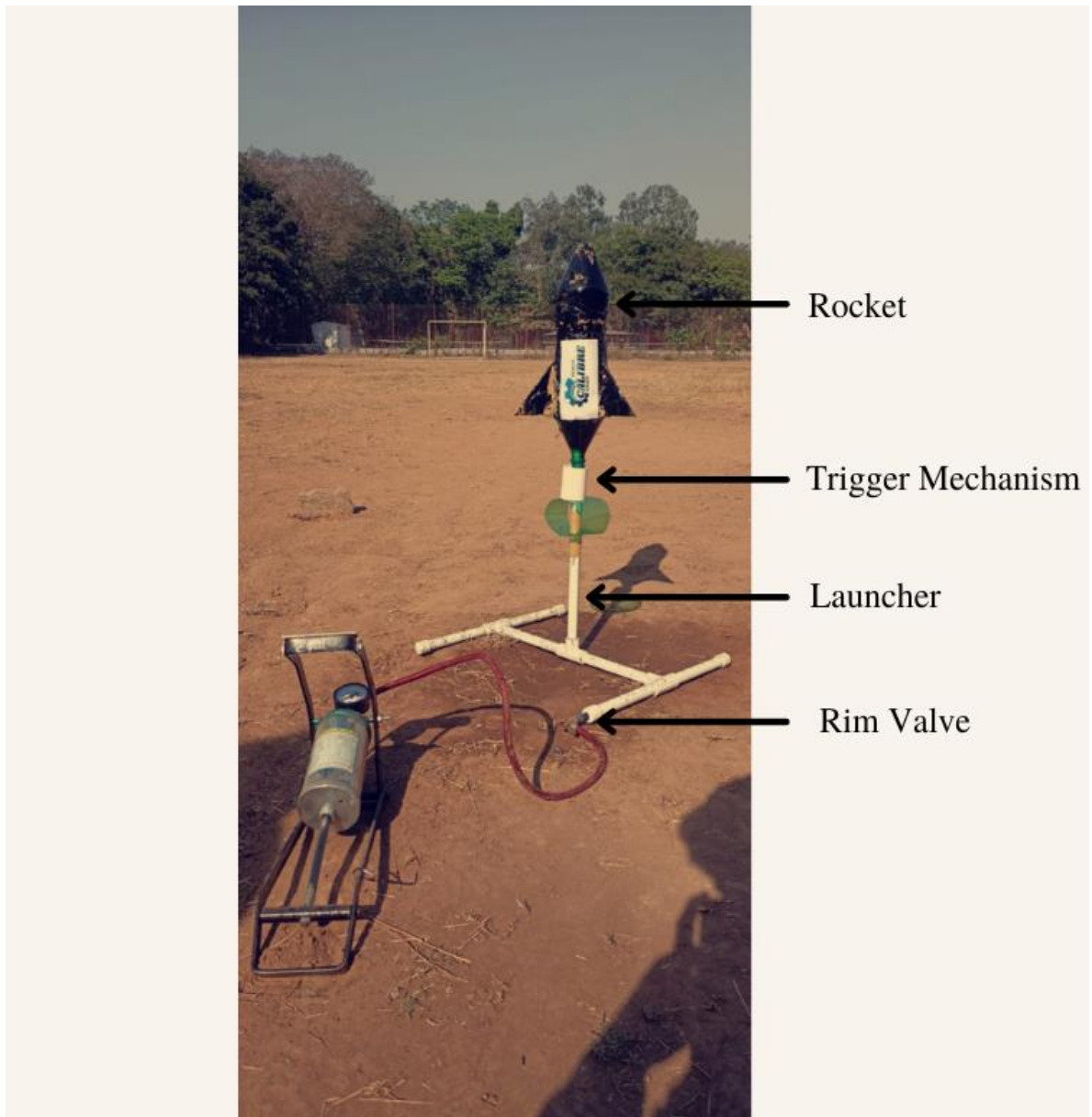
1. In this round participant will have to launch their rocket.
2. The launch angle, air pressure and water level must be **calculated and set** by the teams themselves before launching their rockets.
3. An **air pump** will be provided for launch.
4. Winners will be decided based on the following criteria: -
 - Horizontal Distance Travelled by rocket
 - Aerodynamic Design
 - Launcher Design

REGULATIONS:

1. All the registered members **must remain present** during the day of the competition and only the **present members will get the certificate**.
2. The participants must be present at the venue at least **30 minutes before** the mentioned time.
3. **Each Participant will be asked to present their College IDs before the commencement of each round.**
4. In case of any **genuine issue**, kindly intimate Event Heads.
5. **Decisions** of the judges and the coordinators will be considered as **final and binding** and will not be changed under any circumstances.
6. Concerned with the **code of conduct**, each team is supposed to keep decent and helpful conduct towards other participating teams and any kind of misbehavior of any team will result in a penalty.

It is considered that the participating teams have read and **agreed** to all the **Rules and Regulations** and should not raise any objection on the day of the event.

Reference Picture



Reference Video on how to make the Launcher

Part-1

<https://www.youtube.com/watch?v=FV2nrifqzX0&t=71s>

Part-2

<https://www.youtube.com/watch?v=Wqo2U62GB-k>