

EGC Catapult Competition Manual



SATURDAY

April 26, 2008

Rutgers University

Busch Campus, Engineering Lawn



2008 EGC CATAPULT COMPETITION

Last modified: 3/06/08

The Engineering Governing Council (EGC) will host its first annual Catapult Competition on **Saturday, April 26, 2007 at 12PM on the Engineering Lawn**. The purpose of this event is to foster a sense of community among engineering students by testing their skills in friendly competition. In order to succeed in this competition, contestants must work in groups and make use of their abilities to cooperate, design, and build; traits we as future engineers in the job market will come to rely on.

All engineering students are invited to participate. Rules, regulations, and how to get started are all included in this manual. Any comments and questions regarding this event can be brought to ***egc_exec@eden.rutgers.edu***.

HOW TO PARTICIPATE

To participate, students must register in teams of 3 - 6 people, all of whom must be engineering students. Students can register online at **EGC.rutgers.edu**.

How to get started:

1. Download this manual and familiarize yourself with all the rules and regulations (*a copy can be downloaded at EGC.rutgers.edu*).
2. Sign up online in teams of 3 – 6 people.
3. Start building! Registered and approved teams will be reimbursed for up to \$50 on all building expenses toward their catapults. Teams will be reimbursed only after they show the EGC all receipts as proof.
4. **Arrive on April 26, 2007 with a copy of the entry form (1 per team).** Check in procedures for the day of competition will be sent by email to teams.



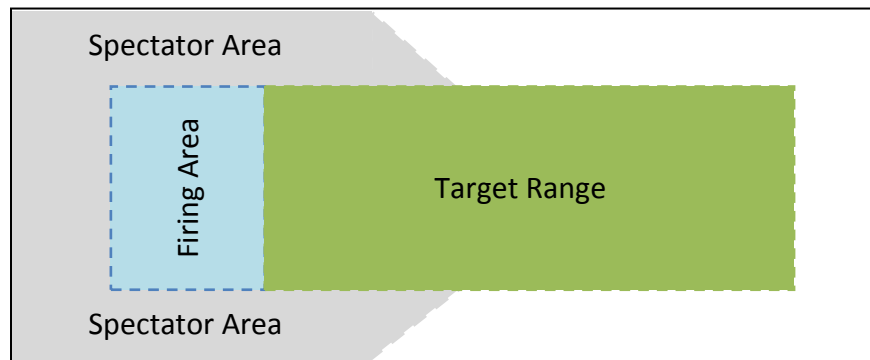
THE EVENTS

There will be two events in the competition judging distance and accuracy respectively. All teams will be assigned areas where they can set up their machines. Prior to the events, all catapults must pass a visual and operational safety inspection by EGC officials.

At the firing area, catapults can be placed as close to the launch line as preferred, but not on top of it. If the base of the catapult crosses the launch line at any time during operation, a penalty will be incurred. Failure to comply with safety regulations will also result in penalties. Any grievances or protests can be made to the nearest EGC official.

** Projectiles used will be water balloons filled with 8 ounces of sand.*

Distance Event

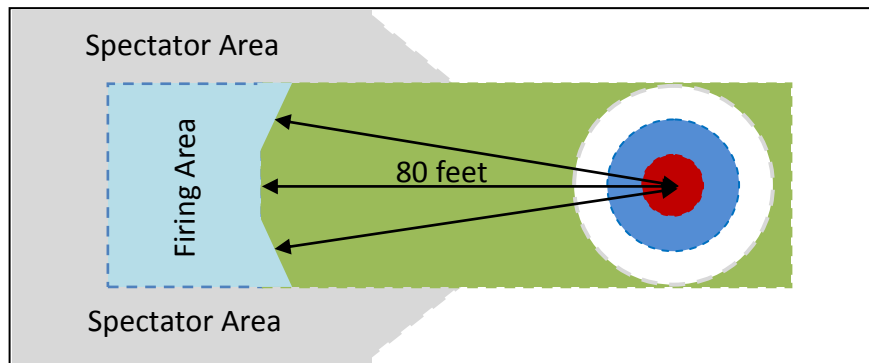


- Teams will be given 2 practice shots.
- At the judge's signal, each team will have 5 chances to launch their projectile the farthest. Launch distance is determined as the shortest linear distance from the center-point of the leading edge of the catapult to the projectile.
- Scoring will be based on the farthest distance achieved and the average of all fair launches.



- Each team is allowed one 5 minute time-out in case of technical problems.
- If a team is disqualified for any round in the competition for breaking the rules, the longest distance achieved will be forfeited, **not** the distance of the shot that the disqualification occurred on.

Accuracy Event



- Teams will be given 1 practice shot.
- At the judge's signal, each team will be allowed 6 shots with a max of 1 minute to shoot each shot.
- Scoring is based on the sum of points hit on a target. Zero points will be awarded to shots which don't hit the target zone.
- Each team is allowed one 5 minute time-out in case of technical problems.
- If a team is disqualified for any round in the competition for breaking the rules, the value of the disqualified shot will be subtracted from the team's score.

Other Awards

In addition to the two event awards, other awards are available in the competition.



- BEST IN SHOW AWARD – This award is given to the team with the best overall rank in both events.
- GREENEST AWARD – This award is determined solely at the discretion of our judges, but is based on the most creative use of recycled materials.
- CROWD FAVORITE AWARD – This award is given to the winning team of an audience wide vote for the “*best catapult*”.

CATAPULT CONSTRUCTION

For the safety of all participants and spectators, teams must follow all rules and regulations. Catapults must pass a visual and operational safety inspection by EGC officials prior to the events. Any machine found to have a defect will be banned from competition until repaired and re-inspected. Failure to follow the safety rules during any round in the competition will result in a disqualification.

- There is no restriction on the style of catapult used. The only requirement is that all machines must utilize a lever arm to hurl the projectile. Sling-shot or crossbow style devices are **not** defined as “catapults” within the limitations of this competition. However a sling-shot or crossbow style launch mechanism can be used as long as it is not used to directly launch the projectile.
- The launch mechanism must be mechanical in design. Elastic devices and gravity-driven weights are examples of some, but not all, acceptable means of powering the catapult. **No electrical, combustible or explosive components can be used.**
- Each catapult must fit an imaginary box of 8’ x 8’ x 8’ with the lever arm cocked.



Catapult with crossbow – style launch mechanism



- There is no restriction on the type of materials used to build the catapult. However, each catapult must have at least one recycled item. Keep in mind that an award is available for the most creative use of recycled materials.
- Catapults must have a “trigger” device to release the projectile by one person only. A gate or cabinet latch might work well for this application.
- A spoon or a pouch can be used to hold the projectile, but the use of a sacrificial sling is allowed which is much easier to engineer. A sacrificial sling is a short length of cord tied to the projectile at one end and having a small loop at the other. The sling travels along with the projectile after launch.



Safety First

- No person can be in the line of swing while the machine operates. No person can be in front of, or behind the line of fire.
- Safety glasses must be worn inside the restricted areas whenever machines are hurling.
- Catapults must remain in contact with the ground during firing. Operation of the machine may cause movement, but keep in mind that if the base of the machine crosses the launch line, the shot will be disqualified. Excessive movement during operation can be stabilized with the use of sandbags, stakes, or tie downs. **The catapult may not be held down or steadied by hand during launching.**
- All machines must have a safety hook to hold the throwing arm.





2008 EGC Catapult Competition Team Entry Form

Team Name or Group Affiliation: _____

Notwithstanding the risks, I, for myself and my heirs do waive, release and discharge the Engineering Governing Council, and Rutgers, The State University of New Jersey, its governors, trustees, officers, employees and agents from and against all claims for bodily injuries, death, or property damage, arising in any manner out of my presence or activities in connection with this event: The EGC Catapult Competition. Furthermore, on signing this form, my teammates and I acknowledge that the risks outlined above are not intended to be all-inclusive and voluntarily accept all risks known or unknown.

Team Members:

Names

Signatures

2008 EGC Catapult Competition
Saturday, April 26, 2008
Busch Campus, Engineering Lawn
Check in: 10 AM, Launch time: 12