Pumkin Chunkin 2015

Rules and Regulations

(V2.1)

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General Rules

1. A registration fee of $50 is required for each team.

2. All teams must select a team captain. The captain is responsible for all discussions with the safety committee.

3. Judging, safety marshaling, and cleanup shall be organized, set up and implemented by the RPI American Society of Mechanical Engineers (ASME) Student Section. RPI ASME will provide the judges and spotters to score the competition and will staff the Safety and Rules Committee.

4. All teams must have paid their registration fee and have a team roster submitted to the Safety and Rules Committee by the day prior to the actual event.

5. Rules are subject to revision at the discretion of the safety committee. All team captains will be notified of changes by email, and teams will be held to the standards of the highest rules revision, which will be kept current on the RPI ASME website.

6. Prizes or trophies will be awarded to the teams that place the highest in each category of the two events. Other prizes may be given out based on the number of teams registered at the discretion of the competition organizers.

7. There is no limit to the number of members on a team. However, to be on the firing line with the machine or to fire a machine, the team member must be listed on the team roster and have a valid RPI ID. No more than five members will be allowed on the firing line immediately around the machine at any given time.

8. A safety inspection of the machine must be completed during the week prior to the event. Any safety flaws or potentially disqualifying issues will be pointed out to the team so that they may be corrected for the event. See item “Safety Rules: #15” for more information.

9. All rulings by the judges or the Safety and Rules Committee are final. The team captain may request an explanation of any decision.

10. All pumpkins fired must remain intact until they impact the ground to obtain an official measurement. Spotters will mark the location where the pumpkin initially landed and will disregard any bouncing or rolling afterward.

11. No part of the machine shall cross the firing line.

12. Pumpkins are not to be altered in any way.

13. Pumpkins will weigh ~5lbs, but this value is subject to change depending on the availability of pumpkins.

14. Pumpkins will be provided by the competition committee. The difference in weight between the largest and smallest pumpkins will be <3lbs.

15. All machines must be able to load and fire within three (3) minutes. Team Captains are responsible for making sure the team is ready when it is chunkin’ time. If a team is not ready to fire within that three minute window, the team may be skipped in order and allowed to fire last in the round, or may forfeit the shot at the discretion of the competition organizers.

16. If a team is cited for violating safety rules, the team will forfeit the results of its most successful shot in that competition (longest shot during the distance competition or the closest shot to the target during the accuracy competition), not necessarily the results of the current shot. A serious or flagrant violation may be cause for disqualification for the remainder of the competition.
17. All machines must be set up in the assigned areas. Teams will be given notice of this area well in advance. No excuses will be entertained for a team not being in their assigned spot (on game day); said team will be required to move. The site selected for each machine must allow clear and free access surrounding the machine.

18. All machines and equipment used by chunkers must be removed from the field within (2) hours after the Pumkin Chunkin event. If there are issues with the grounds, RPI ASME will contact Environmental and Site Services to inform them of the damage.

19. Field clean-up will be carried out by volunteers, and teams are asked to contribute to the cleanup effort. The ground area of the pumpkin landing sites will be surveyed by RPI ASME to ensure complete cleanup.
Competition Scoring

1. There will be two different events: distance and accuracy. Each team will be given three (3) shots during each part of the competition. A team may choose to participate in only one of the two events; however, such intent must be expressed to the competition organizers before the beginning of the competition.

2. Rounds for the distance competition will be completed first. Each team will have three (3) shots to launch in this category and will be ranked in order of longest shot with all ties will be broken with the efficiency rating of the longest shot. The efficiency rating will be calculated by dividing the distance of the longest shot by the measured amount of force [see “Machine Rules – 6]. An award will also be presented for the most efficient machine based on the team’s longest toss and maximum potential energy.

3. Rounds for the accuracy competition will be completed second. On the day of the competition, a target will be set between eighty (80) and one hundred twenty (120) feet forward from the firing line. Each team may request a distance measurement from their firing station to the target. Teams will have three (3) shot attempts to land a pumpkin as close to the target as possible. Distances will measured radially from the center of the target. All ties will be broken with a precision rating of the three shots, calculated as the standard deviation of the distances from the target of all 3 shots in the event. An award will also be presented for the most precise machine based on the lowest standard deviation in distance between throws.

4. Each time an alteration is made to the machine between throws (including, but not limited to: inclusion of additional counterweights, alteration of firing mechanism, etc.), the team must alert the competition organizers as well as the safety committee because of the possible ramifications on round scoring.
**Safety Rules**

1. No compressed air, combustion systems, or explosives may be used.

2. The Safety and Rules Committee has the final say on consequences if rules are broken. Decisions will be relayed to the team captain. There will be ZERO TOLERANCE for those who break safety rules.

3. Machines may not chunk until the safety committee inspects and deems them safe by the Punkin Chunkin Safety & Rules standards. Any alterations after inspection will require another inspection before firing. The safety committee may ask the team captain to test-fire their machine during inspection to ensure the machine is safe enough to compete.

4. Cease-fire: No machine may fire after a cease-fire has been ordered. If a machine is primed at such time, contact the safety committee, so it can be safely discharged. All team members must follow the instructions of safety committee.

5. The safety committee reserves the right to request a team captain dismantle any portion his or her team’s machine to inspect for rule violations.

6. All team captains must sign the field roster stating that they have received, read, and understand the rules of the Punkin Chunkin. This sheet will be on the field and will be kept by the head of the safety committee. If the sheet is not signed, the team cannot chunk.

7. Only spotters and Safety and Rules Committee members will be allowed on the landing field. No team members or spectators will be allowed forward of the firing line during the competition. There will be a minimum perimeter of 30 feet maintained around the expected downrange landing site of the pumpkins.

8. Any machine found to have structural defects will be prohibited from chunking until repaired and re-inspected by a member of the safety committee.

9. Eye protection to be worn by all fire line personnel in pit when firing; each team captain will be responsible for ensuring that his/her team complies with this rule.

10. All cables and cable clamps must be sized and installed properly. Any shackles on a machine must have a safety tie on the pin to prevent them from loosening.

11. All machines must be able to be cocked by no more than two (2) individuals. No more will be permitted within ten feet of the machine while cocking and firing.

12. All catapult and trebuchet machines must have a safety strap or mechanism to hold the throwing mechanism in case of misfire when loading. Team members are all responsible for making sure everyone stays clear of the machine in case of a misfire.

13. Team Captains are responsible for clearing the area around and behind their machines during cocking or firing procedures. The Safety and Rules Committee is responsible for clearing the downrange area of the field of all people. A team will not be allowed to fire its machine until the area around and behind the machine is deemed clear by a safety officer.
14. An air horn or sounding device must be blasted before each team’s toss. If the team does not have such a device, the safety committee will provide one.

15. The Safety and Rules Committee and competition organizers will arrange time on a day within the week preceding the event to provide a preliminary inspection. Each team will be told if the machine in its current state would pass a safety inspection; if the machine would not pass, the team will be told what changes are required so that it would pass inspection. The committee can also perform the force measurement that will be done on the day of the event to check compliance with rule “Machine Rules – 6” upon request.
**Machine Rules**

1. Machine must fit in 6’x6’x6’ cube when in a cocked position.

2. At no time can the machine be larger than 12’x12’x12’.

3. As per “Safety Rules #1”, no compressed air, combustion systems, or explosives may be used.

4. Machines must be carried into place, and may not be driven onto the competition field. The machine must be stable as to not impact or destroy the ground.

5. No machine may use any external power source.

6. Human power is not considered an external power source, and is permissible provided the safety of the operator is not jeopardized by the firing mechanism as determined by the safety committee. No operator may be located within the firing plane of the mechanism (e.g. directly behind a swing arm). Human power may not be used to generate more than 250lbs of potential energy, and any human-powered devices must be pre-approved by the safety committee.

7. No more than 250 lbs of total potential energy may be used. For machines using a counterweight system, the total weight of all objects used as counterweight must be less than 250 lbs. For machines using a tension system, the total force must be less than 250 lbs. as measured by a spring scale that the safety committee will attach to the machine in a fully cocked position on the day of the event. If a team requires an alternative method of measuring the force of the machine, it must be presented to and accepted by the safety committee prior to the day of the event. If a team cannot measure maximum force with either of the above methods and fails to receive prior approval from the safety committee for an alternative method, the team will not be allowed to compete.