

Tech Wars 2020 – Niagara County Community College

Competition Category: RC King of the Hill

Level of Competition: High School

Event Coordinator: Gary Novits GNovits@tona.wnyric.org

(Any Questions? Click the email link)

Description of the Competition:

Students design and build a robot following the guidelines listed below. In the contest, two robots race down a 4' x 8' playing field which has a narrower opening mid-way down the board just large enough for one vehicle to pass through. They retrieve one of two ping-pong balls, and then deliver it to a hole on top of a small hill next to where they started. They may also keep their opponent from scoring. Design (creativity or complexity) and workmanship are important only in achieving a well functioning robot. Vehicles will not be judged on aesthetics.

Rules of Competition:

1. **NO REPEATS of projects from prior Tech Wars competitions!**
2. Students can utilize any tools or machines to build their robot.
3. Each competitor will have a designated ping-pong ball their robot will retrieve and attempt to drop into a hole on top of the hill to score in the match.
4. Each round will consist of best two out of three matches.
5. Time limits will be set for rounds, timeouts, repairs, etc. at the event.
6. If your robot falls off or gets hung up on the playing field, you will lose that match but live to continue on because it takes 2 defeats to be eliminated.

Restrictions to Robots in Competition:

1. No store purchased R/C vehicles can be used and/or modified for use in the competition. Projects have to be student built, NO EXCEPTIONS!!!
2. No explosives, corrosives, flames or pyrotechnics.
3. No lasers, projectiles, or radio jamming.
4. No electronic weaponry such as stun guns, tesla coils, heat guns, etc.
5. No entanglement devices - string, tape, fishing line, nets, etc.
6. No liquid weaponry such as water, glue, foam, etc.
7. No physical interference or poor sportsmanship between competitors.
8. No magnets or electromagnets - may cause radio interference.
No cutting devices - Any major damage to the arena will result in disqualification
9. Maximum Size of robots is 12" wide x 12" long x 12" high (robots will have to fit completely into a 12"x12"x12" box before competition takes place).
10. No microprocessors or electronic speed controllers – this is an entry-level robot competition using servomotors. All competitors begin with the same parts to propel the robot, so the best physical design to accomplish the task becomes the main competition variable.

Material Requirements:

1. One replaceable frequency crystal radio control system AM, FM, Surface or Air: transmitter, receiver, and battery pack.
2. 1 - RC receiver
3. 1 – 4.8 volt NiCad Battery or comparable depending on the radio and receiver chosen.
4. Maximum 3 servos (example: Futaba FP-S3003 or FP-S3004). Servos may be modified (as in the case of Air RC systems in which the throw is not a full revolution, see Tech Wars Web site for this modification).
5. Transmissions and gears may be used.
6. All other materials and design is up to the competitor.
7. There is no limit to cost of materials.

Scoring/Evaluation:

Judging will be competition based. Win two of three in a match and you move on in a bracket-style elimination. The competition is engineering function based. The best engineering ideas to capture and carry the ping-pong ball will be successful.



PLAYING BOARD DIMENSIONS

