

TEAM MANUAL

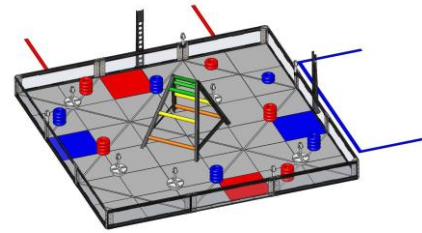
FOR PUERTO RICAN TEAMS

Participating at the

2011 VEX ROBOTICS WORLD CHAMPIONSHIP

April 14 to 16, 2011

ESPN Wide World of Sports Complex at Orlando, Florida



Prepared by: PUERTO RICO INSTITUTE OF ROBOTICS



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Table of Contents

	Pag
Antes y Durante el evento	3
Agenda general del evento	4
Robot Inspection	6
Inspection Rules	7
Introduction VEX	8
The Game	9
Game Rules	13
The Tournament	16
Match Ladder Chart	19
The Robot	21
Awards	25
Puerto Rico Teams	32
VEX Value Package	39
Maps to Disney’s ESPN, Orlando	40
Robots Evaluation Form	41

Cosas a llevar/hacer antes del evento

- Robot, herramientas y repuestas
- Caja de baterías y la batería oficial de VEX
- Extensión de receptáculos para los pits. **Hacer una lista de qué llevar a los pits (extensión, piezas de repuesto, etc....)**
- Gafas de seguridad para todos los que están en el área de pits
- ASEGURARCE QUE EL ROBOT TIENE LA ÚLTIMA VERSIÓN.
- Revisar la lista el “Inspection Checklist and Guide” antes de llegar al evento. Hacer una pre-inspección del robot tan pronto llegue para asegurar que pasa inspección.

Durante el evento o el match

- En el itinerario del evento identificar cuando tienen match. Estar pendiente del tiempo para que no se pierdan un match.
- Asegurarse de seguir las instrucciones del “field manager” y la secuencia de “start up” del robot cuando llegues al “field”.
- Asegúrate que el robot está prendido antes de comenzar el “match” – NO TOQUES EL ROBOT/FIELD UNA VEZ QUE COMIENZA EL MATCH.
- **Verificar las reglas/restricciones de comida y bebida en las facilidades.**

Recomendaciones Generales

- Asegúrate de marcar todo tu equipo con el número de tu equipo y nombre de la escuela.
- Asegúrate de leer/repasar y entender las reglas.
- Usar zapatos cerrados y ropa cómoda.
- En su maleta llevar ropa para la competencia, no para vestir.

Agenda General

Jueves

1. Usen camisa o uniforme que deseen. Al llegar al coliseo, cada equipo buscará en los "PITS" su área de trabajo (Booth). El área de trabajo mide 8' x 8'. Todos los equipos de Puerto Rico están localizados cerca.
2. Un representante de cada equipo con su mentor pasará a buscar al "PIT management" la información que le corresponde a su equipo.
3. Arreglar su área de trabajo y ponerla en condiciones atractivas para los jueces. Recuerde que la seguridad es sumamente importante y se debe demostrar en todo momento. Se debe seguir las reglas de seguridad en todo momento.
4. Verificar que su robot está en buenas condiciones y listo para pasar inspección.
5. Visitar el área de inspección para que su robot sea inspeccionado.
6. Luego pasar por la pista de práctica, para practicar. **Asegurarse de SER AMISTOSO CON LOS OTROS EQUIPOS, Y ESTABLECER una buena amistad.**
7. Una vez el robot pase inspección, debe inscribirse para competir en los "Skills Challenges". Necesita competir 2 veces en cada una, "Robot Skills" y "Programming skills". Se pueden competir también el viernes, pero lo mejor es salir de estos 2 eventos el jueves para que se concentre en la competencia principal. Para cualificar para el Excellence Award tiene que pasar por estas competencias.
8. Durante el jueves, miembros de su equipo deben visitar los otros competidores:
 - **Establecer una buena relación** y darse a conocer con los otros equipos.
 - **Identificar los equipos de su división**. Analizar las ventajas y desventajas de cada robot. Deben **visitar los otros equipos y hacer un análisis de los robots existentes**. Para esto deben llenar la forma de evaluación de robots. Tomar notas de los otros robots y como estos se ven trabajando (prácticas y competencias).
 - Se recomienda que prepare una hoja descriptiva de su robot y su equipo para entregársela a los otros equipos cuando pidan información.
 - Para los cuartos de finales (viernes), debe tener una lista identificando los mejores equipos (los más probables a ganar), sobre todo enfatizando sus debilidades.
9. El jueves a la 1PM comienza un match de práctica y luego comienza los "qualifiers".

Viernes

9. Usar la T-Shirt de Puerto Rico/PRIOR. Por la mañana, se ejecuta la inauguración con alrededor de 450 equipos de varios países (incluyendo China, Nueva Zelandia, Canadá, Brasil, Méjico, etc.). Solo representantes de cada equipo pasarán a representar la delegación de Puerto Rico. Los demás estudiantes se quedarán cerca de la arena observando. Después de los himnos y la dedicación todos los equipos regresan a los "PITS".
10. Debe estar familiarizado con el itinerario y saber cuándo le toca competir y en qué pista. Hay 2 áreas de competencias; Arena y las pistas de los pits.
11. El viernes es solo para las "qualifiers", y estos continúan el sábado por la mañana.
12. Todos los equipos han sido distribuidos en diferentes divisiones.
13. El viernes por la noche, se anunciará una reunión de PRIOR con los estudiantes de todos los equipos para discutir e intercambiar información.

Sábado

13. Usen camisa o uniforme que deseen. Por la mañana continúan los "qualifiers".
14. Para la mañana se **debe tener una lista identificando los mejores equipos** (los más probables a ganar), sobre todo enfatizando sus debilidades.

Para los cuartos de finales, sugerimos pedir de alianza a otro equipo puertorriqueño.

Robot Inspection Guidelines

Overview Description Definitions

This section describes the Robot Inspection process used at VEX Robotics Competition Tournaments. It also lists the inspection definitions and inspection rules. Every *robot* will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all *robot* rules and regulations are met. Initial inspections will typically take place during team registration/practice time. A copy of the official “Robot Inspection Checklist” is located at the end of this guide. Every team should use the “Robot Inspection Checklist” as a guide to pre-inspect their *robot* and ensure that it meets all requirements.

Teams are responsible for ensuring their robot has the latest version of the VEX Master Code installed and has their software updated. Robots are not allowed to receive any feedback from Human Operators during the Autonomous Period. During this time robots must operate and react only to sensor inputs and to pre-programmed commands. Teams are responsible for programming their robot with custom software if they want to perform during the Autonomous Period.

For more information on preparing a robot for Autonomous Operation teams should consult the help guides provided by the developers of their chosen programming software (ex. easyC, ROBOTC, etc).

Robot – An operator controlled and/or autonomous programmed vehicle designed and built by a VEX Robotics Competition team to perform specific tasks while competing. **The robot can be constructed using only “Official VEX” components and additional components approved for the competition. No other parts will be allowed on the robot.** Prior to participating in the competition, each *robot* will be required to pass an inspection. Additional inspections may be required at the discretion of event personnel.

Robot Sizing Box – A box used during *robot* inspection which has interior dimensions 18 inches (45.72cm) wide by 18 inches (45.72cm) long by 18 inches (45.72cm) high. The *robot* must fit within the box without touching the box sides or top.

Robot Identification Flag – A flag mounted on the *robot* used to identify the alliance of the robot during the match. The flag color is either red or blue.

Inspection Rules

<I01> The team's *robot* must pass inspection before being allowed to compete in Qualification Rounds. Noncompliance with any *robot* design or construction rule may result in disqualification of the robot at an event.

<I02> Each *robot* must display the appropriate identification features as mandated by the tournament.

<I03> *Robot* construction is constrained by the number of Official VEX Components a team may use as defined in the Robot section of the manual.

<I04> The maximum size of the *robot* for starting a Qualifying or Elimination Match is 18 inches (45.72cm) wide by 18 inches (45.72cm) long by 18 inches (45.72cm) high. The *robot* must fit within a *Robot Sizing Box* without touching the sides or top of the *Robot Sizing Box*. The *robot* must be self-supporting while in the *Robot Sizing Box*. a. If a *Robot Sizing Box* is not available, some other measuring device may be used. Measuring devices or templates need to be capable of verifying that the *robot* does not exceed the starting size limitation.

<I05> The starting configuration of the *robot* at the beginning of a match must be the same as a *robot* configuration inspected for compliance, and within the maximum allowed size. a. A team may NOT inspect their robot in one configuration or orientation and then place it at the start of a match in a different configuration or orientation.

<I06> *Robot* designs having more than one possible starting configuration, the largest possible configuration must be used during size inspection.

<I07> When a team makes a modification to improve performance or reliability of their *robot*, the team may request a re-inspection of their robot by an Inspector.

<I08> Inspectors evaluate *robots* to insure each *robot* has been designed to operate and function safely. The *robot* must be designed for safe operation and handling. Specific safety rules and limitations apply to the design and construction of a *robot*.

<I09> A *robot* is deemed successfully inspected when all items listed on the "Robot Inspection Checklist" have been recorded as "passed" by an Inspector.

<I10> Each *robot* must include a mounting device to securely hold the *Robot Identification Flag* throughout an entire match. Specific regulations can be found in the Robot section of the manual.

a. The *Robot Identification Flag* mounting device may NOT extend outside the *Robot Sizing Box*.

b. The *Robot Identification Flag* may NOT extend outside the *Robot Sizing Box* at the start of a match.

c. It is permissible for the *Robot Identification Flag* orientation to change during the match.

Introduction

The VEX Robotics Competition

The world needs the students of today to become the scientists, engineers, and problem solving leaders of tomorrow. The constant breakthroughs in chemistry, medicine, materials and physics reveal a new set of challenges and create an even greater opportunity for problem solving through technology. These problems are not academic; the solutions could help save the world and those technology problem solvers will be the ones to make it possible.

This underscores the dramatic challenge we face: there are not enough high school graduates choosing technology related disciplines in college. This does not reflect a lack of capacity for new students on the part of technical schools and universities, but a lack of interested and qualified applicants. In short, we will not have the people we require in the next generation to solve the problems of tomorrow unless the shortage is directly addressed today. Who will solve the world's next great crisis?

Recognizing this dilemma, scores of organizations are creating programs designed to attract and engage young students in the study of science and technology. Many have found that robotics is a very powerful platform to attract and hold the attention of today's multi-tasking, connected youths. Robotics has strong appeal to this intensely competitive generation and represents the perfect storm of applied physics, mathematics, computer programming, digital prototyping and design, integrated problem solving, teamwork and thought leadership. Students with a previously undiscovered aptitude for STEM (Science, Technology, Engineering, and Math) curriculum are flourishing in growing numbers due to the efforts of schools, volunteer organizations, corporations, and governments internationally.

The VEX Robotics Competition, run by the Robotics Education and Competition Foundation, is the next generation of educational robotics competitions. While there are many quality robotics competitions worldwide, the VEX Robotics user community has overwhelmingly demanded *new* challenges that are easy and economical to host and implement. VEX Robotics, Inc. strives to serve the needs of all VEX Robotics users in order to attract, nurture and grow new engineering candidates worldwide who will solve the problems of tomorrow.

The VEX Robotics Design System is a leading classroom robotics platform designed to nurture creative advancement in robotics and knowledge of STEM education. VEX provides teachers and students with an affordable, robust, and state-of-the-art robotics system suitable for classroom use and the playing field. VEX's innovative use of pre-manufactured and easily formed structural metal, intuitive mechanical parts combined with a powerful range of user-programmable microprocessors for control, leads to infinite design possibilities.

VEX Round Up – A Primer

For more details and specific game-play rules, please see – The Game.

While participating in the VRC *Round Up* season, teams will develop many new skills in response to the challenges and obstacles which stand before them. Some problems will be solved by individuals, while others will be handled through interaction with their student teammates and adult mentors. Teams will work together to build a VEX robot to compete in one of many tournaments, where they celebrate their accomplishments with other teams, family and friends. After the season, students come away not only with the accomplishment of building their own competition robot, but with an appreciation of science and technology and how they might use it to positively impact the world around them. In addition, they cultivate life skills such as planning, brainstorming, collaboration, teamwork, and leadership as well as research and technical skills.

The Game (Brief):

VEX Round Up is played on a 12'x12' square field surrounded by a sheet-metal and lexan Perimeter, configured as shown. Two alliances – one “red” and one “blue” – composed of two teams each, compete in matches consisting of a twenty-second autonomous period followed by two minutes of driver-controlled play. There are nine goalposts, five of which are attached to movable weighted bases, which teams can score tubes on. Alliances earn extra points for owning a goalpost by scoring more tubes on the goalpost than their opponents. At the center of the field is a 36” high structure known as the ladder that teams can climb or hang off of for additional points.

The object of the game is to attain a higher score than your opponent alliance by scoring tubes upon goalposts, owning goalposts and by low hanging or high hanging from the ladder. A bonus is awarded to the alliance that has the most total points at the end of the Autonomous Period.

Game Details

There are a total of forty (40) – twenty (20) red and twenty (20) blue – tubes available as scoring objects in the game. Thirty-six (36) of the tubes will start at designated locations on the field; while two (2) will be available to each alliance prior to the match.

Each robot (smaller than 18”x18”x18” to start) begins a match on one of their colored alliance tiles. There are nine goalposts, five of which are attached to movable weighted bases, which teams can score tubes on. Alliances earn extra points for owning a goalpost by scoring more tubes on the goalpost than their opponents. At the center of the field is a 36” high structure known as the ladder that teams can climb or hang off of for additional points. Robots earn different point values for being at least 6” (low hanging) or 18” (high hanging) off the ground.

Scoring

VEX Round Up Action	VEX Round Up Points
Each Tube Scored	2 point
Each Goalpost Owned	5 points
Each Robot Low Hanging	10 points
Each Robot High Hanging	20 points
Autonomous Period Bonus	10 points

The Game

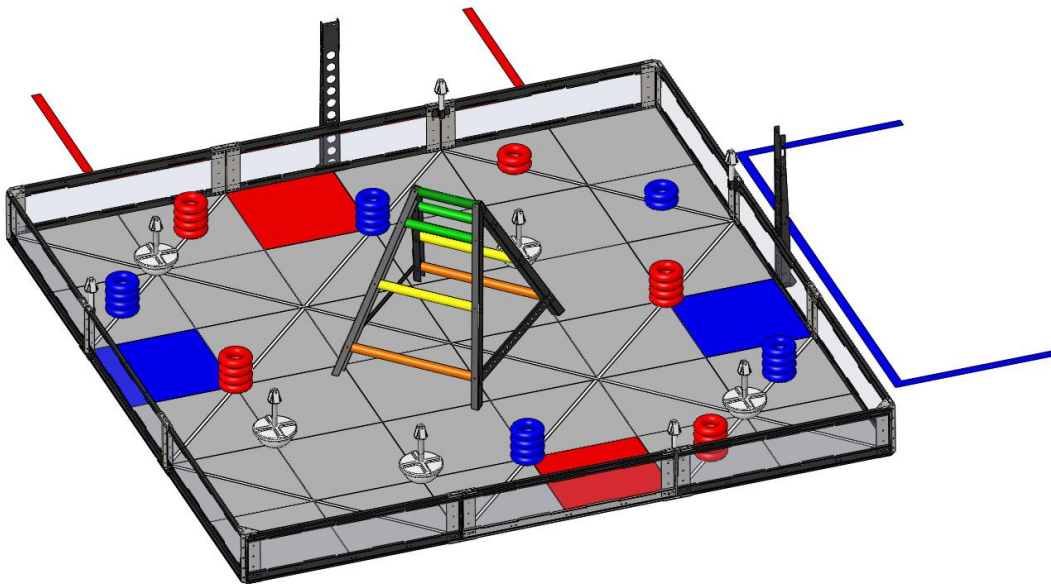
Game Description

This section describes the VEX Robotics Competition game, called *VEX Round Up*. It also lists the game definitions and game rules.

Matches are played on a field initially set up as illustrated in the figures below. Two *alliances* – one “red” and one “blue” – composed of two teams each, compete in each *match*. The object of the game is to attain a higher score than your opponent *alliance* by *scoring tubes* upon *goalposts*, *owning goalposts* and by *low hanging* or *high hanging* from the *ladder*.

A bonus is awarded to the *alliance* that has the most total points at the end of the *Autonomous Period*. There are a total of forty (40), twenty (20) red and twenty (20) blue, *tubes* available as scoring objects in the game. Thirty-six (36) of the *tubes* will start at designated locations on the field, while two (2) will be available to each *alliance* prior to the *match*.

Note: The illustrations in this section of the manual are only provided to give a general visual understanding of the game. Teams



Game Definitions

Adult – Anyone not meeting the definition of “Student”.

Alliance – A pre-assigned grouping of two teams that work together for a given *match*.

Alliance Starting Tile – A colored tile (red or blue) which designates the position in which robots must start the match.

Alliance Station – The designated region where the *drivers* and *coach* stand during any *match*.

Autonomous Period – A 20-second time period in which the *robots* operate and react only to sensor inputs and to commands pre-programmed by the team into the onboard *robot* control system. Human control of or interaction with the *robot* is not permitted during this time.

Coach – A student or adult mentor designated as the team advisor during the match. Only one (1) of these is allowed per team on the field at any given time.

Driver – A student team member responsible for operating and controlling the *Robot*. Only two (2) of these are allowed per team on the field at any given time.

Driver Controlled Period – The 2:00 (two minute) time period in which the *robots* are operated by the *drivers*.

Entanglement – A robot is considered to have *entangled* an opposing robot if it has grabbed or hooked the opponent robot.

Field Element – The foam field tiles, field perimeter, *ladder*, *goalposts* and *movable weighted bases*.

Goalpost – One of the nine (9) PVC posts on the field, which teams can *score tubes* upon. Five (5) of the

Goalposts are located on *movable weighted bases* in the field interior while four (4) of them are mounted on the field perimeter.

High Hanging – A *robot* is considered to be *high hanging* if it is touching the *ladder* AND every part of the *robot* is entirely above the *yellow ladder rung*. A robot which is considered to be *high hanging* is not considered *low hanging*.

Ladder – The 36” tall sheet-metal and PVC structure located in the center of the field. The ladder has PVC rungs at 6”, 18”, 30” and 36” off the ground.

Low Hanging – A *robot* is considered to be *low hanging* if it is touching the *ladder* AND every part of the *robot* is entirely above the *orange ladder rung*. (A *high hanging* robot is not considered *low hanging*)

Match – A *match* consists of an *autonomous period* followed by a *driver controlled period* for a total time of 2:20 (two minutes, twenty seconds).

Movable Weighted Base – The five (5) approximate 9” diameter hemisphere like structures that five (5) of the *goalposts* are mounted to. The *movable weighted base* weighs approximately 9-11 lbs.

Orange Ladder Rung – An orange PVC pipe that acts as a ladder rung. The *Orange Ladder Rung* is 6” above the ground and signifies the height that needs to be surpassed by a robot for a robot to be considered *low hanging*.

Owned – A *goalpost* is said to be *owned* by the *alliance* that has the most *tubes scored* on that *goalpost*. If both alliances have the same number of *tubes scored* on the *goalpost*, neither alliance has *owned* the

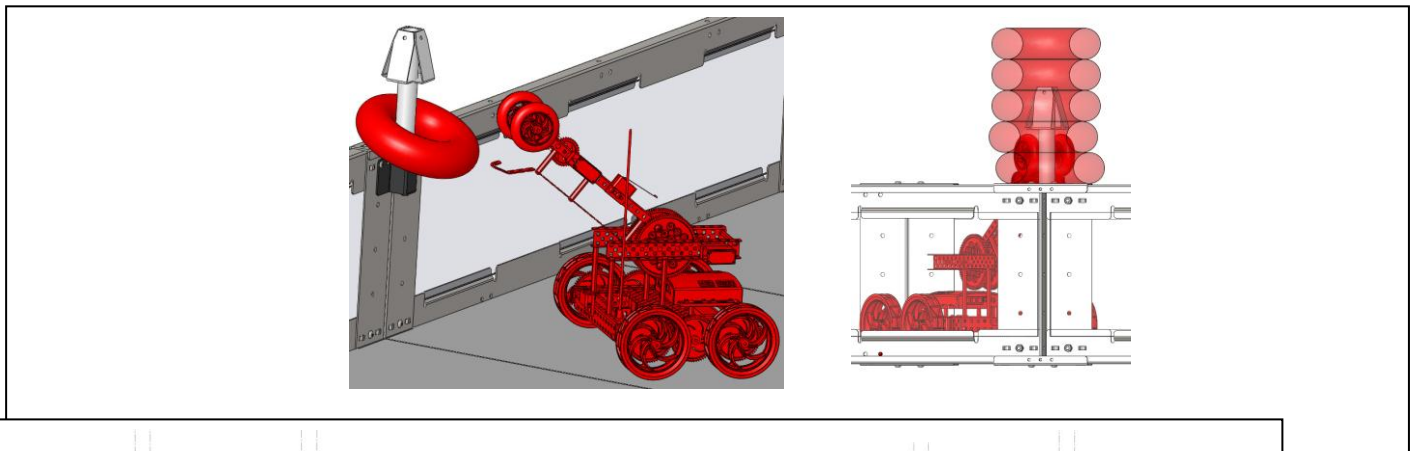
goal.

Pinning – A robot is considered to be *pinning* an opposing robot if it is inhibiting the movement of an opponent robot while the opposing robot is in contact with the foam playing surface and another field element.

A robot that blocks or inhibits the movement of an opposing robot while the opposing robot is not in contact with any field element other than the foam playing surface is not considered to be *pinning*.

Robot – Anything (which has passed inspection) a team places on the field prior to the start of a match.

Scored – A tube is considered to be scored on a goalpost if any part of the tube encircles the goalpost or the projection of the top of the goalpost extended infinitely. If the lip of the movable weighted base is touching a foam tile at the end of the match, the goalpost is not projected. Please see the below images of scored tubes, not scored tubes and the lip of a movable weighted base.



Tube – A red or blue torus shaped plastic scoring object with an overall diameter of 7” and a “hole” diameter of 3” and a “tube” diameter of 2”.

Yellow Ladder Rung – A yellow PVC pipe that acts as a ladder rung. The *Yellow Ladder Rung* is 18” above the ground and signifies the height that needs to be surpassed by a robot for a robot to be considered *high hanging*.

Game Rules

Scoring

- A *tube* that is *scored* upon a *goalpost* is worth two (2) points for the *alliance* of the color of the *tube*.
- A *goalpost* that is *owned* is worth five (5) points for the *owning alliance*.
- A *robot* that is *low hanging* from the *ladder* is worth ten (10) points for the corresponding *alliance*.
- A *robot* that is *high hanging* from the *ladder* is worth twenty (20) points for the corresponding *alliance*.

Scoring in Autonomous Mode

- At the end of the *autonomous period*, the *alliance* that has most total points receives a ten (10) point bonus.

Safety Rules

<S1> If at any time the *robot* operation or team actions are deemed unsafe or have damaged the *field elements* or scoring objects, by the determination of the referees, the offending team may be disqualified. The *robot* will require re-inspection before it may again take the field.

<S2> If a *robot* goes completely out-of-bounds (outside the playing field), it will be disabled for the remainder of the match.

Note: The intent is NOT to penalize *robots* for having mechanisms that inadvertently cross the field border during normal game play.

General Game Rules

<G1> When reading and applying the various rules in this document, please remember that common sense always applies in the VEX Robotics Competition.

<G2> At the beginning of a *match*, each *robot* must be smaller than a volume of 18 inches wide by 18 inches long by 18 inches tall. An offending *robot* will be removed from the match at the Head Referee's discretion.

- a. Alignment devices (templates, tape measures, lasers, etc.) that are not part of the *robot* may NOT be used to assist with the positioning of the *robot*.

<G3> Each team shall include up to two *drivers* and one *coach*.

<G4> During a *match*, the *drivers* and *coach* must remain in their *alliance station*.

<G5> During the qualification rounds, the red *alliance* has the right to place their *robots* on the field last. During the elimination rounds, the higher seeded alliance has the right to place their robots on the field last. Once a team has placed their *robot* on the field, its position cannot be readjusted.

<G6> *Drivers* and *coaches* are prohibited from making intentional contact with any scoring object, *field element* or robots during a *match*. Any intentional contact will result in a disqualification. Accidental contact will not be penalized, unless the contact directly impacts the final score of the match. This type of accidental contact will result in a disqualification

<G7> During a *match*, *robots* may be remotely operated only by the *drivers* and/or by software running in the on-board control system. If a *coach* touches his/her team's controls anytime during a *match*, the

robot will be disabled and the team disqualified.

<G8> *Tubes* that leave the playing field will be returned to the playing field at the location nearest the point at which they exited. Referees and event volunteers will return the *tubes* as promptly as possible.

<G9> Scores will be calculated for all *matches* immediately after the *match* once all objects on the field come to rest.

<G10> *Robots* may not intentionally detach parts during any *match*, or leave mechanisms on the field. If an intentionally detached component or mechanism affects game play the team may be disqualified at the referees discretion. Multiple intentional infractions may result in disqualification for the entire competition.

<G11> Strategies aimed solely at the destruction, damage, tipping over, or *entanglement* of *robots* are not in the spirit of the VEX Competition and are not allowed. However, *VEX Round Up* is an interactive game. Some incidental tipping, *entanglement*, and damage may occur as a part of normal game play. If the tipping, *entanglement*, or damage is ruled to be intentional, the offending team may be disqualified from that *match*. Repeated offenses could result in a team being disqualified from the remainder of the competition.

<G12> *Robots* must be designed to permit easy removal of *tubes* from any grasping mechanism without requiring that the *robot* have power after the *match*.

<G13> Field tolerances may vary by as much as +/-1", so teams must design their *robots* accordingly.

<G14> *Tube* tolerances may vary by as much as +/-1/8"

<G15> Replays are at the discretion of the event organizer and head referee. Possible reasons for a replay could be attributed to an error or failure of official field personnel, the scoring system, the field controls, or the field itself.

<G16> All teams must adhere to all VEX Robotics Competition Rules as they are written, and must abide by the listed intent of the rules. Every team has the opportunity to ask for official rules interpretations in the VEX Robotics Competition Question & Answer Forum. Any responses in this Q&A forum should be treated as official rulings from the VEX Robotics Competition Game Design Committee, and represent the correct and official interpretation of the VEX Robotics Competition Rules.

There may also be periodic "Team Updates" posted on the *VEX Round Up* webpage in the competition section of www.VEXrobotics.com. These updates are also "official" parts of the *VEX Round Up* rules. The VEX Robotics Competition Question & Answer Forum can be found at www.RobotEvents.com and www.VEXforum.com, or directly at <http://www.vexrobotics.com/round-up-qa>.

<G17> All teams are expected to conduct themselves in a respectful and professional manner while competing in VEX Robotics Competition events. If team members are disrespectful or uncivil to event staff, volunteers or fellow competitors, they may be disqualified from their current or upcoming *match*.

VEX Round Up Specific Game Rules

<SG1> At the beginning of each *match*, each *alliance robot* must be placed such that they are touching one of their colored *alliance starting tiles* and not touching any *tube* other than those permitted by **<SG2>**. No more than one *robot* may start the match on any one *alliance starting tile*.

<SG2> Prior to the start of each *match*, each team will have one (1) *tube* available to preload into their robot. A *tube* is considered to be legally preloaded if it is touching the *robot* and not touching any *field element* or scoring object.

<SG3> A *tube* is not considered *scored* if it is being touched by a *robot* on an *alliance* of the same color at the conclusion of either period.

<SG4> A *robot* cannot *pin* an opposing *robot* for more than five seconds during the *driver controlled period* while on the foam playing surface. A pin is officially over once the pinning team has moved away from the pinned robot by 2 feet. After ending a pin, a team may not pin the same robot again for a duration of 5 seconds. If a referee determines this rule to be violated, the offending *robot* will be disqualified for the match. There is no penalty for *pinning* during the *autonomous period*. Please note: The definition of pinning does not require contact between the pinning and pinned robot. Trapping a robot in a corner of the field, while the trapped robot is in contact with the foam tiles and a field element is considered pinning. Thus all pinning restrictions stated in this rule apply.

<SG5> *VEX Round Up* is a highly interactive game. Contact, ramming and tipping is especially likely to occur on the *ladder* as part of normal game play. Robots should be designed accordingly as these interactions on the *ladder* would not fall under <G11>. However, intentional *entanglement* is still not permitted on the *ladder*.

<SG6> Intentionally tipping the *ladder* is illegal and will result in the disqualification of the offending robot.

<SG7> Intentionally removing a *movable weighted base* from the playing field is illegal and will result in the disqualification of the offending robot.

The Tournament

Overview

The main challenge of the VEX Robotics Competition will be played in a tournament format. Each tournament will include *practice*, *qualifying*, and *elimination matches*. After the *qualifying matches*, teams will be ranked based on their performance. The top teams will then participate in the *elimination matches* to determine the tournament champions.

Tournament Definitions

Alliance Captain – A student chosen to represent their team during *Alliance Selection* for the final *Elimination Matches*.

Alliance Selection – The process of choosing the permanent alliances for the *Elimination Matches*.

Disqualification – A penalty applied to a team for a rules violation. When a team is disqualified in a *qualifying match* they receive zero (0) WP and SP. When a team is disqualified in an *elimination match* the entire alliance is disqualified and they receive a loss for the match.

Elimination Match – A match used to determine the championship alliance. Alliances of three face off in a best two of three series, with two teams playing in each match. The first alliance to win two matches will proceed to the next round.

Practice Match – An un-scored match used to provide time for teams to get acquainted to the official playing field.

Qualifying Match – A match used to determine the rankings for the *Alliance Selection*. Alliances compete to earn *Win Points* and *Strength of Schedule Points*.

Strength of Schedule Points (SP) – The second basis of ranking teams. *Strength of Schedule points* are awarded in the amount of the score of the losing alliance in a *Qualifying Match*.

Win Points (WP) – The first basis of ranking teams. *Win Points* are awarded for winning (two points) and tying (one point) a *Qualifying Match*.

Practice Matches

At the event *practice matches* will be played in the morning during the team registration time until the Drivers Meeting begins. Every effort will be made to equalize practice time for all teams, but will be conducted on a first-come, first-served basis. These matches are not scored, and will not affect team ranking.

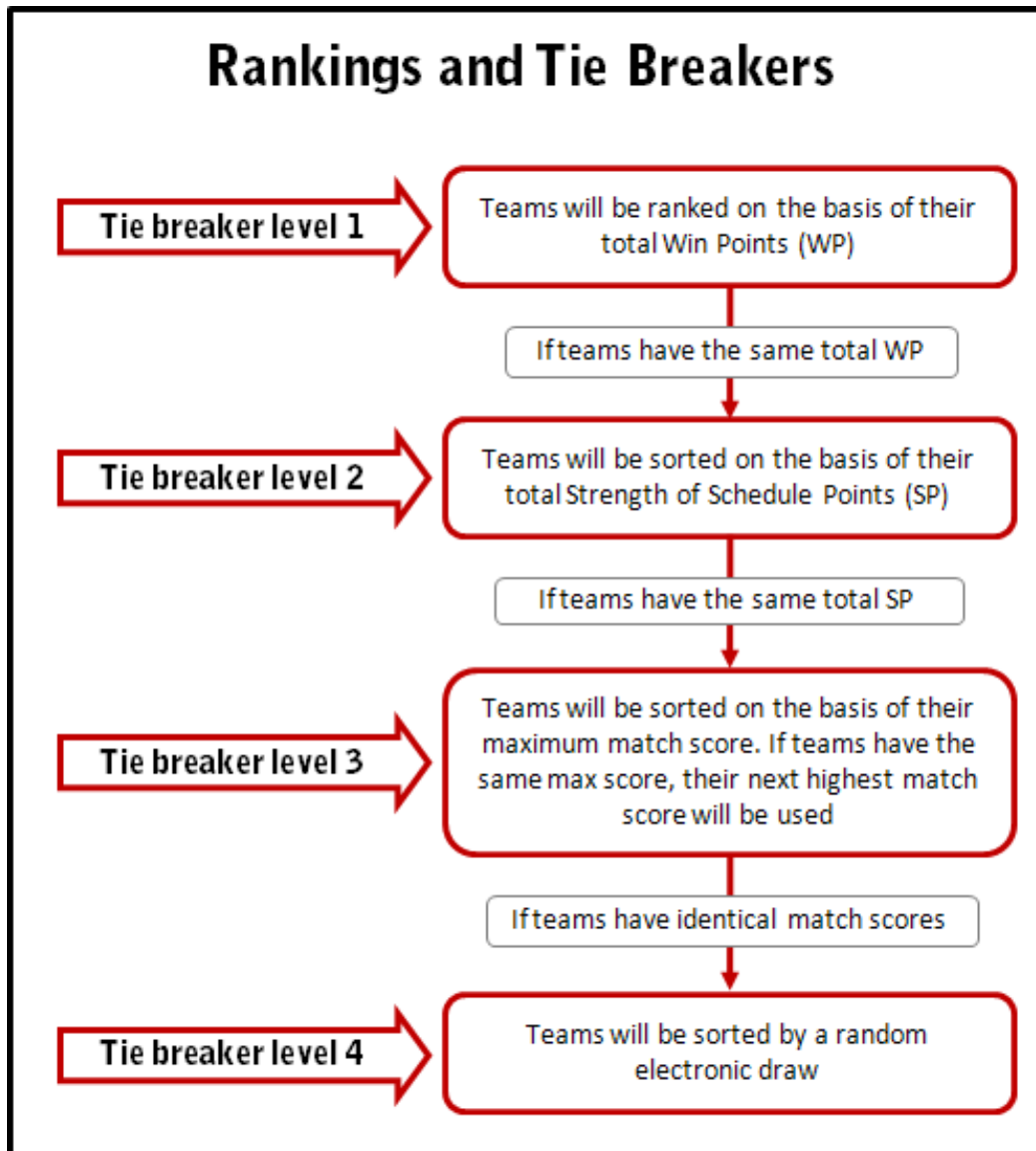
Qualifying Matches

Schedule

- The *qualifying match* schedule will be available prior to opening ceremonies on the day of competition. This schedule will indicate alliance partners and match pairings. It will also indicate the alliance's color – red or blue. For tournaments with multiple fields, the schedule will also indicate which field the match will take place on.
- The *qualifying matches* will start immediately after opening ceremonies in accordance with the qualifying match schedule.
- Teams will be randomly assigned an alliance partner to compete against two randomly assigned opponents in each *qualifying match*.
- All teams will be **scored** on the same number of *qualifying matches*.
- In some cases, a team will be asked to play in an additional *qualifying match*, but will not receive credit for playing this extra match.

Rankings

- At the conclusion of each match, *Win Points (WP)* will be issued:
 - Winning teams of a *qualifying match* receive two (2) *WP*
 - Losing teams of a *qualifying match* receive zero (0) *WP*
 - If a *qualifying match* ends in a tie, all four teams receive one (1) *WP*
 - If a team is disqualified they receive zero (0) *WP*
- All teams in each *Qualifying Match* will also receive *Strength of Schedule Points (SP)*.
 - The number of *SP* assigned for each match, is that of the losing alliance's score.
 - In the event of a tie, both alliances will receive the same *SP* (equal to the tie score).
 - If a team is disqualified they receive zero (0) *SP*
 - If both teams on an alliance are disqualified, the teams on the winning Alliance will be awarded their own score as their *SP* for that match.
- For a *qualifying match*, if **no** member of a team is present in the driver station at the start of a match, that team is declared a "no show" and will receive zero (0) *WP* and zero (0) *SP*. A "no show" is treated exactly the same as a disqualification.



Elimination Matches

- The *alliance selection* process will consist of two rounds of selection, such that eight alliance captains will form elimination alliances consisting of three teams.
- These eight alliances will participate in a tournament to determine the event champions.
- If a team is disqualified during an *elimination match*, then their entire alliance is disqualified, and the match will be recorded as a loss.

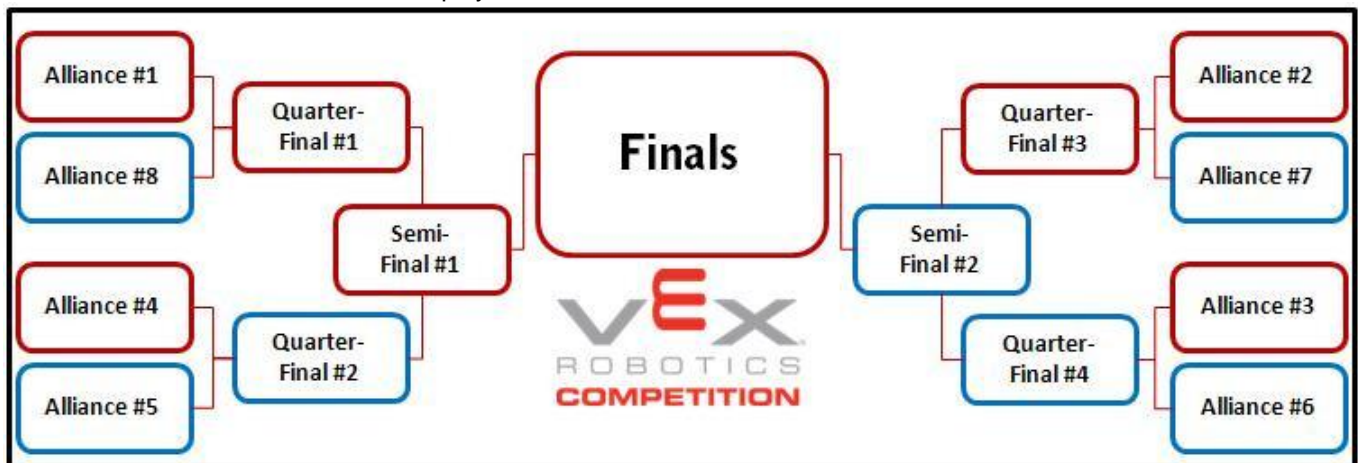
Alliance Selection Process

- Every team will choose a student to act as a team representative.
 - These student representatives will proceed to the playing field at the designated time to represent their teams in the *alliance selection*.
- There will be eight alliances formed in the *alliance selection*.
- In order of tournament ranking, the student representative of the highest ranked team not already in an alliance will be asked to step forward as an *alliance captain* to invite another available team to join

- their alliance.
- A team is available if they are not already part of an alliance, or have not already declined an alliance invitation.
 - If the team accepts, it is moved into that alliance.
 - If a team declines an invitation, they CANNOT be invited into another alliance, but are still available to select their own alliance if the opportunity arises.
 - If a team declines, the *alliance captain* from the inviting team must then extend another invitation.
- This process will continue until all eight *alliance captains* have been designated and chosen one alliance partner.
- **The same method is used for each *alliance captain's* second choice. Teams will select in the same order they did in the first round.** Any teams remaining after alliance eight makes their second choice will not compete in the *Elimination Matches*.
- Some smaller events may choose to use a different alliance format to better suit the number of teams, please see the event modification section of this document for more details.

Match Ladder

The *elimination matches* will play in a ladder format as shown below.



Elimination Scoring

In the elimination rounds, teams do not get *win points*; they get a win, loss or tie. Within each bracket of the Elimination Match Ladder, matches will be played to determine which alliance advances, as follows:

- The first alliance to win two matches advances.
- Any tied matches will be replayed until one alliance has two wins, and advances.

Tournament Rules

<T01> Referees have ultimate authority during the competition. **Their rulings are final.**

- a. The referees will not review any recorded replays.
- b. Any questions for the referees must be brought forward by a student drive team member within the time period of two (2) matches.

<T02> The only people from a team permitted by the playing field are the three drive team members who are identified by the drive team badges. These badges are interchangeable.

<T03> During matches, two teams from an alliance will play on the field. **Any team which sits out the first match in an elimination series, must play in the second match, with no exceptions.** In the third and any subsequent matches, any two of the three teams may play. Prior to each *elimination match*, the *alliance captain* must let the referee know which two teams will be playing in the upcoming match.

<T04> There are no time outs in the qualifying rounds; in the elimination rounds, each alliance will be allotted ONE time out of no more than three minutes, as permitted by the head referee. The matches must progress according to schedule.

- a. If a robot cannot report for a match, at least one member of the team should report to the field for the match.

<T05> All team members, including coaches, **must** wear safety glasses or glasses with side shields while in the pit or alliance stations during matches. While in the pit area it is highly recommended that all team members wear safety glasses.

The Robot Overview

This section provides rules and requirements for the design and construction of your robot. A VEX Robotics Competition robot is a remotely operated and/or autonomous vehicle designed and built by a registered VEX Robotics Competition student team to perform specific tasks when competing in *Round Up*. Prior to competing at each event, all robots will have to pass an inspection. Refer to Appendix D for the Robot Inspection Guidelines and the Inspection Checklist.

Robot Rules

There are specific rules and limitations that apply to the design and construction of your robot. Please ensure that you are familiar with each of these robot rules before proceeding with robot design.

<R1> Only one (1) robot will be allowed to compete per team in the VEX Robotics Competition. Though it is expected that teams will make changes to their robot at the competition, a team is limited to only one (1) robot.

- a. Teams may not compete with one robot, while a second is being modified or assembled.
- b. Teams may not switch back and forth between multiple robots during a competition.

<R2> Every robot will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all robot rules and regulations are met. Initial inspections will take place during team registration/practice time.

- a. If significant changes are made to a robot, it must be re-inspected before it will be allowed to compete.
- b. All robot configurations must be inspected before being used in competition.
- c. Teams may be requested to submit to random spot-inspections by event personnel. Refusal to submit will result in disqualification.
- d. Referees or inspectors may decide that a robot is in violation of the rules. In this event, the team in violation will be disqualified and the robot will be barred from the playing field until it passes re-inspection.

For further information on the inspection process please refer to Appendix D, Robot Inspection Guidelines

<R3> The following types of mechanisms and components are NOT allowed:

- a. Those that could potentially damage playing field components.
- b. Those that could potentially damage other competing robots.
- c. Those that pose an unnecessary risk of entanglement.

<R4> At the beginning of any match, robots must be smaller than 18" x 18" x 18".

- a. During inspections, robots will be measured in one of two ways
 - i. Robots will be placed into a "sizing box" which has interior dimensions matching the above size constraints. To pass inspection, a robot must fit within the box without touching the box walls or ceiling.
 - ii. Robots will be sized using a VRC Robot Sizing Tool. Robots will be placed on the base plate and must not touch the measurement slide as it is passed over the base plate. Please see <http://www.vexrobotics.com/275-1455.html> for a visual reference
- b. Robots may expand beyond their starting size constraints after the start of a match.
- c. Any restraints used to maintain starting size (i.e. zip ties, rubber bands, etc) MUST remain attached to the robot for the duration of the match.

<R5> Robots may be built ONLY from Official **Robot Components** from the VEX Robotics Design System

unless otherwise specifically noted within these rules.

- a. During inspections if there is a question about whether something is an official VEX component, a team will be required to provide documentation to an inspector, which proves the component's source. Such types of documentation include receipts, part numbers, or other printed documentation.
- b. Only the VEX Robotics Design System Components specifically designed to be used for Robot construction are allowed. Using additional components outside their typical purpose is against the intent of the rule (i.e. please don't try using VEX apparel, competition support, or other nonrobot products on a VEX Robotics Competition Robot).
- c. The packaging, manual binders, styrofoam, cardboard, plastic bags, software CD's etc. from the VEX kits are NOT included and CANNOT be used for robot construction. Only the VEX robot parts themselves are allowed.
- d. Products from the VEXpro product line cannot be used for robot construction. Products from the VEXpro line which are also cross listed as part of the VEX EDR product are legal.

<R6> Official VEX products are ONLY available from VEX & Official VEX Resellers. To determine whether a product is "official" or not, consult www.VEXrobotics.com.

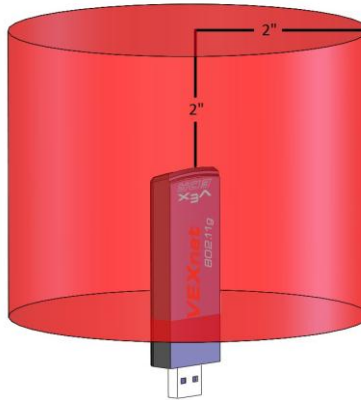
a. Products **identical** to those listed on this site are also considered "official VEX products". For the purposes of this rule, products which are identical in all ways except for color are permissible.

Note: It is up to inspectors to determine whether a component is "identical" to an official VEX component.

b. VEX Robotics Competition teams from countries that primarily use the metric system may utilize metric fasteners comparable in size, length, and head type to VEX fasteners.

<R7> Robots are allowed the following additional "non-VEX" components:

- a. Any material strictly used as a color filter for a VEX Light Sensor.
- b. Any parts which are identical to legal VEX parts. For the purposes of this rule, products which are identical in all ways except for color are permissible.
- c. Teams may add non-functional decorations provided that these do not affect the robot performance in any significant way or affect the outcome of the match. These decorations must be in the spirit of the competition. Inspectors will have final say in what is considered "nonfunctional".
 - i. Any decoration which interacts with a game piece would be considered functional, hence illegal
- d. Any non-aerosol based grease, when used in **extreme** moderation on surfaces and locations that do NOT come into contact with the playing field walls, foam field surface, game objects, or other robots.
- e. Polycarbonate as cut from a single 12" x 24" sheet up to 0.0625" thick. (Please note that polycarbonate is different from acrylic sheet, which is not legal. Polycarbonate is sold under trade names such as Lexan® and Makrolon®.)
 - i. Polycarbonate can be mechanically altered by cutting, drilling or bending etc., but **it cannot be chemically treated, melted or molded**. Teams may heat the polycarbonate to aid in bending.
- f. A small amount of tape may be used for the following purposes:
 - i. For the sole purpose of securing any connection between the ends of two (2) PWM cables.
 - ii. For labeling wires and motors.
- g. A USB extension cable may be used for the sole purpose of remote mounting of a VEXnet key. The key must be mounted in the following manner. (See the image on the following page for reference)
 - i. The VEXnet key must be mounted such that no metal is touching the key above the VEXnet logo.
 - ii. No metal may be within 2" of the top of the VEXnet key.



Space restrictions on the remote mounting of VEXnet keys.

<R8> Additional VEX Robotics Design System Components that are released during the competition season are considered legal for use.

a. Some “new” components may have certain restrictions placed on them upon their release. These restrictions will be documented in a Team Update. Team Updates will be posted to the “VEX Round Up” home page in the Competition section of www.VEXrobotics.com

<R9> Robots must use ONLY one (1) VEX EDR Microcontroller.

a. Examples of VEX EDR Microcontrollers are the VEX v.5 PIC Microcontroller and the VEX Cortex Microcontroller.

b. Microcontrollers that are part of other VEX product lines such as VEXpro or VEX RCR are not allowed.

<R10> Robots must ONLY utilize the VEXnet system for all robot communication.

a. VEX 75Mhz Crystal Radios are prohibited. (Some events may allow the use of 75Mhz Crystal Radios, please see the Special Event Rule Modifications later in this section.)

b. Electronics from the VEX-RCR product line are prohibited including all VEXplorer electronics.

c. A VEXnet Joystick may only be used in conjunction with a Cortex Microcontroller. A VEXnet upgraded 75MHz Transmitter may only be used in conjunction with a PIC Microcontroller.

Mixing and matching VEXnet transmitters and receivers is prohibited.

<R11> Robots may use up to ten (10) VEX EDR motors or VEX Servos (Any combination, up to ten)

a. Of these ten (10) allowed motors, teams may use a maximum of four (4) “2-Wire Motor 393” modules.

b. 2-Wire Motors must be controlled by a 2-Wire Motor Port, either directly on a VEX Microcontroller, or on a “VEX Motor Controller 29” module.

c. Teams may NOT use multiple 2-wire Motor Ports, 3-wire PWM Motor Ports, or Motor Controller 29 modules on a single motor.

<R12> A maximum of one (1) VEX Y-cable can be used per Motor Port of the Microcontroller or Power Expander. (You cannot “Y off a Y” to have more than two (2) motors controlled by the same Motor Port.)

a. Teams using the Cortex Microcontroller can only power one (1) 2-wire Motor per each of the two 2-wire motor ports on the Microcontroller. It is illegal to “Y” off a 2-wire Motor Port.

<R13> The only allowable sources of electrical power for a VEX Robotics Competition Robot is any single (1) VEX 7.2V Robot Battery Pack of any type, unless the robot is utilizing the VEX Power Expander, and a single (1) 9V backup battery. Robots utilizing the VEX Power Expander can use a second (2) VEX 7.2V Robot Battery of any type.

a. Additional batteries cannot be used on the robot (even ones that aren’t connected).

b. Robots are permitted to use a maximum of one (1) VEX Power Expander

c. To ensure reliable wireless communication, it is required that all teams connect a charged 9V

Backup battery to their VEXnet system using the VEXnet Backup Battery Holder (276-2243).

d. Any VEX 7.2V Battery Pack is legal, in the quantities described above.

<R14> No more than two VEX hand-held transmitters may control a single robot during the tournament. No modification of these transmitters is allowed of ANY kind.

a. No other methods of controlling the robot (light, sound, etc) are permissible.

<R15> Parts may NOT be modified as follows:

a. Motors, extension cords, sensors, controllers, battery packs, and any other electrical component of the VEX Robotics Design System may NOT be altered from their original state in ANY way.

b. Welding, soldering, brazing, gluing, or attaching in any way that is not provided within the VEX Robotics Design System will NOT be allowed.

- Mechanical fasteners may be secured using Loctite or a similar thread-locking product.
 - This may be used for securing hardware ONLY.

c. External wires on VEX electrical components may become damaged during use. These wires may be repaired using soldering or twist/crimp connectors such that the original functionality / length is not modified or enhanced in any way. These repairs may be covered by up to 1" of insulating tape, or heat shrink tubing as long as this covering is not used for other functional gain. Wire used in repairs must be identical to VEX wire. **Teams may make these repairs at their own risk; incorrect wiring may have undesired results.**

<R16> The Robot on/off switch must be accessible without moving or lifting the robot. The Robot Microcontroller lights should also be visible by competition personnel to assist in diagnosing robot problems.

<R17> Teams must bring their robots to the field prepared to play. Teams who use VEX pneumatics must have their systems charged before they place the robot on the field.

<R18> To participate in an official VEX Robotics Competition Tournament a team must first register on www.RobotEvents.com. Upon registering they will receive their VEX Team Identification Number (VEX Team ID#) and a welcome kit containing VEX Team Identification Number Plates. Every robot should have their VEX Team ID# Plates displayed on a minimum of 2-opposing sides.

a. The VEX Team Identification Number Plates are considered a non-functional decoration, and cannot be used as a functional part of the robot.

b. These number plates must fulfill all robot rules (i.e. they must fit within the 18" cube per <R4>, they cannot cause entanglement, etc.)

<R19> Robots must include a mounting device to securely hold one VEX Robot Identification Flag throughout an entire match.

a. The VEX Robot Identification Flags are considered a non-functional decoration, and cannot be used as a functional part of the robot.

b. These flags must fulfill all robot rules (i.e. they must fit within the 18" cube per <R4>, they cannot cause entanglement, etc.)

Awards

Judged Awards

Amaze Award: Overall Quality

Build Award: Craftsmanship and Construction

Community Award: Community Involvement & Support

Cooperate Award: Teamwork

Create Award: Creative Engineering Design

Design Award: Engineering Process and Documentation

Educate Award: Classroom Adoption of Robotics

Energy Award: Team Spirit and Enthusiasm

Future Award: Research Project and Presentation

Innovate Award: Innovative Feature/Solution

Judges' Award: Judges' Recognition

Mentor of the Year Award: Recognized Volunteer Team Mentor

Partner of the Year Award: Recognized Event Sponsor/Supporter

Promote Award: Video Submission

Sportsmanship Award: Sportsmanship

Support Award: Helping Other Teams at the Event

Teacher of the Year Award: Recognized Team Teacher

Think Award: Autonomous Programming and Sensor Use

Unite Award: Teamwork Among Multiple Same School Teams

Volunteer of the Year Award: Recognized Event Volunteer

Excellence Award

This is the highest award presented in the VEX Robotics Competition. The recipient of this award is a team that exemplifies overall excellence in building a well-rounded VEX robotics program. This team excels in many areas and is a shining example of dedication, devotion, hard work and teamwork. A strong contender in numerous award categories, this team deserves to be recognized for their accomplishments building a robot and in building a “team” committed to quality in everything they do. Teams are given points towards the Excellence Award in the following categories:

- Tournament Qualification Round Ranking
- Programming Skills Challenge Ranking
- Robot Skills Challenge Ranking
- Judged performance in all other award categories

Using this wide range of criteria, the Excellence Award will be presented to the team who excels in all areas of VEX Robotics.

Please Note: Some events may decide to offer two Excellence Awards, one for the top overall Middle School team and one for the top overall High School team if they feel they have enough teams in each group.

Tournament Champions (2 or 3 Teams)

Presented to the winning alliance of the VEX Robotics Competition tournament

Programming Skills Champion (1 team)

Presented to the top ranked team in the VEX Robotics Competition Programming Skills Challenge

Robot Skills Champion (1 team)

Presented to the top ranked team in the VEX Robotics Competition Robot Skills Challenge

Tournament Finalists (2 or 3 Teams)

Presented to the runner-up alliance of the VEX Robotics Competition tournament.

Programming Skills 2nd Place (1 team)

Presented to the second ranked team in the VEX Robotics Competition Programming Skills Challenge.

Robot Skills 2nd Place (1 team)

Presented to the second ranked team in the VEX Robotics Competition Robot Skills Challenge.

*Amaze Award

The “Amaze” award will be presented to a team that has built a competition robot that clearly demonstrates overall quality. A solid mechanical design along with demonstrated robot programming, robustness, strong performance and consistency are key attributes assessed for this award.

Key Criteria:

- 1) Robot design is consistently high-scoring and competitive
- 2) Robot autonomous mode is consistently successful
- 3) Robot is robustly constructed to fulfill its designed task
- 4) Teamwork and interview quality

*Build Award

The “Build” award is given to a team that has built a well crafted and constructed robot that also shows a clear dedication to safety and attention to detail. Judges will be looking for robots that have a professional feel and quality look to them, with clear attention to detail in construction, efficient use of mechanical and electronic components, and reliability on the competition field.

Key Criteria:

- 1) Robot construction is of professional quality; robust, clean and elegant use of build materials
- 2) Robot efficiently uses mechanical and electrical components
- 3) Robot is designed with detailed attention to the hazards and rigors of the competition
- 4) Teamwork and interview quality

Community Award

The “Community” award is presented to a team recognized for making a difference in the community by the local VEX Robotics Organizing Committee. This team demonstrates strong community building skills and has made many contributions to help support students and teams beyond their own school. This award is given to a team that makes a concerted effort to raise support in their community for technology education programs.

*Cooperate Award

The “Cooperate” award will be awarded to a team that demonstrates extraordinary teamwork. This award recognizes a team’s season-long commitment to cooperation and mutual respect both within the team, and to others on the field of play and throughout the event.

Key Criteria:

- 1) Team demonstrates commitment to respect and cooperation to all, throughout the season
- 2) Team demonstrates that they work well with their alliance partners, before, during and after a match
- 3) Team demonstrates an internalized culture of teamwork, mutual respect and cooperation
- 4) Teamwork and interview quality

*Create Award

The “Create” award is earned by a team whose robot design incorporates a creative engineering solution to the design challenges of this year’s game. Attributes such as solid mechanical ability, unique design solutions and innovative approaches to playing the game will be taken into account by the judges looking for teams demonstrating a highly creative engineering design process.

Key Criteria:

- 1) Robot is a well-crafted, unique design solution, demonstrating creative thinking
- 2) Team has demonstrated a highly creative engineering design process and methodology
- 3) Team has committed to ambitious and creative approaches to playing the game
- 4) Teamwork and interview Quality

Design Award

Design Award - Engineering Notebook

Judging of Engineering Notebooks

The “Design” award is presented to a team that demonstrates an organized and professional approach to the design process, project management, time management and team organization. Teams will be assigned a 10 minute time slot during which the team will set up and deliver a presentation to judges. The winning team will be able to describe how they created and implemented an efficient and productive design process to effectively manage their time and resources to accomplish their project goals.

Design Award - Engineering Notebook

One of the main missions of the VEX Robotics Competition is to help students acquire real world life skills that will benefit them in their academic and professional future. The Engineering Notebook is a way for teams to document how the VEX Robotics Competition experience has helped them to better understand the engineering design process while also practicing a variety of critical life skills including project management, time management, brainstorming and teamwork. Engineering is an iterative process requiring students to recognize and define a problem, brainstorm and work through various stages of the design process, test their designs, continue to improve their designs and continue the process until a solution has been produced. During this process students will come across obstacles, will encounter instances of success and failure, and will learn many lessons through their experience. It is this process that students should document in their Engineering Notebook. The Engineering Notebook is an opportunity to document everything a team does and can serve as a historical guide of lessons learned and best practices which can benefit the team and students in future years. Students may document any number of things in their Engineering Notebook such as: team meeting notes, design concepts and sketches, pictures, notes from competitions, biographies of the members of their team (students, teachers and mentors), observations and thoughts of team members throughout the season, team organization practices and any other notes that a team finds useful.

Judging of Engineering Notebooks

Creating and maintaining an Engineering Notebook is in no way “required or mandated” for teams participating in the VEX Robotics Competition. There are no overbearing rules or guidelines for this notebook if you do choose to have one to show at events - it is a document created by the team, for the team and can be customized in whatever way works best for your team. While not required, maintaining an Engineering Notebook is highly recommended and can have many benefits for the team, but when and how to maintain such a notebook is completely optional and up to each team. There is only one award given at the VEX World Championship (and some local events) which requires that teams present their Engineering Notebook to the judges - the Design Award. We still encourage any teams that create an Engineering Notebook to bring it to events and keep it in their pit area to show and discuss with Judges. Judges are always interested in learning and seeing the various skills students acquire and demonstrate through their participation in the VEX Robotics Competition. Teams are welcome to bring support materials, flyers, team promotional materials and items such as an Engineering Notebook to events to share with judges.

Key Criteria:

- 1) Engineering Notebook is a clear, complete document of the team’s design and build process
- 2) Team is able to explain their design and strategy throughout the season
- 3) Team demonstrates personnel, time and resource management throughout the season
- 4) Teamwork and interview quality

Educate Award

The “Educate” award is given to a team that has been able to successfully integrate VEX Robotics into their Science, Technology, Engineering and Math (STEM) curriculums. The winning team will demonstrate to the judges that VEX Robotics is not just an extracurricular activity, but a valuable tool used in their school to teach across many subjects in the classroom.

*Energy Award

The “Energy” award is decided based on team enthusiasm at the event. The winning team demonstrated boundless passion and energy throughout the competition – in the pit area, on the field, in the audience, when their robot is playing and when it’s not.

Key Criteria:

- 1) Team Maintains a high level of energy throughout the event
- 2) Team demonstrates support for all participants
- 3) Team’s positive energy enriches the event experience for others
- 4) Teamwork and interview quality

Future Award

The “Future” award is presented to the “school” or “club” that demonstrates how the efforts of their team(s) are improving their school and/or local community, along with showing a vision of the impact this will have on their future. This is your opportunity to show judges how your VEX Robotics team(s) are making an impact in your community and are helping to advance awareness, appreciation and adoption of STEM (Science, Technology, Engineering and Math). These teams are encouraged to give the judges hope and optimism that the students of today will improve the world as the future innovators, problem solvers and leaders of tomorrow.

An Online submission website will be published six weeks prior to Championships. Four to six weeks prior to the World Championship Event teams will:

- Submit a one page Future Award presentation summary
- Submit one letter of support online
- Reserve a Presentation and Interview Time Slot online
(There will be four presentation time slots available per hour)

Teams will be informed at the competition check in which Presentation and Interview room they have been assigned for their Time Slot:

- Once a group is instructed to enter an interview room they have up to 7 minutes to setup and complete the delivery of their presentation.
- Presentations exceeding 7 minutes will be cut off. Groups need to practice to assure that they will complete their setup and delivery in the allotted time.
- Presentation participants should be prepared to answer questions from the Presentation and Interview Judge Panel for three to five minutes following their presentation.
The presentation should clearly identify specific contributions that members of the VEX team(s) have made in the school or local community. Students are encouraged to be creative with the presentation and may use any number of presentation tools and methods including, but not limited to: models, display boards, PowerPoint presentations (presenters must provide their own laptop) and video presentations (presenters must provide their own laptop or video equipment, NO video projection equipment will be provided). Assume a single electrical outlet will be available, however no extension cords will be provided

Up to 10 student members of the team(s) may make the presentation to the judges. One adult is allowed to accompany the student presenters into the interview room. This adult is not allowed to communicate with the students or judges while in the room, but may observe and take pictures or video if they wish.

The support letter shall be from a non-team related school or local official who has witnessed the impact that this team is having and should explain how the team is helping to shape the school or community.

Judges will consider many different criteria when considering teams for this award, including: how well the students communicated the details of their project, the quality of their presentation and the usefulness of visual materials used to support the presentation. Students will also be judged on how they carry themselves and interact with both the judges and their fellow teammates. Upon completion of all interviews, Judges may seek out additional information from teams during the course of the event before final award determinations are made.

***Innovate Award**

The “Innovate” award is presented to a team that has demonstrated a strong combination of ingenuity and innovation in designing their VEX robot. This award will typically recognize a specific innovative machine feature, that was designed by thinking outside the box, resulting in a unique piece of engineering which forms an integral part of their engineering design solution to the complex problems presented by the VEX Robotics Competition game.

Key Criteria:

- 1) Robot design demonstrates an ingenious and innovative piece of engineering
- 2) Innovative feature is soundly crafted and is an effective solution to a design problem
- 3) Innovative solution is integrated as a part of an overall well crafted robot
- 4) Teamwork and interview quality

***Judges’ Award**

The Judges Award goes to a team the judges decide is deserving of special recognition. Judges consider a number of possible criteria for this award, such as team displays of special attributes, exemplary effort and perseverance at the event, and team accomplishments or endeavors throughout the season that may not fall under existing awards - but are nonetheless deserving of special recognition

Mentor of the Year Award

This award is given to a mentor or engineer that has helped their students achieve goals that were seemingly out of reach. This individual is a role model, a leader and an extraordinary mentor who helps show students new ways to expand their knowledge and solve problems in the worlds of STEM. The recipient of this award will be nominated by the students on their team with a written submission detailing how the mentor inspires, motivates and educates students in a positive, enthusiastic and challenging atmosphere.

Partner of the Year Award

There are two definitions for “Champion”: One who surpasses all rivals in a competition, a title which is what the robots at this event compete for. But the more important definition of a champion is, “one who fights for a cause or on behalf of someone else”, – that is the champion this award will recognize. There are many partners whom deserve recognition for their efforts to advance educational opportunities for students in our communities in the areas of science, technology, engineering, and math. “Champions” in the VEX Robotics Competition help students and schools in many ways: they support teams, they support volunteers and local groups to provide events like these, they support training, workshops, scrimmages, mentor placement, fundraising and many other efforts to ensure these opportunities are accessible and available to more students than ever before. This award recognizes the contribution of a “Champion” making a truly generous and positive impact on our community.

***Promote Award**

The “Promote” award is presented to a team that has created and submitted an outstanding VEX Robotics video. One of the goals of this video should be to help the team introduce itself in the community, to help recruit new students, mentors, and gain support for the team. This video may be about the team, the program, the competition, the design and build process, the robot itself or any theme the team can dream up to help promote its VEX Robotics program to their community!

Videos will be submitted to the “Digital Prototyping and Online Design Challenge” section at www.RobotEvents.com. The Digital Prototyping and Online Design Challenge section will go live with multiple challenges on October 16, 2009 and teams can begin to submit their videos at that time.

Key Criteria:

- 1) Video is exciting, of high production and editorial quality, and expresses a complete vision
- 2) Video is original and innovative in approach, in editing and content
- 3) Video is clear and easy to follow, with a message that is easily followed

***Sportsmanship Award**

The “Sportsmanship” award is presented to a team that has earned the respect and admiration of the volunteers and other teams at the event. This team is a model for all to follow and interacts with everyone in a positive, respectful manner in the spirit of friendly competition and cooperation. This award is judged during the event by teams, referees and volunteers.

Key Criteria:

- 1) Team is courteous, helpful and respectful to everyone at the event, on and off the field
- 2) Team treats others on the playing field in the spirit of friendly competition
- 3) Team demonstrates respect and willingness to help to event staff and spectators

***Support Award**

The “Support” award is given to a team that is always willing and able to help other teams in need of assistance. There are many forms of “support” that can be given at an event: Resources, Knowledge and Encouragement are some of the most important ways team support each other throughout the competition. This award is judged and voted on by the teams participating at the event.

Key Criteria:

- 1) Team is always willing to help others by sharing resources, knowledge, and encouragement
- 2) Team has helped not only alliance partners, but all teams, by sharing resources
- 3) Team has enriched local VRC events by volunteering personnel and/or resources

***Teacher of the Year Award**

The “Teacher of the Year” award is presented to a teacher who shows true leadership and dedication to his or her group of students. The winner of this award continually exceeds expectations to ensure a safe, enjoyable and educational experience for all students. The recipient of this award will be nominated by the students on their team with a written submission detailing how the teacher inspires, motivates and educates students in a positive, enthusiastic and challenging atmosphere.

***Think Award**

The “Think” award is presented to a team that has successfully utilized autonomous programming modes during competition. Quality, consistency and success of autonomous programs in being an integral part of an effective strategy as well as the ability of the students to explain their programming process from strategy to syntax will help to determine a winner of this award. This award may be judged by the referees, programming inspectors and/or members of the judge panel.

Key Criteria:

- 1) Team’s autonomous code is effective to task, cleanly written, well-defined, and elegantly designed
- 2) Team has explained a clear autonomous strategy, that is a part of their overall strategy to win the game
- 3) Team’s autonomous code is consistently successful in the field
- 4) Teamwork and interview quality

Unite Award

The “Unite” award is presented to a school that has built a sustainable multi team robotics program. This award recognizes a school that demonstrates the ability to field multiple independent robotics teams which also work and collaborate together to enrich the experience of all students involved. Student access, a positive competitive atmosphere and a unity of vision among independent teams are key factors in receiving this prestigious award.

Key Criteria:

- 1) A multi-team program is designed to enrich student experiences, clear unity of vision and educative value
- 2) Teams have independent designs and ideas, but also work to collaborate, in balance
- 3) Program is designed to be sustainable and available as an educational platform for students
- 4) Teamwork and interview quality

Volunteer of the Year Award

VRC events don’t just materialize; it takes the collective effort of many people who are willing to give of their time and effort for the sake of the participants. At the root of each event you can usually find an individual spearheading the effort to “make things happen”.

The Volunteer of the year will be easy to spot because of their enthusiasm, dedication and results oriented approach to bringing the experience and opportunities available through VEX Robotics to as many students as possible. The recipient of this award demonstrates a commitment and devotion to their community, putting in many hours of hard work with persistence and passion to help make this event happen.

Puerto Rico Teams

1. 6 Teams in Middle School Division

Ángel Quintero ; Team 2281			
Team	Position	E-Mail	Telephone
Rafael O. Bracero	estudiante	rbmtechjr@hotmail.com	
Josué R. Arroyo	estudiante	jrarroyo.2@gmail.com	
Marcos Santana	estudiante	hemiranda1@yahoo.com	
Emmanuelle Fontán	estudiante	efontancruz@yahoo.com	
Myriam M. López	mentor	myriamlopez7@yahoo.com	787-854-8778
Rafael Bracero	mentor	rbmtech@yahoo.com	787-365-7697/ 787-691-4624

Colegio San Felipe ; Team 2264-B			
Team	Position	E-Mail	Telephone
Cristina María Pérez	estudiante	julioa@prtc.net	
Iván Tomás Cabán Rivera	estudiante	ivantomascaban@gmail.com	
Javier A. Iguina	estudiante	gabrielamorelos@yahoo.com	
Laura Vázquez Nuñez	estudiante	s0fia.laura@hotmail.com	
Edgar Cuevas	mentor	edgarc02@gmail.com	

Col. Hogar la Milagrosa ; Team 2263			
Team	Position	E-Mail	Telephone
Christian Ortiz Pacheco	estudiante	christianpomales@hotmail.com	787-414-9957
Diego Andrés Cruz Arroyo	estudiante	diegoandres.cruzarroyo@gmail.com ; ismael.cruz@gmail.com	787-356-4852/ 787-356-4856
Giancarlo Vera Ortiz	estudiante	evyovgv@hotmail.com	
Nicole M. González Soto	estudiante	n-marianyeli19@hotmail.com	787-306-6189
Yvonne Ortiz	mentor	evyovgv@hotmail.com	787-597-8194

Central de Artes Visuales ; Team 2203			
Team	Position	E-Mail	Telephone
Erick Tirado	estudiante	ercktirado13@gmail.com	
Christian Correa	estudiante	chris_correa97@hotmail.com	
Ángel Alverio	estudiante	angelalverio_1@yahoo.com	
Melanie López Ayala	estudiante	wence@pr-robot.com	
Rafael A. Montañez	mentor	rmontanez@codecom.com	787-955-9366

Dorado Academy; Team 2209D			
Team	Position	E-Mail	Telephone
Julieanne M. Viana Pagán	estudiante	janpag66@aol.com	
Sara Ortiz Cordero	estudiante	aras_lo_mio@hotmail.com	
Arturo R. Ng Ortiz	estudiante	yanira581@hotmail.com	
Francisco Sepúlveda Serrano	estudiante		
Norberto Sepúlveda Serrano	estudiante		
Valerie Viana Pagan	estudiante		
Sasha Ortiz Cordero	estudiante		
Anthony S. Ng Ortiz	estudiante	yanira581@hotmail.com	
Yanira Ortiz Menéndez	mentor	yanira581@hotmail.com	
Nancy Escabi	mentor	nescabi@doradoacademy.org	

José Gualberto Padilla; Team 2280			
Team	Position	E-Mail	Telephone
Brenda Santiago	mentor	boribotsroboticsteam@gmail.com	787-548-9926
Brenda Santiago	mentor	simplementebrenda@hotmail.com	787-548-9927
Edwin Mercado	mentor	ed_win33@hotmail.com	
Jamillez Olmo Classen	estudiante	-	
Jared Villanueva Valentín	estudiante	-	
Edwin Mercado Colón	estudiante	-	

2. 9 Teams in High School Division

Cupeyville School; Team 2243 C			
Team	Position	E-Mail	Telephone
Vincent S. Bigio	estudiante	ebigio@prtc.net	
José Zamora	padre	josezamora_204@hotmail.com	
Javier Brunet	estudiante	javierbrunetvallejo@gmail.com	
Rafael Velázquez		amvdominguez@yahoo.com	

Cupeyville School; Team 2243 D			
Team	Position	E-Mail	Telephone
Connor Cassias		cadycopr@aol.com	
Gilberto Vilá		garaprnptv14@yahoo.com	
Svyatoslav Kuchergaryns		slavakucheryauyuh@yahoo.com	
Omar Echevarria		omare_2012@hotmail.com	
Giangabriel M.	estudiante	Giangi_94@hotmail.com	
Kenneth Elkner	mentor	kelkner@gmail.com	787-948-7485
Guido Lombardo	mentor	Guidol-PR@hotmail.com	

Voc. Metro. Miguel Such; Team 2205A			
Team	Position	E-Mail	Telephone
Jesús Rodríguez Guzmán	estudiante	-	787-946-8821
Joseph Fortán Gutiérrez	estudiante	-	787-381-0297
Héctor Arias Meléndez	estudiante	-	787-791-8061
Kevin Santiago Castro	estudiante	kev_27_06@live.com	787-791-8061
Luis Cañuelas	mentor	luiscañuelas@gmail.com	787-564-7184

Voc. Metro. Miguel Such; Team 2205B			
Team	Position	E-Mail	Telephone
Luis Cañuelas	mentor	luiscañuelas@gmail.com	787-564-7184
Yonal Peña De La Cruz	estudiante	-	787-554-1681
Julio Santiago Quirós	estudiante	-	787-276-1169
Luis D. Mestre Rivera	estudiante	-	787-998-1708
Carlos Vázquez Santos	estudiante	real_team21@hotmail.com	787-752-6435

Voc. Antonio Lucchetti; Team 2213 A			
Team	Position	E-Mail	Telephone
Jesús Hernández	mentor	jeh80@hotmail.com	787-635-2534
Ezequiel Rosa	estudiante	ezequiel_719@hotmail.com	
Gabriel Colón	estudiante	22_gaby@live.com	
Tommy Márquez	estudiante	tom.777@hotmail.com	
Jesús Hernández	mentor	jeh80@hotmail.com	787-635-2534

Voc. Antonio Lucchetti; Team 2213 C			
Team	Position	E-Mail	Telephone
Yesenia M. Rivera	estudiante	yrivera_18@yahoo.com	
Luis A. Rivera	padre	l-rivera07@yahoo.com	
Melanie Quiñonez	estudiante	melanie53pr_@hotmail.com	
Valery Aguilar González	estudiante	mini964057@yahoo.com	

Voc. Antonio Lucchetti; Team 2213 D			
Team	Position	E-Mail	Telephone
Kenneth González	estudiante	kennethgonz@hotmail.com	
Harold Coll	estudiante	harold_19_93@hotmail.com	
Nilda Varela	madre	NildaVC@gmail.com	

Padre Anibal Reyes Belén; Team 2265			
Team	Position	E-Mail	Telephone
Mario Cancel			
Cyd Marie Padin Montalvo			
Joel A. Arrocho Rivera	estudiante	joito_16@hotmail.com	
Yazmín Torres Feliciano	estudiante	nimzay.14@hotmail.com	
Janitza Saavedra	maestra	janitzas@hotmail.com	
Roberto Medina	mentor	robmeba@gmail.com	787-444-3187
Yazmin Torres	estudiante	nimzay.14@hotmail.com	

University Garden H.S.; Team 2218 A			
Team	Position	E-Mail	Telephone
Leonardo Martínez	estudiante	leopescao@yahoo.com	
Kevin González	estudiante	kevin_g_000@hotmail.com	
Jean C. Torres	estudiante	tanque.315@hotmail.com	
Fabiola V. Lugo Doval	estudiante	mariita.0426@gmail.com	
Magda Irizarry	madre	magdairizarry@gmail.com	
Oscar Centeno	mentor	osj.cencol@gmail.com	787-525-7072

3. 1 Team in College Division

Polytechnic University; Team PUPR			
Team	Position	E-Mail	Telephone
Javier Morales	Driver		
Samuel Ortiz	Driver		
Geraldo O'neil	Driver		
Jonathan Rodriguez	Driver		
Wence López	Coach		

GET travel

Site: <http://www.gettravel.com/vexroboticschampionship/>



Why Book A "VEX VALUE" Package

✓ \$250 Savings on Each Team Registration*	-- \$16 per person*
✓ Discounted – Pre-reserved Disney & Off Property Hotels	-- \$20 per person
✓ Airport to hotel transportation included to Disney Properties	-- \$20 per person
✓ Exclusive daily transportation to Event included**	-- \$40 per person**
(Transportation provided to venue from Disney All Star Hotels & Disney Caribbean Beach Properties Only)	
✓ Specialty priced Disney Theme park tickets	-- \$15 per person/day
✓ Discounted meals programs (free delivery to event)	-- \$3 per person/day
✓ One stop shop convenience working with local experts	-- priceless
Total Potential savings	<u>\$120 per person</u>

CALL FOR MORE INFORMATION & RESERVATIONS NOW
(888) 877-4445 X 3 (Monday-Friday 8:30am – 5:00pm Pacific Time)

* Based on an average team of 15 participants staying for 3 nights (triple occupancy)
 ** Daily event transportation provided to venue from All Star Hotels & Caribbean Beach Properties only

Destiny Palms Hotel Maingate West	3 Nights	4 Nights	5 Nights	# of People
<p>Destiny Palms Hotel Maingate West</p>  <p>This hotel is a standard, economy, budget friendly, Kissimmee Hotel located approximately four miles the East Entrance of the Walt Disney World® Resort and just minutes from everything Orlando/Kissimmee has to offer. A Continental breakfast is provided and there are the conveniences of a McDonald's Restaurant, Houlihan's Restaurant and a 7-11 convenience store in the same parking lot of hotel.</p>	\$172 pp	\$183 pp	\$195 pp	4 Per Room
	\$183 pp	\$199 pp	\$214 pp	3 Per Room
	\$206 pp	\$229 pp	\$252 pp	2 Per Room
	\$274 pp	\$320 pp	\$365 pp	1 Per Room
<p>The Package Pricing Includes:</p> <ul style="list-style-type: none"> \$250 off your registration fee per team Accommodations: 3,4,5 nights base package with upgrade options (additional night option available) Taxes 				
<p>Each additional night Add: \$44.00 +Tax per room For Specially Priced Walt Disney World® Resort Theme Park Tickets Click Here</p>				

Econo Lodge Orlando International Airport Hotel, 3835 McCoy Rd, Orlando, FL 32812 to Disney's W - Windows Internet Explorer

http://maps.google.com/ Live Search

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2011 VEX Robotics World Ch... Econo Lodge Orlando Int...

Internet Explorer is currently running with add-ons disabled

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Sign in

Google maps ESPN Wide World of Sports, Search Maps Show search options

Get Directions My Maps Print Send Link

Driving directions to Disney's Wide World of Sports

Suggested routes

1. FL-528 W and I-4 W	23 mins
18.4 mi	
2. I-4 W	29 mins
24.6 mi	
3. FL-528 W	29 mins
18.5 mi	

This route has tolls.

Econo Lodge Orlando International Airport Hotel
3835 McCoy Rd, Orlando, FL 32812

1. Head east on McCoy Rd toward Tradeport Dr 0.1 mi
2. Turn left at Tradeport Dr 164 ft
3. Take the ramp onto FL-528 W
Partial toll road 9.4 mi
4. Keep left at the fork, follow signs for I-4 W/ Tampa and merge onto I-4 W 5.8 mi
5. Take exit 65 for Osceola Pkwy W toward Animal Kingdom/Wide World of Sports 1.1 mi
6. Merge onto W Osceola Pkwy 0.9 mi
7. Turn left at Victory Way 0.6 mi
8. Turn right to stay on Victory Way

Done

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Robots Evaluation Form

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