2018 Texas BEST and UIL State Robotics Championship Handbook

November 29-December 1, 2018

Hosted by The University of Texas at Dallas & BEST of Texas Robotics
The University of Texas at Dallas and BEST of Texas Robotics extend their admiration and appreciation to the Texas BEST hubs for their outstanding work in bringing this important program to students throughout the country.

We also thank the teachers, mentors, parents, and sponsors of BEST hubs who have given generously of their time, effort, and finances in support of the many students involved in BEST.

Most of all, we congratulate all Texas BEST and UIL teams for a job well done.

You’re all winners!
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Coach’s To-Do List

We recommend you follow this guide of activities that need to be completed before attending the event.

1. **Register your team at** [www.utdallas.edu/best](http://www.utdallas.edu/best) **web site immediately after your local competition.** Please complete ALL steps for registration on the **For Teams** webpage that can be reached by clicking the tab **For Teams** on the main page. Please be sure to 1) register your team, 2) select time for photos, 3) select time for compliance check, 4) select time for practice rounds, and 5) select time for marketing presentations if you are competing for the BEST Award. Your local hub will assign your team a Regional Team Number at your hub competition. If you do not know your team number, please contact your hub director.

2. **Upload Project Notebook:** see For Teams webpage on [www.utdallas.edu/best](http://www.utdallas.edu/best).

3. **Hub Date Notebook Due Dates**

<table>
<thead>
<tr>
<th>Competition Weekend</th>
<th>Upload Submission Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 13</td>
<td>11:59PM(CT) Saturday, October 27</td>
</tr>
<tr>
<td>October 20</td>
<td>11:59PM(CT) Saturday, November 3</td>
</tr>
<tr>
<td>October 27</td>
<td>11:59PM(CT) Saturday, November 10</td>
</tr>
<tr>
<td>November 3</td>
<td>11:59PM(CT) Saturday, November 17</td>
</tr>
</tbody>
</table>

4. **Make your hotel and travel arrangements** using the hotel Information on the [www.utdallas.edu/best/travel](http://www.utdallas.edu/best/travel) webpage. Please register soon because the hotels have a very short registration window. If you’re booking a bus, check with the company about how long the driver can be on duty without having to take a break. Many states have laws regarding driving-time limitations for bus drivers.

5. **Complete all forms:**

   A. **Determine one adult who will be responsible** for receiving any emergency phone calls coming from home while your team is at the competition. Provide that person’s cell number to parents, school officials, and others. Texas BEST and the University of Texas at Dallas cannot be responsible for such calls. In addition, keep a medical release form signed by a parent or guardian for each of the students on your team, in your possession, in case emergency medical treatment is necessary.

   B. **Every Participant** must provide a signed Texas BEST & UIL State Championship Talent and Liability Release Form, and Medical Release Form at Registration. The forms are found at the bottom of the **For Teams** webpage. **Please note:** Teams will not be able to enter the Pit or compete unless these forms are filled out completely.

6. **Texas BEST Event Conclusion** – We have many teams from far away that need to get on the road as soon as possible after the event. Therefore, we will do everything possible to stick to the posted schedule. However, sometimes unexpected delays may occur, and schedules don’t always work as planned.
## EVENT SCHEDULE

### FRISCO CONVENTION CENTER (FCC)
**Thursday, November 29th**

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>What</th>
<th>Where</th>
</tr>
</thead>
</table>
| 10:00 am | 7:00 pm | BEST Award Team Exhibit Set-up  
*BEST Award teams must check in at arena prior to exhibit set-up* | Frisco 8 & 9               |
| 1:00 pm   | 1:45 pm | Presentation Judges’ Meeting                                       | Presentation room TBD in FCC |
| 1:30 pm   | 5:30 pm | Teams arrive at least 15 minutes before presentation                | Desk outside Frisco 7       |
| 2:00 pm   | 6:00 pm | Marketing Presentations  
*BEST Award teams must check in prior to marketing presentation* | Presentation rooms in FCC   |

### DR PEPPER ARENA
**Thursday, November 29th**

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>What</th>
<th>Where</th>
</tr>
</thead>
</table>
| 7:00 am | 12:00 pm | Load in and game field set up  
Pit tables delivery and set up                                      | Arena main floor             |
| 10:00 am | 6:00 pm | Team Check-In *(teams must do this first!!)*                       | Arena loading dock           |
| 1:00 pm   | 6:00 pm | Compliance check-in  
*Teams must check in prior to compliance*  
Pit area open to teams | Arena main floor             |
| 2:00 pm   | 6:00 pm | Practice driving rounds (optional)                                  | Arena main floor             |
| 6:00 pm   |       | Arena closed to teams                                               |                              |
| 7:00 pm   |       | Arena closed to all                                                 |                              |

### UNIVERSITY OF TEXAS AT DALLAS
**Thursday, November 29th**

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>What</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 PM</td>
<td>3:30 PM</td>
<td>Trends in Innovation</td>
<td>Alumni Center</td>
</tr>
<tr>
<td>TBD</td>
<td>TBD</td>
<td>UTD Tours</td>
<td></td>
</tr>
</tbody>
</table>
## FRISCO CONVENTION CENTER
**Friday, November 30th**

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>What</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>8:45 am</td>
<td>Presentation Judges’ Meeting</td>
<td>Presentation room TBD in FCC</td>
</tr>
<tr>
<td>9:00 am</td>
<td>12:00 pm</td>
<td>Marketing Presentations (continued)</td>
<td>Presentation rooms in FCC</td>
</tr>
<tr>
<td>9:00 am</td>
<td>12:00 pm</td>
<td>BEST Award teams must check in prior to marketing presentation</td>
<td>Presentation rooms in FCC</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>3:00 pm</td>
<td>Exhibit Judging (continues)</td>
<td>Frisco 8 &amp; 9</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>10:00 pm</td>
<td>Teams dismantle and load out exhibits</td>
<td>Frisco 8 &amp; 9</td>
</tr>
</tbody>
</table>

## DR PEPPER ARENA
**Friday, November 30th**

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>What</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 am</td>
<td>6:30 pm</td>
<td>Hospitality Suite open for volunteers and judges</td>
<td>Arena concourse room</td>
</tr>
<tr>
<td>7:30 am</td>
<td>6:00 pm</td>
<td>Registration open for volunteers and judges</td>
<td>Arena lobby entrance</td>
</tr>
<tr>
<td>8:00 am</td>
<td>8:45 am</td>
<td>Exhibit Judges’ Meeting</td>
<td>Judges’ Room</td>
</tr>
<tr>
<td>8:00 am</td>
<td>12:00 pm</td>
<td>Team Check-In (all remaining teams)</td>
<td>Arena front lobby</td>
</tr>
<tr>
<td>9:00 am</td>
<td>3:00 pm</td>
<td>Compliance Check-In (all remaining teams)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>9:00 am</td>
<td>3:45 pm</td>
<td>Pit opens to teams</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>3:45 pm</td>
<td>Driver’s Meeting <strong>Required of ALL who will be in the Pit during the competition</strong></td>
<td>Arena seating; sections 107 and 108</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>3:45 pm</td>
<td>S&amp;S and Special Award Judges’ Meeting</td>
<td>Judges’ Room</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>7:00 pm</td>
<td>Spirit and Sportsmanship Judging Special Award Judging</td>
<td>Everywhere!</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>7:00 pm</td>
<td>Seeding matches (1st 4 rounds)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>7:00 pm</td>
<td>9:00 pm</td>
<td>Pit closes to teams immediately after seeding matches conclude</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>7:30 pm</td>
<td></td>
<td>Texas &amp; NM hubs meeting (core team members -- dinner provided)</td>
<td>Embassy Suites, room TBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arena closes to all</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>Start</td>
<td>End</td>
<td>What</td>
<td>Where</td>
</tr>
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<td>------------------------------</td>
</tr>
<tr>
<td>7:00 am</td>
<td>3:00 pm</td>
<td>Hospitality Suite open for volunteers and judges</td>
<td>Arena concourse room</td>
</tr>
<tr>
<td>7:00 am</td>
<td>4:00 pm</td>
<td>Registration open inside main entrance for volunteers</td>
<td>Arena lobby entrance</td>
</tr>
<tr>
<td>7:30 am</td>
<td></td>
<td>Pit opens for teams</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>8:00 am</td>
<td>8:30 am</td>
<td>S&amp;S and Special Award Judges’ Meeting</td>
<td>Judge’s Room</td>
</tr>
<tr>
<td>8:30 am</td>
<td>9:00 am</td>
<td>2018 Texas BEST and UIL State Championship</td>
<td>Arena main floor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Opening and Welcome</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Parade of Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Color Guard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• National Anthem</td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>12:30 pm</td>
<td>Spirit and Sportsmanship Judging &amp; Special Award Judging continues</td>
<td>Everywhere!</td>
</tr>
<tr>
<td>9:00 am</td>
<td>11:00 pm</td>
<td>Seeding matches continue (2 rounds)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>11:15 am</td>
<td>11:30 am</td>
<td>Wildcard Match (16 teams, 1 match)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>11:30 pm</td>
<td>12:30 pm</td>
<td>Lunch Break</td>
<td>Pit and Arena main floor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Judging will not occur during lunch break</td>
<td>closed during lunch</td>
</tr>
<tr>
<td>12:30 pm</td>
<td>1:00 pm</td>
<td>Mascot Dance Off</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>2:00 pm</td>
<td>Semi-final matches (16 teams, 6 matches)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>2:45 pm</td>
<td>Championship matches (4 teams, 3 matches)</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>4:00 pm</td>
<td>Awards Ceremony and Championship Team Photos</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>4:00 pm</td>
<td>2018 Texas BEST and UIL State Robotics Championship Concludes</td>
<td>Arena main floor</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>5:00 pm</td>
<td>Arena unload; closed to all at 5:00 pm</td>
<td>Arena main floor</td>
</tr>
</tbody>
</table>
General Information & Important Notes

**NOTE:** An item that is preceded by two asterisks (**) is considered an important note for the team’s attention.

**Access to Non-BEST Areas at the venue:** Only access areas marked for the Texas BEST and UIL State Robotics Championship. Please pay close attention to areas marked specifically for event staff, volunteers, and/or other special events at the venue.

**Cheerleaders, Mascots, Music, and Noise-Makers**

Teams are encouraged to bring their cheerleaders, pep squads, mascots, and musicians to rally behind them at the competition. Pep bands and cheers are limited to short musical pieces just before or after their team’s match. Whistles, air horns and other similar **high intensity** noise-makers are prohibited inside the event center. In addition, the BEST and venue staff has the right to ban any noise-makers that are deemed as a hearing hazard to those in attendance.

**Code of Student Conduct**

Review the "Code of Student Conduct" in the *Championship Handbook* with your students. Make sure they understand they are guests of the University of Texas at Dallas and BEST of Texas Robotics. Be advised that policy restrictions will be monitored by event personnel.

**Concessions** - Concessions are located at the Dr Pepper Arena. No outside food or drinks are allowed inside of the Dr Pepper Arena.

**Sale of Merchandise**

The sale of memorabilia items (t-shirts, pins, etc) are limited to UT Dallas, BEST of Texas Robotics, and BEST Robotics Inc, and its approved vendors. No teams or schools are allowed to sell items without prior approval.

**Emergencies and First Aid**

There will be a designated First-Aid station in each location.

For incoming family emergency calls for BEST team members, it is recommended that families be given the cell phone number of a single, official team chaperone whom they can call.
Equipment Tagging

We recommend that teams label or tag ALL equipment—for team exhibits, marketing presentations, and Pit tables. Texas BEST does not assume responsibility for stolen or lost equipment.

Lost and Found

Lost and Found is located at the Registration and Information tables at the Main Entrance of each venue.

**Parking

Parking at the Dr Pepper Arena is provided complimentary by Texas BEST and BEST of Texas Robotics for 2018. Parking at UT-Dallas will be available – details will be provided to teams via email.

Photos – Blanket Release Permission

Texas BEST & UIL assumes blanket permission to photograph BEST team members, teachers, parents, chaperones, mentors, and other guests who are in attendance. These photos are used for promotional purposes in printed materials, videos, and websites affiliated with UT Dallas, BEST of Texas Robotics, and BEST Robotics Inc.

** Meetings

Driver's Meeting (Friday, 3:00pm)

There is a mandatory meeting for ALL team drivers. This will be the last opportunity to teams to discuss the rules or get clarification about the game.

Opening Ceremony (Saturday, 8:30am)

During the opening all teams will be asked to participate in a parade. One or two members of your team should line up at the Pit Area entrance. Each team will then be announced as you enter the arena. All team representatives will stand in front of the playing fields for the National Anthem.

The event starts at 8:30 AM with the National Anthem and Opening Remarks. We want to have a full house for the opening. Please encourage everyone associated with the team to be in the stands for the opening.
**Registration Check-in**

Before a team can begin the event activities, they must check in at the Registration Table at the Dr Pepper Arena. Teams arriving late must still check-in at the Registration Table.

**T-Shirt Award**

Every team is eligible to compete for the best T-shirt Design Award. To be considered for judging, one team t-shirt and a one-page explanation should be submitted at Team Check-In. The one-page explanation should be securely attached to the front of the t-shirt and should clearly state the school name. T-shirts may be picked up at the Information Desk in the Dr Pepper Arena when judging is completed and announcement has been made.

**Team Exhibit Staffing (BEST Award teams only)**

It is the responsibility of each team to make sure the exhibit is staffed on Friday for judging and at other times when the public may be viewing exhibits. Specific time blocks for judging will be announced at the event.

**Team Banners**

Teams may post spirit banners at the top of the stands in the Arena except where restricted. Banner(s) must follow these guidelines:

- Maximum size is 2’ wide x 8’ long
- **Tape is NOT allowed.** We suggest using nylon zip ties or other cords to hang banners from available railings.
- Banners may not have any design or language of a crude nature
- Banners and other team signage are not to be posted outside the arena
- Banners may be removed without warning by event staff

All banners need to be taken down and removed from the arena at the conclusion of the event. Make sure all ties and residue are removed when tearing down the banner.

**Team Photos**

Team Photos times will be selected at the registration portal found on [www.utdallas.edu/BEST/](http://www.utdallas.edu/BEST/). A professional photographer will be taking the photos and Texas BEST will make those photos available to each team via an ordering system set-up by the photographer. The team can then incur their own printing cost for as many copies as they wish.
Team Seating in Stands

Teams may not claim seating sections. Team seating is on a “first-come, first-served” basis. Teams may NOT rope off reserved seating.

**Trash Removal from Stands/Exhibit Areas**

Please be respectful of the event and facility by removing posters/banners, cups, and wrappers by the end of the event.
Pit Protocol & Information

Safety Glasses
Everyone in the Pit is required to wear safety glasses. If you forget to bring safety glasses you may purchase them at the Registration Table. Teams should bring their own safety glasses and wear them at all times while working in the Pit. Not wearing safety glasses in the Pit could result in deductions toward the Spirit and Sportsmanship Award.

Access to Pit (for Load-In/Out and During the Competition)
Friday Load-in/out – The Pit opens at 9:00 AM. The game floor opens when Pit Boss allows. Teams are NOT allowed on the Game Floor until access has been granted. Access to the Pit for loading in/out machines and equipment can only be gained by using the rear loading dock. Texas BEST personnel will be posted there to help guide teams to the Pit. The Pit will close at 7:00pm or when seeding matches conclude for the day.

Saturday Load-in/out – The Pit opens at 7:30am. Access to the Pit for load-in/out is the same as on Friday.

During the Competition – Access is limited. TBR will be identified at the Pit Meeting on Friday. Volunteers will be stationed at the bottom of the stairways that leads to the Pit and will be checking for passes. No pass, no access.

Access to Power
There will be a designated area in the pit for charging batteries. Each team must provide their own extension cord. Batteries should be labeled with your team name and team number.

Cell Phones
Cell phones may be used in the Pit as a means of communicating with team members who cannot access the Pit due to the limited number of passes per team.

Compliance Check-In
Compliance Check-In takes place in the front of the Pit from 1:00pm-6:00pm on Thursday and 9:00am-3:00pm on Friday. Violations must be remedied immediately or the machine will not be allowed to compete. Teams will select a Compliance Check-In Time Assignment via the Texas BEST web site www.utdallas.edu/BEST/.

Compliance
1. All machines will be inspected for compliance with the regulations before the competition. Machines must meet these regulations to qualify for the competition. The winning machines may be inspected again following the competition. Failure to comply with the regulations will result in disqualification.
2. No substitute machines are allowed. Machines may be modified between rounds but must still meet all the regulations after the modifications are made. The compliance official must approve all modifications prior to the next round of competition.

3. Random re-checks of machines will be performed throughout the day at the discretion of the referees. Any machine found to be non-compliant will not be allowed to continue the competition until brought into compliance and may be disqualified from prior matches.

4. The machines may not leave the competition site between the time they are checked for compliance and the start of the competition without approval from the competition officials.

5. Teams that place high enough to advance to a regional/national competition are allowed to make repairs and/or functional improvements to their machine. Machines will be rechecked for compliance prior to the regional/national competition.

6. A machine may have multiple configurations, like different arms that can be swapped-out. Each configuration must meet size and weight requirements independently and be approved through a compliance check. The sum total of all parts and materials from all of the configurations cannot exceed the quantities defined by the Returnable and Consumable Kit Lists.

**Equipment & Materials Tagging**
Teams should label and/or tag their battery chargers, batteries, and any other equipment and/or materials that will be used at either the repair station or battery charging station. Likewise, tools used at the team’s table should be tagged or marked.

**Game Boss – Teams’ Contact for Problems or Concerns**
The Game Boss, who will be roaming through the Pit during the competition, is THE ONLY designated contact for a team’s issues with equipment, personnel, or other teams. Other Texas BEST personnel will not handle such matters. The Game Boss will be introduced at the Pit Meetings before the game starts.

**Overnight Machine & Equipment Storage**
Machines and equipment will be stored in the Arena and Convention Center overnight.

**Photo of Robot**
We will be taking photos of all robots during Compliance Check-In. The photos are used in judging. A Texas BEST staff member will be on hand to coordinate this in the Pit.
Pit Passes
Due to the limited size of the Pit, our goal is to cut down on the large number of “peripheral people” in the area. Therefore, each team will receive five (5) Pit Passes. Access to the Pit will be closely checked and only those individuals with Pit Passes will be allowed access. It is up to each team to determine who needs to be in the Pit and how passes will be swapped.

Repair Station
A Debugging Station will be located in the Pit area for spare parts and help with robot compliance.

“Team Rep”
Each team should designate a single team member (adult or student) who wishes to voice a complaint or concern to the Game Boss on behalf of the team. This is done so that one person per team addresses the concern and not the entire team, which is both unproductive and chaotic.

Team Member vs. “Adult” Machine Work
Each team must self-regulate members’ behavior in the Pit. The “Pit Police” will be looking to see if adults are working on the machines. If identified, the adults will be asked to either leave the Pit or substitute for a student. The emphasis is on student-led repairs.

Team Numbers
Each team’s machine is required to have its team number on its machine in an easily visible location. The number must be a minimum 2” in size; otherwise the judges have a difficult time distinguishing machines.

Driving
Driving Practice on Thursday at the Arena
Driving practice matches are simulated game matches: three minutes each; four teams per match; and one driver and spotter per team.

Driving practice runs from 1:00pm-6:00pm; it is optional for teams.
  • Only drivers, spotters and a (1) team coach may be in the field area during the practice session.
  • Each team is allotted 30 minutes to practice. Two fields are available, so eight teams at a time may practice.
  • Sign-up for the 30-minute time slots takes place on the Texas BEST Website, http://www.utdallas.edu/best
Drivers List
Each team must turn in a driver’s list when they register. The drivers will be checked throughout the competition – including the semi-final/final rounds – to ensure that the driving is spread out among all drivers. Drivers will drive in the order provided on the list. The Drivers List form is on page 29 of this handbook. Please fill-out the form and turn-in to the registration table at the time you register.

Driver Rotation
Drivers must rotate equally throughout the competition; teams are responsible for rotating the order provided on their driver’s list.

Safety Glasses
Drivers and spotters are required to wear safety glasses during practice and game matches.

Vests
At Check-In, each team will receive two vests to be worn by the team driver and spotter during competition matches. These vests should be returned to the Head Referee at the end of the match.

Mentors in the Pit
• Teams are limited to one (1) mentor in the Pit at a time during the competition. Mentors may rotate in/out during the day, but they must have a Pit Pass.
• The Pit Police and judges monitor how much work is being done on the robots by mentors. Mentors are certainly allowed to oversee repairs, etc., just not take over the repairs. Students should be doing the work, period.
• The Pit Police will issue a warning if a mentor is consistently found working on the robot more than the students are working on the robot. A second warning will be issued if this appears to be a pattern. If it persists, the Pit Boss will be notified and the mentor will be asked to leave the Pit and no other adult may take his/her place.
Awards and Judging Policies

I. Awards

Presentation of the BEST Award trophies, Game Award trophies and award plaques will be made during the awards ceremony on Saturday.

AWARDS DESCRIPTIONS AND CRITERIA

A. Only teams competing for the BEST Award are eligible for these awards

The Texas BEST Award

This award is given to the team that best embodies the concept of *Boosting Engineering, Science and Technology (BEST)*. Winning the BEST Award is considered the highest achievement any team in the competition can accomplish. First, second, and third place trophies will be awarded. The BEST Award recognizes that inclusiveness, diversity of participation, exposure to and use of the engineering process, sportsmanship, teamwork, creativity, positive attitude and enthusiasm, and school and community involvement play significant roles in a team’s competitive experience. Moreover, these qualities contribute to a students’ success in the competition beyond winning top place.

BEST Award Category Awards

Plaques will be awarded to the highest score in the following BEST Award categories:

- Project Engineering Notebook
- Marketing Presentation Award
- Exhibit Design and Construction Award
- Spirit and Sportsmanship

B. All teams are eligible to receive the following awards:

Game Division Award

Trophies will be awarded to the teams whose machines finish first, second, and third in the tournament bracket. In addition, fourth place “finalist” plaques will also be awarded.

Founders Award for Creative Design

This award is given to the team that makes best use of the engineering process in consideration of offensive and defensive capabilities in machine design; awarded in
recognition of BEST founders Steve Marum and Ted Mahler. First, second, and third
place plaques will be awarded.

**Texas Instruments Most Robust Award**
This award is given to the team whose machine requires the least maintenance during
and between matches and is generally the sturdiest machine in the competition. First,
second, and third place plaques will be awarded.

**Lockheed Martin Most Elegant Award**
This award is given to the team whose machine demonstrates the best design and
execution of the game - the machine that makes you say “Wow!” First, second, and
third place plaques will be awarded.

**State Farm Workmanship Award**
Engineering requires a consideration of both form and function. Function refers to how
well a robot completes the tasks in the game. A robot that shows good form is visually
pleasing as well. This award recognizes excellence in the fit and trim of external
components and aesthetic embellishments. First, second, and third place plaques will
be awarded.

**Lockheed Martin T-Shirt Award**
This award is given to the team with the most original game specific team t-shirt
design. First, second, and third place plaques will be awarded. (T-shirt should be
submitted with Team Notebook.)

**Web Design Award**
This award is given to the team with the best team web site; based on page
functionality, creative use of the game theme, information about team members and
community efforts. First, second, and third place plaques will be awarded. Web
address should be included on the *Team Information* form when uploading notebook.

**iGus TOP GUN Award**
This award goes to the team that scores the most points in a single round of
competition.

**Mathworks Simulink Design Award**
The award will be presented to one team in each of the 4 BEST regions (Northern
Plains, Frontier Trails, South, and Texas) that best applies the *Simulink Support
Package for VEX* based on the judging criteria and robot performance in the
competition.
C. Only teams that advanced as a UIL team will be eligible for the UIL awards.

UIL will award a State Champion and a Runner-Up in each of two groups:

- Group 1 (schools in conferences 1A – 4A)
- Group 2 (schools in conferences 5A – 6A)

II. Project Engineering Notebook

- ALL participating teams are required to submit a Project Engineering Notebook at both the local competition and the Regional competition following the guidelines in Category I of the BEST Award Guidelines below. All notebooks will be graded on a 30-point scale, as defined in the BEST Award Guidelines.
- During the Regional competition, the notebook scores of all teams will be used to determine which 8 teams earn a chance for two “wildcard” slots. The wildcard teams will be one of 16 teams that advance to the semi-final rounds. Check the Game Rules for further details.

III. BEST Award Guidelines

The BEST Award is presented to the team that best embodies the concept of Boosting Engineering, Science, and Technology (BEST). This concept recognizes that inclusiveness, diversity of participation, exposure to and use of the engineering process, sportsmanship, teamwork, creativity, positive attitude and enthusiasm, and school and community involvement play significant roles in a team’s competitive experience and contribute to student success in the competition beyond winning an award.

In accordance with the BEST philosophy, materials submitted by teams must be the work of students. The involvement of student peers in auxiliary roles to support a school’s official BEST team with the documentation – i.e., journalists, photographers, artists, musicians – is encouraged.

Only select advancing teams are eligible to compete for the BEST Award. If your team was selected by your hub, please indicate your intent to compete in the BEST Award during the registration process. All teams competing for the BEST Award must agree to compete in all five of the BEST Award categories at the regional competition.
III.A. Judging Evaluation and Criteria
Evaluation of competitors will be based on the criteria outlined in these guidelines. An evaluation score of a total possible 100 points will be composed of the following:

- Category I - Project Engineering Notebook (mandatory for ALL teams, including teams NOT competing in the BEST Award)
- Category II - Marketing Presentation
- Category III – Team Exhibit and Interviews
- Category IV - Spirit and Sportsmanship
- Category V - Robot Performance

<table>
<thead>
<tr>
<th>Judging Category</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Engineering Notebook</td>
<td>30 points</td>
</tr>
<tr>
<td>Marketing Presentation</td>
<td>25 points</td>
</tr>
<tr>
<td>Team Exhibit and Interviews</td>
<td>20 points</td>
</tr>
<tr>
<td>Spirit and Sportsmanship</td>
<td>10 points</td>
</tr>
<tr>
<td>Robot Performance</td>
<td>15 points</td>
</tr>
</tbody>
</table>

Total 100 points

III.B. Judging Procedure
- A distinguished team of judges from private and public sectors with technical and non-technical expertise will evaluate teams. Judges will serve on a rotation schedule.

- As each team completes a category, it will be assigned a category score that is the average of individual scores of the judges reviewing it.

- Teams should know in advance that scores among many teams frequently differ by only fractions of a point.

- Throughout the judging process, the judges may take into consideration the resources available to teams to conduct their BEST programs (financial or technology resources, for example).
Category I: Project Engineering Notebook (30 Points)

Notebook Guidelines

- The purpose of the notebook is to document the process the team used to design, build, and test their robot.

- ALL teams (both BEST Award and non-BEST Award competing teams) are required to submit a Project Engineering Notebook. See “For Teams” page of the Texas BEST website www.utdallas.edu/best on how to upload your Notebook. The notebook must meet the following specifications:

  □ 32 single-sided pages or less (note that title page and Table of Contents page will not be counted as part of the 32 pages)

  □ Research Paper: Within the 32 pages, include a description of how the current year’s game theme is related to current technological practices or scientific research (minimum of 2 pages, maximum of 5 pages out of the 32 allotted)

  □ Cover page must identify the school, team name, teacher contact, and team number

  □ Provide description of the process the team used to design and complete its robot

  □ Standard, 8 ½” x 11” page size, double-spaced, 1” margins, and Times New Roman (preferred) or similar business-style font no smaller than 12 pt. Single-spacing is acceptable in tables and outlines.

  □ Notebooks must be submitted electronically in Adobe PDF or Microsoft Word format.

  □ In supplemental appendices of up to 40 pages in length (equivalent to 20 double-sided sheets (front and back) will be accepted), teams may provide additional material as support documentation, such as drawings, photos, organization charts, minutes of team meetings, test results, etc. This material should directly support the process described in the primary document and NOT reflect activities related to community or promotional efforts, spirit development, or team-building.
Notebook Evaluation
The notebook will be judged on the documentation of the team's:

- **Implementation of the Engineering Design Process**
  - Evidence that the engineering process was effectively used.

- **Research Paper**
  - Correlation between game and how the technology is being used at a company/industry/research lab in the team’s state or region; Any related information of game theme, such as history, famous inventor(s), or major milestones; Creativity in linking game theme to appropriately related science/technology content; Proper use of grammar and composition throughout paper; citations of sources used to gather information for paper; staying within 2-5 page limit.

- **Brainstorming Approaches**
  - How well organized and productive was the brainstorming approach used and documented?

- **Analytical Evaluation of Design Alternatives**
  - Use of analytical and mathematical skills in deciding upon and implementing design alternatives.

- **Offensive and Defensive Evaluation**
  - Analysis of gaming strategies and design elements to achieve goals.

- **Safety**
  - Evidence that safety training occurred and safe practices were followed to prevent students’ misuse of tools and other devices/equipment that may result in personal injury or damage to property.

- **Software Design & Simulation**
  - Evidence of custom software design versus using the default robot program.
  - Evidence that a software design process was followed.
  - Demonstration of design of functionality applicable to the defined task.
  - Evidence of use of software simulation (e.g., Simulink, virtual worlds, etc.) to verify the correct operation of the robot program.
  - Evidence that good software design practices, testing/debugging techniques and efficiency and portability were all considered.
• **Support Documentation**
  - CAD / other drawings, photos, organization, team minutes, test results, etc. that support the main document.

• **Overall Quality and Completeness of Notebook**
  - Organization, appearance, adherence to specifications, quality of content

**Category II: Marketing Presentation (25 Points)**

For the marketing presentation, the team should view themselves as employees of a “company” that is marketing their “product” (robot) to a potential buyer (judges). This marketing team is an integral part of the engineering team that has designed a specialized robot. The marketing presentation should provide information about their company, the engineering team involved in the design and construction of the product, and why their product is the best one on the market that can complete the assigned task. The potential buyer will be assessing the following:

- The company’s design and manufacturing process (engineering process of “design to market”, including a discussion on the advantages of your company’s robot design)
- Discuss the technological resources your company used to design and construct the robot
- Marketing strategies to promote product (e.g., school and community involvement, promotional efforts, etc.)
- The company’s demographics and operations (e.g., diversity of team members involved, team building experiences, displays of sportsmanship, etc.)

Each team will select the time slot for their team’s Marketing Presentation via the team registration portal found on [www.utdallas.edu/best](http://www.utdallas.edu/best). Each BEST Award team will sign up for a presentation time slot on the Texas BEST Registration site.

**Marketing Presentation Guidelines**

- A minimum of 4 and maximum of 8 students should actively participate in the presentation.
- At the discretion of the Regional and Head Judge, an audience may be allowed to quietly observe the presentations. The size of the allowed audience is space-dependent and up to the Head Judge to determine.
o If a Regional does choose to allow an audience during the presentations, each presentation room will have an official Room Monitor to ensure that the presentation team is not being disturbed or coached by audience members.
o Audience members are not allowed to ask questions during the Q & A period.

- Adults are not allowed to participate, including setting up or taking down equipment for the presentation.
- Representation by student presenters from more than one grade level is encouraged and will be considered in the evaluation as part of the team’s recruitment efforts.
- The presentation format is the prerogative of the team.
- The team must provide any equipment it wishes to use, or check with the Regional for information about what equipment can be provided.

**Marketing Presentation Time Breakdown**
There will be a check-in station near the presentation rooms in the Conference Center. **Teams should check in 15 min. prior to their time slot.**

The order and breakdown for the 25-minute presentation time period is as follows:
- 5 minutes: Set-up
- 12 minutes: Presentation
- 5 minutes: Q&A with judges
- 3 minutes: Break-down and clear room

Note: Teams not requiring set-up or break-down time may utilize that time for their presentation (for a total presentation time of up to 20 minutes).

At least five minutes will be scheduled between presentation sessions to allow judges time to confer without the team present.

**Marketing Presentation Evaluation**
Presentations will be evaluated with consideration of:
- **Company Information**
  - Well-defined roles as company employees/owners/managers; organization of company departments for product development

- **Design and Manufacturing Process (Engineering Design Process)**
  - Brainstorming approaches; analytical evaluation of design alternatives; offensive and defensive strategy evaluation; effective implementation of the process
- **Use of Available Technology**
  - CAD or other drawings; Web page development and computer simulations

- **Marketing Strategies**
  - Publicity efforts to inform school and community of their product (e.g. school newsletters, presentations to community and/or school groups, fliers/brochures, posters, press releases, commercials, etc)

- **Team Demographics and Operations**
  - Company team-building (team-building activities, representation and percentage of team involved in robot development, methods of team decision-making, etc.); Company team demographics (evidence of team diversity – male, female, variety of grades represented, minority involvement)

- **Quality of Presentation**
  - Well organized and prepared; met required specifications; communication skills and professionalism; achieved goal of marketing team’s robot; creativity of format; quality of question and answer session with judges

**Category III: Team Exhibit and Judges Interview (20 Points)**

- The purpose of the exhibit and interviews category is to creatively:
  a. Communicate an understanding of the game theme
  b. Demonstrate how the team has promoted BEST in the school and community

**Exhibit and Interview Guidelines**

- Team Exhibits will be located at the Frisco Conference Center. Texas BEST officials will assign team locations for exhibits. Teams will be informed of their assigned location upon check-in.
- Team Exhibits set-up starts at 10:00 AM on Thursday and ends at 7:00 PM. Exhibits should be completely set up by 6:30pm.
- Each team can request a standard 6-foot long table (approximately 29 inches wide). Use of the table is optional.
- Skirting for the table will not be provided.
- Each team should bring one extension cord and one power strip IF the exhibit requires electricity.
- Other exhibit items may be used but must not exceed an 8’ X 8’X 8’ space allocation.
• Teams are encouraged to avoid using expensive store-bought exhibit boards and structures and opt for more creative and hand-made exhibit props.
• Any audio-visual equipment needs and extra extension cords will be the responsibility of the team.
• Although reasonable effort will be made by Texas BEST staff to monitor the Arena area, each team is responsible for security of its own material.
• Each team is also responsible for breakdown of its team materials and cleanup of its exhibit area. Teams must dismantle their exhibits by 8:00 PM on Friday.
• All material should be clearly marked with the appropriate identification and contact information.
• Candy and other food items are not permitted at team exhibits as complimentary handouts.
• Teams must have their exhibits open and staffed with at least one student from 8:30am to 3:00pm (with exception of the lunch break) through the entire event. During the designated interview time (time will be announced at the event), at least one student representative from the team must be present who is able to respond to informal questions asked about the exhibit. In addition, student representatives should be aware that judges may ask questions concerning robot design and construction. These questions will be part of the interview evaluation of the team.
• Teams should expect to be visited by three different judges during this period.
• Judges may also interview team members in the pit area and in the seating area throughout the event.

Exhibit and Interview Evaluation
• **Exhibits** (13 points) will be evaluated on:
  • Sharing information and/or technology resources, and mentoring other schools, including other BEST teams
  • Presentations and robot demonstrations to other schools and community groups
  • Publicity (print materials, media/press) generated within the school and within the community about BEST
  • Fund raising and/or sponsorship efforts (strategies used to recruit sponsors, team fund raisers, description of how funds were allocated to support team, team budget information available for review)
  • Use of technology, display models or boards, or multi-media at exhibit in promotion of BEST
  • Creativity in incorporating game theme into design and presentation of this exhibit
  • Compliance with specifications (did not exceed space allocation)

• **Interviews** (7 points) will be evaluated on:
  • Evidence of students' enthusiasm, learning experience, and understanding of the game theme
• Evidence that recruitment efforts for the team included multiple grade levels and students from a cross-section of the school population
• Evidence that students were the primary designers and builders of the robot

**Category IV: Spirit and Sportsmanship (10 Points)**

**Spirit and Sportsmanship Guidelines**
- Judges will evaluate this category on Friday afternoon and Saturday morning at the Dr Pepper Arena.
- They will observe the spirit promoted by the team during the competition rounds as well as the team’s conduct throughout the day in the seating area, team exhibit area, game floor, and pit area

**Spirit and Sportsmanship Evaluation**
- Spirit includes the vigor and enthusiasm displayed by team representatives
- Teams can use posters, props, t-shirts, cheerleaders, musicians, mascots, and costumes to increase the level of spirit
- Community involvement: number of team supporters present at competition (other than students)
- Sportsmanship includes outward displays of sportsmanship (e.g., helping other teams in need), grace in winning and losing, and conduct and attitude considered befitting participation in sports
- Overall team sportsmanship is also demonstrated by students (not mentors) making the majority of robot adjustments and repairs during the competition

**Spirit Stick:**
To facilitate judging, each candidate team is asked to bring a “spirit stick” for identification in the seating area. Specifications include:
- School name and/or team number prominently displayed and visible by judges from a distance.
- Maximum of 5 spirit sticks per team
- Pole constructed of PVC pipe or similar material (should not be pointed or sharp on either end).
- Maximum height of 8 feet.
- Spirit sticks are meant solely as a means of team identification by the judges during the competition. Excessive, non-functional, decoration will not be considered in the judging evaluation. Please do not attach spirit sticks to the seating or other structures in the CCC.

**Category V: Robot Performance (15 Points)**
- The fifth category, *Robot Performance*, will determine the final 15% of possible BEST Award points. These 15 points will be based on the total game points earned throughout the seeding competition (prior to the semi-final rounds) according to the following scale:
• Team finishes in top 20% of all teams competing 15 Points
• Team finishes in top 40% of all teams competing 12 Points
• Team finishes in top 60% of all teams competing 9 Points
• Team finishes in top 80% of all teams competing 6 Points
• Team finishes in top 100% of all teams competing 3 Points
• Team is unable to score any points during the competition 0 Points

• Up to 15 Robot Performance points will be added to the total BEST Award points

IV. Additional Information about competing at Texas BEST
Inquiries about the Texas BEST Award guidelines must be submitted to the BEST Inc. website Q&A board (at www.bestinc.org) for posting and response to all teams. Please do not contact UT Dallas Texas BEST (e-mail or phone) with questions about judging guidelines.
Code of Student Conduct

Texas BEST and UIL expects teams and supporters accompanying them to conduct themselves in an appropriate manner while participating in the Championship. This includes all activities associated with their participation in the event.

- Appropriate conduct of teams and supporters is the sole responsibility of school officials and other adult chaperones that have legal responsibility as supervisors.

- Students should be under the supervision of school officials or chaperones during all excursions and competition activities, and in hotels and restaurants.

- Students who violate the conduct code at any point during Texas BEST are subject to suspension from remaining competition activities.

- **Texas BEST reserves the right to refuse participation in future competitions, to any team whose behavior has been disruptive.**

Inappropriate conduct includes, but is not limited to, the following:

- Property damage, vandalism, or theft.

- Appropriation of University of Texas at Dallas or Texas BEST memorabilia.

- Use of alcohol or illegal drugs.

- Use of water pistols, water balloons, or other creative missiles.

- Fighting or loud/foul language or other disruptive/rude behavior.

- Disruptive and excessive noise during activities other than the actual competition.

- Distractive apparel that displays design or language of a crude nature.

**Financial liability for all damages or losses incurred by actions of team members and supporters shall be the sole responsibility of the team/school.**
Team Name: ______________________________ Team Number: ______
Total Drivers: __________

<table>
<thead>
<tr>
<th>Student team members present at competition</th>
<th>Minimum number of students on driver roster</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 to 4</td>
<td>2</td>
</tr>
<tr>
<td>5 or 6</td>
<td>3</td>
</tr>
<tr>
<td>7 or 8</td>
<td>4</td>
</tr>
<tr>
<td>9 or more</td>
<td>5</td>
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</tbody>
</table>

Drivers (in order):
1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________
6. ______________________________
7. ______________________________
8. ______________________________
2017 Texas BEST and UIL State Robotics Championship
CONTACT INFORMATION

The University of Texas at Dallas
972-883-4584
best@utdallas.edu
http://www.utdallas.edu/best

BEST of Texas Robotics
btr-events@bestinc.org
http://www.bestoftexasrobotics.org/

BEST Robotics Inc
bestED@bestinc.org
http://bestinc.org/

Venue Information:

University of Texas at Dallas
http://utdallas.edu/

Dr Pepper Arena
http://www.drpepperarena.com/

City of Frisco, Texas
https://www.visitfrisco.com/