2019 - 2020 Team Handbook

www.robotcasserole.org

Sponsored by:

Caterpillar

Inc.

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ROBOT CASSEROLE SPONSORSHIP

Robot Casserole is a Caterpillar Inc. *FIRST* Robotics team open to all Peoria area high schools and is physically located at Caterpillar Inc., Pioneer Park, Building C, 8201 N. University. Peoria, IL.

Active members of the 2019 Robot Casserole Robotics Team 1736 include:

- Caterpillar employees
- Amren employees
- City of Peoria
- ICC Students
- Richwoods High School Students
- Illinois Valley Central High School Students
- Peoria Area Home Schools Students

Caterpillar Inc. Provides

- Provides work space for the team to conduct *FIRST* related activities
- Engineer/Professional mentoring
- Program Leadership
- Materials and supplies
- Financial support

ROBOT CASSEROLE'S MISSION

As FIRST Team 1736 Robot Casserole, our mission is to inspire and foster students' natural curiosities and ingenuity on a technical challenge within real-life constraints that promotes the development of leadership, teamwork, problem-solving, technical, creative, software, and communication skills. We wish to be a prominent and visible force within our community that encourages Gracious Professionalism, cooperation, volunteerism, and hands-on STEM-based learning.

ROBOT CASSEROLE'S TEAM GOALS

• Inspire students to explore, experience, and appreciate technology, math, science, and engineering through hands-on participation in team activities
• Prepare students for leadership roles through shared decision making on the team
• Promote the ideals of FIRST in all that we do
• Increase community awareness of engineering education opportunities

- Promote teamwork skills
- Promote cooperation and volunteering
- Introduce students to positive role models
- Compete annually for the Chairman's Award (the highest award within FIRST)

FIRST OVERVIEW

WHAT IS FIRST? FIRST (For Inspiration and Recognition of Science and Technology) is a non- profit organization that was founded to inspire and excite young people about science and technology by bringing together professional mentors with high school students from around the U.S. and several foreign countries.

THE ORGANIZATION: FIRST was founded in 1989 by inventor and visionary Dean Kamen. In the first year 28 teams participated in the competition which was held in a high school gymnasium in New Hampshire. In 2018, there were 3,650 teams from 48 states and 26 countries (with over 3,000+ corporate and institutional sponsors) which competed in 56 regional events and the Championship events in Houston & Detroit. FIRST also sponsors Junior FIRST LEGO League, FIRST LEGO League and FIRST Tech Challenge competitions along with a series of education- related projects and programs. FIRST is a 501 (c) (3) organization headquartered in Manchester, New Hampshire.

THE VISION: Dean Kamen, founder of FIRST, imagines a day when the act of invention – that is, the work of scientists, engineers and technologists – is as revered in the popular culture as music, athletics and entertainment are today. The FIRST vision is to inspire in young people, their schools and communities, an appreciation of science and technology and an understanding that mastering these can enrich the lives of all.

HOW IT WORKS: Through a large, successful and growing community of educators, parents, community leaders, engineers, volunteers, and sponsors, FIRST builds alliances to support its vision. A part of that vision is to inspire and prepare the future talent pool, workforce, and leaders to become capable, technically-literate citizens of tomorrow. FIRST designs accessible, innovative programs that build self-confidence, knowledge and life skills while motivating young people to pursue opportunities in science, technology and engineering.

FIRST CORE VALUES:

- **Discovery:** We explore new skills and ideas.
- **Innovation:** We use creativity and persistence to solve problems.
- **Impact:** We apply what we learn to improve our world.
- **Inclusion:** We respect each other and embrace our differences.
- **Teamwork:** We are stronger when we work together.
- **Fun:** We enjoy and celebrate what we do!

FIRST ROBOTICS COMPETITION

THE GOAL: The FIRST Robotics Competition challenges teams of students and their mentors to design and build a robot in a six-week timeframe, using a standard "kit of parts". The team has to analyze the game and strategize what type of robot would perform well. Typical teams meet months in advance of the building period to learn basic skills and be better prepared. The goal isn't simply to build a robot; the robot is a vehicle for learning much more. The real goal is building a collaborative team, a supportive community and a solid strategy for problem solving during the competition.

TEAMS: The average team competing is comprised of about 25 students and 6-12 adult mentors; however, entire schools, school districts and communities are involved with **FIRST.** Typically a corporate sponsor assists in funding the team. In the case of Robot Casserole, that corporate sponsor is Caterpillar Inc. Product Development & Global Technology Division.

WINNING: FIRST redefines winning. Winning comes through excellence in design, demonstrated team spirit, gracious professionalism, and the ability/maturity to overcome obstacles. Winning comes through the building of partnerships with other students and professionals, and between schools, businesses, and communities.

FIRST 2020 The 2020 FIRST Robotics Competition season begins with the release of the kits and game rules on Saturday, January 4th 2020, and will involve over 6500+ teams from every state across the U.S., as well as 30+ other countries. The teams and competition bring together students of different levels of achievement, different racial and social backgrounds, boys and girls, from inner cities across America as well as from rural communities. Joining the high schools and colleges/universities participating on teams will be over 3,000 sponsors representing some of the most well-known and highly regarded companies in the world.

THE EVENTS: There are 65 regional and district competitions scheduled to take place in February through March, across the U.S., Canada, and Israel. In addition, two Championship Event will be held in Detroit, MI and Houston, TX in April 20. The Championship event draws participants from across the country and around the world and includes the competition itself, a FIRST Hall of Fame that spotlights model teams, and a conference that provides educational seminars for both students and mentors. Teams, fans and spectators will number well over 30,000 for this single 3-day event.

FIRST: POSITIVE IMPACT AND MEASURABLE DIFFERENCE

FEEDBACK: Studies undertaken by several universities as well as thousands of stories support the positive impact of *FIRST*. The results of hard work and serious play include lives changed

forever and minds opened to new knowledge and opportunities through participation in *FIRST* programs. The evaluation work is producing important data about the impact of the *FIRST* program on high school students, including:

- ***ATTITUDE***: Improvement in student attitudes about science, math, teamwork and the working world.
- ***SELF-IMAGE***: Improvement in students' self-image, particularly among underrepresented groups.
- ***TEAMWORK***: Highly positive attitudes about teamwork, including increased respect and support students accord one another.
- ***SELF-CONFIDENCE***: Student self-confidence improves after their *FIRST* experience.
- ***CAREER PLANNING***: Student attitudes about the working world are significantly more positive.
- ***PROFESSIONAL*** Two-thirds of student participants indicate interest in working
- ***RELATIONSHIPS***: for one of their team sponsors and one fifth actually had plans to work for one of their team sponsors in a summer internship or a part-time job.

HIGHER EDUCATION: In 2019, over $80 million in college scholarships were available to students participating in FIRST. In many cases, whether or not scholarship is the key, FIRST provides students with the inspiration and confidence they need to consider college and to pursue educational and professional opportunity. Several of our graduated students have taken advantage of the FIRST scholarships and are currently enrolled in engineering/science/technology curriculums in college.

ROBOT CASSEROLE 2019 SEASON

Team competed in the 2018 game "Destination: Deep Space" at the Central Illinois Regional in Peoria, IL and Midwest Regional in Chicago, IL. We were; quarterfinalists at the Midwest Regional, we won the Imagery award, and the Woodie Flowers Award. At the Central Illinois Regional we won the Spirit Award and finished with a rank of 19th.

History of Team Awards:

2006 – Chicago Regional: Xerox Creativity Award

2007 – Wisconsin Regional: GM Industrial Design Award, Semi-Finalist

2008 – Wisconsin Regional: Judges Award

2009 – Wisconsin Regional: Chrysler Team Spirit Award

2010 – Wisconsin Regional: Chrysler Team Spirit Award

2011 – Wisconsin Regional: Chrysler Team Spirit Award

2012 – Wisconsin Regional: Imagery Award
2013 – Boilermaker Regional: Chrysler Team Spirit Award & Industrial Safety Award
2014 – Central Illinois Regional: Chrysler Team Spirit Award
Wisconsin Regional: Chrysler Team Spirit Award
2015 – Midwest Regional: Chrysler Team Spirit Award
2016 – Central Illinois Regional: Finalist & Imagery Award
Midwest Regional: Winner
World Championship: Imagery Award (Hopper Division)
2017 – Midwest Regional: Imagery Award
2018 – Central Illinois Regional: Imagery Award
Seven Rivers Regional: Winner & Imagery Award
Detroit World Championship: Quarterfinalists (Carson Division)
2019 - Midwest Regional: Imagery award & Woodie flowers Award
Central Illinois Regional: Spirit Award

FALL, 2019 ACTIVITIES

Preseason: 10/1/19 thru 12/19/19

- Meeting at Caterpillar Inc, Pioneer Park, Building C, 8201 N. University, Peoria, IL
- Tuesday & Thursday 6 to 8 PM NO meeting on Thanksgiving or Halloween
- Additional days and times as needed

Practical Skills Development

During preseason we will focus on training and learning skills through hands-on activities so you are prepared for the competition season. Following are some of the areas of focus:

- Safety
- Mechanical engineering & Fabrication
- Computer Aided 3D Design/Modeling
- Programming
- Pneumatic & Electric wiring/circuits Design
- Media Photography and Video
- programming & Web design
- Team building & Leadership
- Preparing presentations and building a team image

We will also engage in some community outreach events and robot demonstrations to spread the word of *FIRST*. Students will be required to participate in these events.

WINTER/SPRING 2020 SCHEDULE

Spring semester is the busiest time for Robot Casserole Robotics Team. With the build season kicking off in early January and competition events taking place throughout the following months, it is important that the momentum continues.

During the build season: 1/4/20 thru 2/22/20
Kick off (1/4/20) – Caterpillar Warehouse 8:30 AM to 3:30 PM, Watch the worldwide game reveal broadcast & review the manual and break down the game strategy.

Build weeks 1 – 6:
Meeting at the warehouse Monday thru Thursday 6-9pm, Saturdays 8am -4pm.
Additional 8am-4pm days include MLK Jr. Day (1/20/20) and Presidents day (2/17/20).
Full Team meetings will not take place in the case of inclement weather.

- Build Week 1: Game strategy, robot design concept & prototyping
- Build Week 2: Concept selection and detail design creation
- Build Week 3: Fabrication of components & sub-systems, programming
- Build Week 4: Robot assembly and sub-system integration
- Build Week 5: Robot testing and validation
- Build Week 6: Driver training and robot fine-tuning.
- NO Official Stop Build 2020

Post-Build Season: 2/23/20-4/28/20
Meeting at the warehouse Tuesdays & Thursdays 6-9pm, Saturdays 8am-12pm Design modifications, gathering and building spare parts, preparing the pit structure, travel and competition planning, driver and pit crew training.

Central Illinois Regional: 3/18/20 to 3/22/20
Competition will take place at Bradley University, Renaissance Coliseum.
https://www.bradley.edu/academic/continue/youth/robotics/
Students will be responsible for travel arrangements to and from the venue. Detailed time schedule will be provided at a later date. Parents, siblings and friends are welcome. Admission is free. We will be asking for Parent volunteers to assist the team during meals and for transportation of equipment and snacks/water.

Second Regional: Miami Valley Regional
Competition will take place in Fairborn OH
February 26 to February 29, 2020, Week 1!
WSU Nutter Center in Fairborn, OH
https://www.miamivalleyfirst.com/
Details about departure, arrival, and other travel details – TBD

Championships: 4/29/20 to 5/5/20
Competition will take place in Detroit, MI at the Cobo Center. Participation is dependent on success at on of our regional competitions. Details about departure, arrival, and other travel details will be decided after we are invited to the competition.

TEAM REQUIREMENTS & OPPORTUNITIES

OPPORTUNITIES

There are many rewards for being a committed Robot Casserole team member. Robot Casserole students have many ways to be involved with the team. They are encouraged to participate in community events, and during the fall they participate in the team events, training, and meetings.

1. Travel Opportunities
   - The team will be traveling to one regional event which could be as close as Chicago or as far away as mexico. In 2020 we will be traveling to Fairborn OH for the second competition.
   - Potentially the team will travel to Detroit, MI for the championships

2. Scholarships
   - There are MANY scholarships available for *FIRST* team members. Check out http://www.firstinspires.org/scholarships for details.
   - in 2020 there will be $80 million in scholarships available to *FIRST* students.

3. Internships
   - The experience students are exposed to opens doors for internships within Caterpillar and other high-tech companies. See your guidance counselor and www.caterpillar.com and select the “Careers” tab.

4. Experience

- Many corporations across the nation are participating in *FIRST* and want to hire *FIRST* students. Being on a *FIRST* team will expose students to these corporations, provide them with opportunities to meet some of the mentors who work for these corporations, and help teach the students skills that these companies desire.
- Additionally some colleges (Purdue, University of Illinois, etc.) offer college credit to engineering students who help mentor *FIRST* teams.

REQUIRED STUDENT INVOLVEMENT

Students must meet & maintain their school and parental academic requirements.
Students will be required to have a signed excused absence eligibility form from their school counselor to travel with the team.
Assistance: In order to help students meet this requirement, study time will be available for students who are in need of assistance during team meetings. If students need to miss a meeting to study for a test or improve their grades, arrangements may be made with the student's mentors.
During the build season, January 4 – February 22 2020, students are required to become full-time active and engaged members of the team and participate in the robot building and related activities.

TRAVEL REQUIREMENTS

Active Member Status:
The primary factor determining whether a student is eligible to travel with the team to the regional and championship event will be ACTIVE PARTICIPATION. Just physically being at the meetings is not enough, students must contribute their ideas and energy to the team. If students don't know what to do, they can ask any mentor for help. Students are required to participate in a minimum of two outreach events. Student attendance will be tracked to ensure students are accountable for their commitment to the team.
Students must also sign in to the meeting. Please notify the team lead or your sub-team mentor and record the absence in the attendance database at a team meeting. Students are responsible for signing into the attendance database every meeting and recording absences.
Team leadership will have the final say as to who is eligible to travel, students who are not actively participating will be notified by the leadership, and if the behavior continues, students will be removed from the team.

CELL PHONE & SOCIAL MEDIA

Cell Phone Usage: Cell phones may be brought to the meetings, but must remain in the students pocket, backpack or purse unless an emergency call is required. Students will not text, call, take pictures, share videos or music during team activities. Breaks will be scheduled during the meetings students may use their phones during this time. When breaks are over, phones go back in the packs, purses, pockets. six weeks is a short amount of time to design and build a robot, but it is all we have, so we must make effective use of meeting time. **Texting is not considered active participation on the team.**

Social Media: Only approved members of the media team are allowed to capture or distribute any images or descriptions of team activities per the data privacy policy.

COMMITTEES & SUBTEAMS

Committees

- **SAFETY**
  Safety in all we do, first priority Train team about safety during the season and at the events Assist with hands-on training for tools & power tool operation Establish procedures for reporting an accident or safety violation
- **ADMINISTRATION**
  Develop a team business plan and budget. Develop PR materials. Design and create team promotional items, banners & signs. Coordinate event logistics including transportation and lodging. Create and update team web site & social media. Assist with the student scholarship applications.
- **OUTREACH**
  Coordinate community relations events and document team outreach through photos and videos. Recruit new students through demos and interactive presentations.
- **COMPETITION AWARDS**
  Assist with team identity and imagery. Design and develop peer awards. Design, develop and organize the competition pit.
- **ESSAY AWARDS**
  Create Chairman's, Woody Flowers and Dean's List award submission.
- **SCOUTING**

Track team performance with scouting app. Analyze data to determine who our best alliance would be. Speak with teams during competitions to learn about other team strategies. Create a winning game plan and strategy.

Sub-Teams

- **SOFTWARE, CONTROLS:** Develop software for robot automated & tele-operated control and human interface. Assist in troubleshooting of robot operation and controls
- **ELECTRICAL:** Develop electrical system for robot and controllers. Design and develop pneumatic systems for robot.
- **MECHANICAL:** Develop & design solutions based on game strategy.
- **CAD:** Convert sketches to solid models to assembly models to working drawings Fabricate parts Assist in the assembly and troubleshooting of robot Create parts list and pricing
- **MEDIA/BUSINESS:** Document the team through video and photos. Create and distribute robot release videos**.** Create and distribute team music video. Assist imagery and awards with various media.

PARENT INVOLVEMENT
MENTORING

Parents are strongly encouraged to help out in any way they can. **This is a very important time in your child's life as they start searching for a future college major/career and you can be a big part of that decision by participating or mentoring on the team.**

Parents: Participation during regional events will be greatly appreciated. Helping with meals and snacks or assisting with travel to and from outreach events are easy ways you can contribute to the success of the team. Saturday work days we will be serving lunch at warehouse if you can help with service or provide a portion of the meals contact Shelby Hankins who is our parent volunteer. We also have opportunities where parents can assist with outreach. Please see a mentor.

Mentors: The efforts of these mentors must be student-focused and within the spirit of *FIRST*. There are many opportunities to mentor our team's students such as:

- Mechanical Machine Design - Electrical Design & Wiring - Software Development &

Programming - CAD – Design, Drafting, Animation - Metalworking & Part Fabrication - Carpentry & Construction - Project Coordination - Communication & Public Relations - Video & Graphic Publications - Event Planning - Machine Shop Management - Strategy Development & Coaching - Travel Coordination - Scholarship coaching and submission

COMMUNITY OUTREACH

Robot Casserole keeps active in the local community, as they host and participate in events, make demonstrations and support other math and science-related programs for the area's students. Examples of these events and activities include:

Introduce a Girl to STEM Day (Oct-Nov)
Career Spark (Oct)
FIRST LEGO League Mentoring (Sep - Dec)
FIRST LEGO League Regional Tournament (Dec)
Engineering Week @ Peoria Riverfront Museum (Feb)
Peoria School District Summer Lego Robotics Camp (Jun)
Robo Rumble @ Peoria Riverfront Museum (Jun)
GoBabyGo (Fall/Spring)
For more information about Robot Casserole and demonstrations, please contact us at frc1736@gmail.com.

TEAM REGISTRATION REQUIREMENTS & COST

TEAM REGISTRATION & FORMS:

- Robot Casserole Application Form
- Caterpillar Release, Waiver of Liability, and Indemnity Agreement
- FIRST registration https://my.firstinspires.org/AccountManager/Account/Register
- Student Travel Rules & Expectations
- School excused absences forms for competitions and events during school days

COST:

A great deal of financial support is needed to participate in the projects the Robot Casserole Robotics Team is involved in. The team is fortunate to have excellent sponsor who covers the cost of team registration and procure material to participate in our projects. This is not enough if the team has to travel to events outside of the Peoria area. The team will plan a variety of fundraisers over the course of the year to help raise money. Students are encouraged to help with and participate in these fundraising activities. Students (or their parents) may be asked to

cover the amount to make up the difference for travel. To travel with the team outside Peoria, students need to pay a travel fee.

Travel Fee:

2nd Regional event: $50 due by January 31st made out to Illinois FIRST with FRC1736 in the memo.
Championship event: IF needed, to be decided after we are invited to the championship competition.
Note: If you or your family is unable to meet any of these requirements, or pay the travel fee, please speak with one of our team board co-chairs Nick Dunne or David Longanbach.

Team Apparel: The team will provide each student three team t-shirts and a chef hat upon joining the team. Additional t-shirts or a replacement chef hat can be purchased. Team spirit wear and gear will also be available for purchase.

PRIVILEGES, RESPONSIBILITIES, CHOICES AND CONSEQUENCES

Robot Casserole FIRST Robotics Team

The Robot Casserole Robotics Team Handbook identifies and explains a wide variety of activities and events that the team engages in. It also lays the foundation for the level of commitment and conduct that is expected of a member of the Team. It is up to the student to read this handbook and understand their privileges, responsibilities, choices, and consequences.

Participation in the Robot Casserole Robotics Team is a privilege, not a right. As such, there are certain responsibilities that fall on the shoulders of the student. This is an opportunity for students to demonstrate a desire for learning, leadership, cooperation, peer mentorship, and teamwork. It is also a time when students need to be responsible for their actions on both an academic level and an interpersonal level.

Students who choose to abide by the guidelines established in this handbook will experience the pride and camaraderie of being involved in a FRC team. Those who choose to ignore their responsibilities as a member of this team will be advised according to the steps that follow.

- Step 1 The student will be advised by a pair of mentors as to the unacceptable actions and asked to make appropriate changes to remedy the situation. If changes are not made, proceed to the next step.
- Step 2 The student's parent(s) will be contacted and a meeting will be scheduled with the parent(s), student, and appropriate mentors to discuss the situation. The student

may not return to the team or participate in team activities until the meeting has taken place. If changes are not made, proceed to the next step.

- Step 3 The student will be suspended from the team for the next 2 team functions/events or a period of 2 weeks, whichever is longer. During this time they may not participate in any team activities. If changes are not made, proceed to the next step.
- Step 4 The student will be removed from the team.

Addendum: If offenses are egregious enough in nature, some steps may be skipped to the point of immediate expulsion from the team.

FACILITY: Students are required to stay within the allocated area while at a Caterpillar facility. They are not allowed to explore, go into other areas, or touch any equipment. Students who do not comply will be asked to leave the team.

ROBOT CASSEROLE TEAM CONTACTS AND INFORMATION

Robot Casserole Co-chairs FRCteam1736@gmail.com

Robot Casserole Website: http://www.robotcasserole.org/

YouTube https://www.youtube.com/user/FRC1736
Facebook https://www.facebook.com/FRCteam1736
Twitter https://twitter.com/FRC1736
Pinterest https://www.pinterest.com/frc1736business/
Instagram https://www.instagram.com/frc1736/

FIRST Website: http://www.firstinspires.org

Phone #: 800-871-8326 or 603-666-3906 Regional
Director Susan Lawrence sklsumgrad@comcast.net

ILLINOIS *FIRST* Website: https://www.firstillinoisrobotics.org

Discussion Forum: http://www.chiefdelphi.com/ (make sure to register)

Caterpillar Coord. **Tim Koch** Email Caterpillar_STEM@cat.com

STUDENT/PARENT ACKNOWLEDGEMENT FORM

Robot Casserole FIRST
Robotics Team

By signing this sheet, I verify the following:

I have read through the handbook and understand the privileges and responsibilities that being a member of this team involves.

I understand that participation on the Robot Casserole Robotics team is a privilege.

I understand that I am required to **actively participate** and the consequences of my actions can ultimately lead to my removal from the team.

I understand that being part of *FIRST* Robotics team can provide me with knowledge and skills that will benefit me for a lifetime.

I understand that I have a wide variety of opportunities available to me while on this team and I am welcome to take advantage of them.

I agree with the philosophy *FIRST* upholds – "*FIRST* inspires in young people, their schools and communities an appreciation of science and technology, and of how mastering these can enrich the lives of all."

I understand that, as a member of the Robot Casserole, my actions reflect on not only myself and my family, but also my School, Caterpillar, and other sponsors and supporters of our team.

I agree to act with Gracious Professionalism in all that I do while a member of Robot Casserole, Team 1736 and be respectful of mentors and other team members.

_____ _____ _____

Student's Signature Parent's Signature Date