FLL competition guidelines

# Core Values

* We are a team.
* We do the work to find solutions with guidance from our coaches and mentors.
* We know our coaches and mentors don't have all the answers; we learn together.
* We honor the spirit of friendly competition.
* What we discover is more important than what we win.
* We share our experiences with others.
* We display Gracious Professionalism and Coopertition in everything we do.
* We have FUN!

## Inspiration

* Discovery - Balanced emphasis on all three aspects (Robot, Project, Core Values) of FLL; it's not just about winning awards. Balanced emphasis on all three aspects.
* Team Spirit - Enthusiastic and fun expression of the team identity. Team engages others in their enthusiasm & fun; clear identity.
* Integration - Application of FLL values and skills outside FLL (ability to describe current and potential examples from daily life). Team able to describe multiple examples, incl. individual stories.

## Teamwork

* Effectiveness - Problem solving and decision making processes help team achieve their goals. Clear processes enable team to accomplish well defined goals
* Efficiency - Resources used relative to what the team accomplishes (time management, distribution of roles and responsibilities). Excellent time management and role definition allows teams to accomplish all goals.
* Kids Do the Work - Appropriate balance between team responsibility and coach. Team independence with minimal coach guidance.

## Gracious Professionalism

* Inclusion - Consideration and appreciation for the contributions (ideas and skills) of all team members, with balanced involvement. There should be balanced team involvement AND appreciation for contributions of all team members
* Respect - Team members act and speak with integrity so others feel valued-- especially when solving problems or resolving conflicts. Respect is always evident, even in the most difficult situations
* Coopertition - Team competes in the spirit of friendly competition and cooperates with others. Coopertition is always evident, even in difficult situations--and team actively helps other teams.

# Project

## Research

* Problem Identification - Clear definition of the problem being studied. Project research should be clear and very detailed with no missing details.
* Problem Analysis - Depth to which the problem was studied and analyzed by the team. There should be extensive study and analysis by the team.
* Review Existing Solutions - Extent to which existing solutions were analyzed by the team, including an effort to verify the originality of the team's solution. Research should include extensive review and analysis by team.

## Innovation

* Team Solution - Clear explanation of the proposed solution. The solution should be easy to understand by all.
* Innovation - Degree to which the team's solution makes life better by improving existing options, developing a new application of existing ideas, or solving the problem in a completely new way. Team has an original solution/application with the potential to add significant value.
* Implementation - Consideration of factors for implementation (cost, ease of manufacturing, etc.). The implementation factors are well considered and feasible solution proposed.

## Presentation

* Sharing - Degree to which the team shared their Project before the tournament with others who might benefit from the team's efforts. Solution should be shared with multiple individuals or groups who may benefit.
* Creativity - Imagination used to develop and deliver the presentation. The Solution should be very engaging AND exceptionally imaginative.
* Presentation - Effectiveness Message delivery and organization of the presentation. The presentation should be clear and well organized.

# Robot Design

## Mechanical Design

* Durability - Evidence of structural integrity; ability to withstand rigors of competition. Robot has sound construction that does not break frequently or need repairs
* Mechanical Efficiency - Economic use of parts and time; easy to repair and modify. Robot has streamlined use of parts and can be to repaired or modified quickly easily.
* Mechanization - Ability of robot mechanisms to move or act with appropriate speed, strength and accuracy for intended tasks (propulsion and execution). Robot has a balance of speed, strength and accuracy on every task.

## Programming

* Programming Quality - Programs are appropriate for the intended purpose and would achieve consistent results, assuming no mechanical faults. Program should achieve purpose every time
* Programming Efficiency - Programs are modular, streamlined, and understandable. Program has streamlined code and is easy for anyone to understand.
* Automation/Navigation - Ability of the robot to move or act as intended using mechanical and/or sensor feedback (with minimal reliance on driver intervention and/or program timing). Robot moves/acts as intended every time with no driver intervention

## Strategy and Innovation

* Design Process - Ability to develop and explain improvement cycles where alternatives are considered and narrowed, selections tested, designs improved (applies to programming as well as mechanical design). Program is systematic, well-explained, and well-documented
* Mission Strategy - Ability to clearly define and describe the team's game strategy. Well defined goals and clear strategy to accomplish most/all game missions
* Innovation - Creation of new, unique, or unexpected feature(s) (e.g. designs, programs, strategies or applications) that are beneficial in performing the specified tasks. Robot has original feature(s) that add significant value.