3.0 The Tournament – Definitions and Rules

3.1 Overview
Students that engage in the FIRST Tech Challenge program develop Science, Technology, Engineering, and Math (STEM) skills and practice engineering principles (like keeping an engineering notebook), while realizing the value of hard work, innovation, and sharing ideas. Tournaments are exciting sporting events with head-to-head competition, judging interviews, and Teams and Robot performance awards. This section provides critical information that will help Teams have a fun and successful tournament day.

3.2 Tournament Definitions
Alliance – Each FIRST Tech Challenge Match consists of two, two-Team Alliances. These two Teams compete against an opposing Alliance (also made up of two Teams) to complete the game challenge and to earn the highest score. At tournaments with more than 20 Teams, the semi-final and final round Alliances consists of three Teams each. However, only two of those Teams compete during any one Match.

Alliance Captain – The student representative from an Alliance’s highest ranked Team chosen to represent an Alliance during Alliance Selection and for the semi-final and final Elimination Matches. The entire Team is also called the Alliance Captain.

Alliance Selection – The process by which top-ranked Teams choose Alliance Partners for the Elimination Matches.

Alliance Station – The designated “Red” or “Blue” Alliance area next to the Playing Field where the Drivers and Coach stand or move within during a Match. Station One is the Alliance Station closest to the audience.

Competition Area – The Area where all the Playing Fields, Alliance Stations, scoring tables, and other tournament officials and tables are located.

Drive Team - Up to four representatives two (2) Drivers, one (1) Coach, and one (1) Human Player from the same Team. Only one (1) Human Player represents an entire Alliance in a Match.

Elimination Matches – A Match used to decide the Winning Alliance. Alliances of two or three Teams face off in a series of Matches, with two Teams per Alliance playing in each Match. The first Alliance to win two Matches continues to the next round.

Human Player – A student Team member that supplies Scoring Elements and is identified by wearing a tournament supplied “Human Player” badge or identifying marker. Only one Human Player represents the entire Alliance. For Qualification Matches, an Alliance must decide which Team will name the Human Player. If the Alliance cannot decide quickly, the Team listed in the Match list as “Red 1” or “Blue 1” for the Alliance has the responsibility for naming the Human Player. The Human Player must be from the Teams that are in the Match. For Elimination Matches, the captain of the Alliance has that responsibility.

Playing Field – The part of the Competition Area that includes the 12 ft. x 12 ft. (3.66 m. x. 3.66 m) field and all the elements described in the official field drawings.

Pit Area – The Pit Area is a separate space from the Competition Area where Teams can work on their Robot between Matches. The Team is provided a pit space which includes a table, a power source, and is 10 ft. (3.05 m) x. 10 ft. (3.05 m). Some pit spaces may vary based on tournament venue size limits. Check with your Tournament Director for official pit space sizes.

Practice Match – A Match used to provide time for Teams to get familiar with the official Playing Field.
Qualification Match – A Match used to decide the Teams that qualify for the Alliance Selection and move on to the Elimination Matches. Alliances compete to earn Ranking Points and TieBreaker Points.

Ranking Points – The first basis for ranking Teams. Teams earn Ranking Points for winning (two points), tying (one point), and losing or disqualification/no show (zero points) in a Qualification Match.

Robot - Any mechanism that has passed inspection and a Team places on the Playing Field before the start of a Match. To be legal, Robots must comply with the Robot Build rules in Section 7 of this manual.

Sports Start – A model of competition where Teams start their Robot after the 3-2-1 countdown.

Surrogate Match – Surrogate Matches are scheduled into the Qualification rounds of a tournament if the number of Teams at the tournament is not evenly divisible by four. The Surrogate Match is a way to ensure all Teams compete in a minimum of five Matches. This is an extra Qualification Match for those Teams scheduled in a Surrogate Match and does not count in the standings for Ranking Points or TieBreaker Points. These Matches are important in the entire standings of the tournament. These Matches should be played as if they were regular Qualification Matches. Surrogate Matches will be marked on the official Qualification Match schedule.

Team – An official FIRST Tech Challenge Team consists of no more than 15 student Team members. A Team is made up of pre-college students and is designed for students in grades 7 -12. Students cannot be older than high school-aged if they are participating Team members. All Teams in North America are required to register through the Team Registration System. Teams must have a minimum of TWO Lead Coaches or Mentors that have registered through the Team Registration System and have passed the Youth Protection Program screening. The Team must be in good standing through the registration system to compete in FIRST Tech Challenge official tournaments.

TieBreaker Points – The second basis of ranking Teams. TieBreaker Points are used as the tiebreakers when Teams have equal Ranking Points. TieBreaker Points are awarded in the amount of the final score of the losing Alliance in a Qualification Match. Both Alliances receive the pre-penalized score of the losing Alliance as their TieBreaker Points.

3.3 Tournament Rules

<T1> Egregious behavior by any Team, Team member, or other representative of the Team is not tolerated at a FIRST Tech Challenge tournament. Violations of this rule result in penalties to the Team, and/or the issuance of a Yellow or Red Card. Egregious behavior includes, but is not limited to, repeated and/or flagrant violation of game rules, unsafe behavior or actions, uncivil behavior towards volunteers, competition personnel, or tournament attendees.

<T2> Yellow cards and red cards are used in the FIRST Tech Challenge to manage Team and Robot behavior that does not align with the mission of FIRST. Yellow and red cards are not limited to just the Competition Area. Teams that display egregious behavior in the Pit Area, judging rooms, stands, or any other location of the tournament can be issued a yellow or red card for egregious behavior.

Egregious or repeated (3 or more) Robot or Team member behavior at the tournament can result in a yellow and/or Red card. Yellow cards are additive, meaning that a second yellow card is automatically converted to a red card. A Team is issued a red card for any subsequent incident in which they receive an additional yellow card, for example, earning a second yellow card during a single Match.

Yellow and Red Cards at the Competition Field

The Head Referee may assign a yellow card as a warning, or a red card for Disqualification in a Match. A yellow card or red card is signaled by the Head Referee standing in front of the Team’s Alliance Station and holding a yellow card and/or red card in the air.
To issue the second yellow card, the Head Referee will stand in front of the Team’s Alliance Station and hold a yellow card and red card. The Head Referee will signal the second yellow card after the Match has ended.

A Team that has received either a yellow card or a red card carries a yellow card into following Matches, except as noted below. A red card results in Match Disqualification. Multiple red cards may lead to tournament disqualification. Once a Team receives a yellow card or red card, the Team number is presented with a yellow background on the audience screen at the beginning of all following Matches. This is a reminder to the Team, referees, and audience the Team carries a yellow card.

Yellow cards do not carry over from the Qualification Matches to the Elimination Matches. For regions that compete in League Meet formats which carry Qualification Match scores from Meet to Meet, Yellow and Red Cards to not carry from one Meet to the next Meet or to a League Tournament. During the Elimination Matches, yellow and red cards count against the entire Alliance, not to a specific Team. If a Team receives a yellow card or red card, it results in the entire Alliance receiving the yellow card or red card for that Match. If two different Teams on the same Alliance are issued yellow cards, the entire Alliance is issued a red card. A red card results in zero (0) points for that Match, and the Alliance loses the Match. If both Alliances receive red cards, the Alliance which committed the action earning the red card first chronologically loses the Match.

Yellow and Red Cards off the Competition Field

Teams can incur yellow and red cards for their actions off the competition field. Egregious behavior off the competition field should be reported to the Tournament Director. The Tournament Director will first consult with the coach of the Team about the behavior of the Team or its members, explain the ways in which the behavior is considered egregious, and give a warning to discontinue this behavior. If the behavior persists, the Tournament Director will work with FIRST Headquarters to assess whether the behavior exhibited by the Team is considered egregious and if a yellow and/or red card should be issued. If it is determined that the Team should receive a yellow and/or red card, the Tournament Director will report to the Head Referee. The yellow and/or red card will be recorded into the scoring software based on the next Match played by the Team during Qualification Matches. If a Team is competing in Elimination Matches receives a yellow or red card between the Qualification Matches and Elimination Matches, the card will be applied to the first Elimination Match. If a Team receives a yellow or red card during the Elimination Matches for off field behavior, the yellow or red card applies to the current or just completed Elimination Match.

<T3> Referees have final game play and scoring authority during the competition. Their rulings are final.

   a. The referees will not review any recorded Match replays or photographs.

   b. All questions about a Match or scores must be brought forward to the Referees by using the Referee question box located in the Competition Area. Only one student from an Alliance can enter the question box. All questions must be brought forward within the outlined time:

      i. Qualification Matches: A Team must enter the question box to dispute a Match within a period of three (3) Matches following the disputed Match. Teams participating in the final two Qualification Matches must report to the question box within 5 minutes after the announcement of the Match score.

      ii. Elimination Matches: A Team must enter the Referee question box to dispute a Match before the start of the next Match played by the Alliance, regardless if the Team is playing in the next Match. The next Match played could involve different Alliances. Questions about the last Match of the finals must be brought to the question box no later than 5 minutes after the announcement of the Match score.

Students must support their questions by referencing specific rules or posts to the Q&A section of the
official FIRST Tech Challenge Forum. Team members must ask their questions in a gracious and respectful manner.

<T4> No Team, Team member, or tournament attendee is allowed to set up their own Wi-Fi 802.11 (2.4GHz or 5GHz) wireless communication in the venue. Non-allowed wireless communications include, but are not limited to:

a. Cellular hot spots (for example, cell phones, tablets, MiFi).
b. Ad-hoc networks.
c. Nintendo DS peer-to-peer.
d. Bluetooth communication with Robots in the Competition Area.

No Team, Team Member, or tournament attendee shall interfere with a Team’s Wi-Fi Direct® communication with their own Robot.

The Penalty for violating rule <T4> is disqualification of the entire Team from the tournament and their removal from the venue property. Teams may not appeal the penalty and no refunds will be given for registration fees, prepaid meals, etc. FIRST may conduct a post-tournament review and decide if any added penalties will be imposed on the offending Team.

Teams are encouraged to report wireless security vulnerabilities to the Field Technical Advisor (FTA) at a tournament. Teams should always keep in mind Gracious Professionalism®, and therefore only report valid and verifiable violations of this rule. After the Field Technical Advisor is alerted of a potential rule violation, he or she will confer with the Head Referee. The Field Technical Advisor and Head Referee will further explore the potential violation of this rule. The Head Referee will work with FIRST Headquarters staff to determine if rule <T4> has been violated, and to disqualify the offending Team.

<T5> Wi-Fi connectivity between the Android devices used as the Robot Controller and the Driver Station is allowed. Additionally, in the pits only, Wi-Fi connectivity between the same Android devices and a computing device (phone, tablet or computer) is allowed for Robot programming purposes only. No other wireless communication is allowed.

The penalty for violating rule <T5> is disqualification of the entire Team from the tournament and their removal from the venue property. The Head Referee will work with FIRST Headquarters staff to determine if rule <T5> has been violated, and to disqualify the offending Team. Teams may not appeal the penalty and no refunds will be given for registration fees, prepaid meals, etc. FIRST may conduct a post-tournament review and determine if any additional penalties are to be imposed on the offending Team.

<T6> Team members may be asked by the Tournament Director to use a specific Wi-Fi channel on the tournament day. Teams must comply with the request of the Tournament Director if asked to use a specific Wi-Fi channel when supported by an approved Android Device. Teams that have Android Devices that support channel changing must comply with the request of the Tournament Director to switch their channel before playing in the next Match. Refusal to comply with this rule will result in a Yellow Card.

<T7> Each registered Team may enter only one Robot (a Robot built to play the current season’s game challenge) into the FIRST Tech Challenge competition. It is expected that Teams will make changes to their Robot throughout the season at competitions.

a. It is against this rule to compete with one Robot while a second is being adjusted or assembled at a tournament.
b. It is against this rule to switch back and forth between multiple Robots at a tournament.

Section 3 – Tournament Definitions
c. It is against this rule to register and attend concurrent tournaments with a second Robot.

d. It is against this rule to use a Robot built by another Team at a tournament.

Violations of this rule will immediately be considered egregious and a deliberate violation of the rule.

<T8> Only four Team representatives are allowed in the Competition Area; two (2) student drivers, one (1) coach, and one Human Player who are identified by badges labeled ‘driver’, ‘coach’, or ‘Human Player’. These badges are interchangeable within a Team between Matches. Only student Team members wearing a badge labeled as ‘driver’ may drive the Robot during the Match. Team representatives beyond the two student drivers, one coach, and one Human Player will be asked to leave the Competition Area immediately.

Only one Human Player represents the entire Alliance. For Qualification Matches, an Alliance must decide which Team will name the Human Player. If the Alliance cannot decide quickly, the Team listed in the Match list as "Red 1" or "Blue 1" for the Alliance has the responsibility for naming the Human Player. The Human Player must be from the Teams that are in the Match. For Elimination Matches, the captain of the Alliance has that responsibility.

<T9> Playing Field Access - Team members cannot enter the Playing Field for any reason other than to place/retrieve their Robots. Teams may not measure, test, or adjust Field or Game Elements. Inspection of the Playing Field elements by Team members to determine scoring is not allowed. The consequences for violating this rule are:

a) Minor Penalty for violation of this rule during Match setup or following the end of the Match.

b) Major Penalty for violations of this rule that delay the start of the Match.

c) Violations of this rule outside of normal Match play result in a yellow card.

If a Team feels the Playing Field is not set up correctly, Teams should notify a Referee or FTA prior to the start of the Match.

<T10> Pre-Match Robot Placement – At the beginning of a Match, each Alliance Robot must be set up on the Playing Field according to Section 4.5.1 Pre-Match in the Game Manual Part 2. After Robots are set up on the Playing Field, Drive Teams must stand inside the Alliance Station. The Human Player for the Alliance must stand inside the designated Human Player Station.

a. During the Qualification Matches, the blue Alliance Robots are set up on the Playing Field first, unless the red Alliance waives their right to set up on the Playing Field second.

b. During the Elimination Matches, the 3rd and 4th seeded Alliance Robots are set up on the Playing Field first, unless the higher seeded Alliance waives their right to set up on the Playing Field second. Alliance color doesn’t change the seeding of a Team during the Elimination Matches. If the 4th seed defeats the 1st seed in the Semi-Finals, they will still have to place their Robot on the field first in the Finals because their seeding will be lower than the 2nd or 3rd seed.

c. During Elimination Matches, 3 Team Alliances may only place Robots that are intended to compete in that Match. Once two Robots are placed for the two Teams competing in a Match, the Alliance cannot swap in the 3rd Alliance’s Robot for a Robot already placed.
d. Teams may implicitly waive their right to place their Robots on the Playing Field last by placing their Robots on the Playing Field before or with the opposing Alliance. There is no need to tell the referees; Teams waive their right by the act of placing their Robots on the Playing Field.

e. Teams that unnecessarily delay the beginning of a Match and/or field reset will incur a Minor Penalty for each offense.

Drive Teams are expected to stage their Robots for a Match, and remove it from the Playing Field afterwards, safely and swiftly. Drive Team efforts that either intentionally or unintentionally delay the start of a Match or the Field reset are not allowed. Examples include, but are not limited to:

- Late arrival to the Playing Field.
- Robot maintenance once on the Playing Field.

<T11> The state of the field (game and scoring elements) is recorded as the Match is played by the Scoring Referees. Scores may not be announced to Teams until some time after the Match is complete. At some tournaments, live scoring software may be used to show the status of the Match as it is played, with the final, official score displayed following the end of the Match.

<T12> There are no Team requested time-outs during the Qualification Matches.

<T13> If no member of the Drive Team is present in the Driver Station at the start of a Match, that Team is declared a “no show”. If a Robot cannot report for a Match, at least one member of the Drive Team should report to the Playing Field for the Match.

<T14> Teams will receive a minimum of five minutes (5:00) between consecutive Matches.

<T15> During the elimination rounds, each Alliance will be allotted ONE time-out of no more than three minutes (3:00). Time-outs must be called at least two minutes (2:00) before their next Match’s starting time. The time-out begins at the time their Match was going to start.

<T16> All Team members, coaches, and their guests must wear ANSI Z87.1 certified safety glasses while in the Pit or Competition Area. Prescription glasses with ANSI Z87.1 approved Commercial Off-The-Shelf side shields are also allowed.

NOTE: FIRST requires all Teams to bring and supply ANSI-approved safety glasses for its Team members, mentors, and guests for each competition. Tinted lenses are allowed if tournament personnel can see the volunteer’s, spectator’s, or Team member’s eyes through the safety glasses. Sunglasses or deeply shaded safety glasses used in our indoor tournament environment are not acceptable.

<T17> Skateboards, roller skates, ‘hover boards’, and drones are not allowed at any tournament. These items can create safety hazards to the Teams, spectators, or volunteers attending the tournament.

<T18> No live bands are allowed in the audience or Pit. No loud music, audio systems, whistles, banging sticks, blow horns, etc. are allowed. They prevent Teams from hearing important announcements. Power may be shut off and/or noisemakers confiscated.

<T19> Batteries must be charged in an open, well-ventilated area.

<T20> Painting or applying harmful products, sprays, or aerosols are not allowed anywhere in the tournament. This includes the Pit, Competition, and spectator areas.
Note: Teams may apply antistatic spray to their Robot if done outside the venue.

<T21> Pit displays may not exceed 10 ft. (3.05 m) x. 10 ft. (3.05 m) x. 10 ft. (3.05 m) or a limit set by the venue, whichever is less.

<T22> Teams are not allowed to use radios and walkie-talkies anywhere in the venue.

<T23> There is no running anywhere during the tournament. This is a safety hazard.

<T24> Teams are not allowed to save seating space as there is often not enough seating to hold everyone. Repeated offenses could be considered egregious, and Teams could face consequences for violating this rule.

<T25> Soldering, gluing, brazing, or large power tools are not allowed in the Pit or Competitions Areas unless the Tournament Director specifically allows them.

<T26> Because of site rules or contracts, FIRST cannot allow Teams or individuals to sell items, such as T-shirts, pins, etc., at any tournaments. Fundraising for a cause is allowed with consent of the Tournament Director; fundraising for a Team is not allowed.

<T27> Check with the Tournament Director before bringing food to a tournament, as some venues will not allow outside food on-site because of contracts and agreements.

<T28> Open-toed or open-backed shoes are not allowed in the Pit Area or in the Competition Area.

<T29> Once the Autonomous portion of the Match ends, Drive Teams will have 5 seconds to pick up their Driver Station. The scoring system display will provide visual and audio cues for Drive Teams to pick up their Driver Stations. After the 5 seconds, there will be a 3-2-1 countdown and the Driver-Controlled period of the Match will begin.

<T30> Teams competing in a Meet, League Tournament, Qualifying Tournament, and Championship Tournament will compete in no fewer than 5 Qualification Matches, and no more than 6 Qualification Matches.

<T31> A Team may not encourage another Team to throw a Match or to play beneath its ability. Likewise, a Team may not let another Team coerce them into throwing a Match or playing beneath their own ability. FIRST considers the action of a Team influencing another Team to throw a Match, to deliberately miss scoring objectives, etc. incompatible with FIRST values and not a strategy any Team should employ. Violations of this rule are likely to escalate rapidly to yellow or red cards and may lead to dismissal from the event. The following examples violate rule <T31>.

- Example 1: A Match is being played by Alliance partner Teams A and B in which Team B is encouraged by Team C to underperform/not score during a Match. Team C’s motivation for this behavior is to negatively affect Team A’s ranking.

- Example 2: A Match is being played by Alliance partner Teams A and B in which Team A is assigned to participate as a Surrogate. Team C encourages Team A to not fully participate in the Match so that Team C gains ranking position over Team B.

- Example 3: A Match is being played by Alliance partner Teams A and B in which Team A is assigned to participate as a Surrogate. Team A accepts Team C’s request not to fully participate in the Match so that Team C gains ranking position over Team B.

NOTE: This rule is not intended to prevent an Alliance from planning and/or executing its own good faith strategy in a specific Match in which all the Teams are members of the same Alliance.