

## 16 Glossary

The following definitions and terms are used for a *FIRST* Tech Challenge game INTO THE DEEP. Defined terms are in ALL CAPITAL LETTERS throughout the manual (for example, ALLIANCE). Competition rules mean what they plainly say. If a word is not given a game definition, then you should use its common conversational meaning.

Term	Definition
<b>ALLIANCE</b>	a cooperative of two <i>FIRST</i> Tech Challenge teams
<b>ALLIANCE AREA</b>	a 120 in. (~304.8 cm) wide by 42 in. (~106.7 cm) deep by infinitely tall volume formed by placing ALLIANCE colored tape onto the flooring surface outside of the FIELD.
<b>ALLIANCE CAPTAIN</b>	The designated STUDENT representative from each ALLIANCE lead is called the ALLIANCE CAPTAIN.
<b>ALLIANCE SPECIFIC</b>	elements owned or associated with a specific ALLIANCE
<b>ARENA</b>	includes all elements of the game infrastructure that are required to play this season's FTC game including: the FIELD, SCORING ELEMENTS, queue area, team media area, and all equipment needed for FIELD control, ROBOT control, and scorekeeping
<b>ARENA FAULT</b>	an error in ARENA operation
<b>ASCEND/ASCENDED/ASCENT</b>	A ROBOT is considered ASCENDING once it is attempting to achieve an ASCENT LEVEL, and ASCENDED once it has achieved an ASCENT LEVEL.
<b>ASCENT ZONE</b>	an infinitely tall 5-sided polygon that is formed from two 9.25 in. (~23.5 cm) long sides bounded by the SUBMERSIBLE outriggers, one 44.75 in. (~113.7 cm) long side bounded by the barrier of the SUBMERSIBLE, and the two 26 in. (~66 cm) long sides bounded by white tape that extend from the outriggers to a point 20 in. (~50.8 cm) from the barrier. The ASCENT ZONE includes the taped lines.
<b>AUTO</b>	the first 30 seconds of the MATCH, during which DRIVERS may not provide input to their ROBOTS, so ROBOTS operate with only their pre-programmed instructions
<b>BASKET (LOW and HIGH)</b>	molded plastic containers which have an 8.85 in. (~22.5 cm) wide by 5.5 in. (~14.0 cm) top opening
<b>CHAMBERS</b>	There are two CHAMBERS per ALLIANCE in the SUBMERSIBLE. The LOW CHAMBER is made of HIPS plastic pipe and is 13 in. (~33.0 cm) from the FIELD floor to the top of the 1.05 in. (~2.7 cm) pipe.

Term	Definition
<b>CHASSIS</b>	A ROBOT'S MAJOR MECHANISM that enables it to move around a FIELD
<b>CLIP</b>	a black plastic SCORING ELEMENT which is designed to be connected to an ALLIANCE SPECIFIC SAMPLE by a HUMAN PLAYER or ROBOT to create a SPECIMEN
<b>COMPONENT</b>	any part in its most basic configuration, which cannot be disassembled without damaging or destroying the part or altering its fundamental function
<b>CONTINUOUS</b>	describes durations that are more than approximately 10 seconds
<b>CONTROL</b>	an action by a ROBOT in which the SCORING ELEMENT is fully supported by or stuck in, on, or under the ROBOT or it intentionally pushes a SCORING ELEMENT to a desired location or in a preferred direction (i.e., herding). Typically, CONTROL requires one of the following to be true: <ul style="list-style-type: none"> <li>A. The SCORING ELEMENT is fully supported by the ROBOT</li> <li>B. The ROBOT is moving the SCORING ELEMENT in a preferred direction with a flat or concave face of the ROBOT</li> </ul>
<b>COTS</b>	a standard (i.e., not custom order) part commonly available from a VENDOR for all teams for purchase
<b>CUSTOM CIRCUIT</b>	Any active electrical item that is not an actuator (specified in <a href="#">R501</a> or <a href="#">R502</a> ) or core control system item (specified in <a href="#">R712</a> )
<b>DISABLED</b>	The REFEREE instructs the team to stop the ROBOT which will deactivate all outputs, rendering the ROBOT inoperable for the remainder of the MATCH
<b>DISQUALIFIED</b>	the state of a team in which they receive 0 MATCH points and 0 RANKING POINTS in a qualification MATCH or causes their ALLIANCE to receive 0 MATCH points in a playoff MATCH
<b>DRIVE COACH</b>	a guide or advisor
<b>DRIVE TEAM</b>	a set of up to 4 people from the same FIRST Tech Challenge team responsible for team performance for a specific MATCH
<b>DRIVER</b>	an operator and controller of the ROBOT
<b>DRIVER STATION</b>	Android device (smartphone or REV Driver Hub) that runs the DRIVER STATION App software to communicate with a ROBOT per <a href="#">R901</a>
<b>FABRICATED ITEM</b>	any COMPONENT or MECHANISM that has been altered, built, cast, constructed, concocted, created, cut, heat treated, machined, manufactured, modified, painted, produced, surface coated, or

Term	Definition
	conjured partially or completely into the final form in which it will be used on the ROBOT
<b>FIELD</b>	an approximately 12 ft. (3.66m) by 12 ft. (3.66m) tile area bounded by the outside edge of the extrusion that frames the walls
<b>FIELD STAFF</b>	volunteers present in and around the ARENA that are responsible for making sure the MATCHES are cycled through efficiently, fairly, safely, and with a spirit of cooperation, <i>Gracious Professionalism</i> <sup>®</sup> , and generosity of spirit
<b>FTA</b>	<i>FIRST</i> technical advisor, an event volunteer role
<b>HUMAN PLAYER</b>	a SCORING ELEMENT manager
<b>INSPECTOR</b>	a person determined by <i>FIRST</i> to accurately and efficiently assess the legality of a given part or the whole of a ROBOT, an event volunteer role
<b>JUDGE</b>	Judges meet with teams to learn about and celebrate the unique journey and accomplishments of each team and evaluate these against award requirements. Judges interact with students during the interview process and in the pits. As a group, Judges determine the teams that receive awards at events
<b>LAUNCH/LAUNCHING</b>	shooting into the air, rolling/kicking across the floor with an active mechanism, or throwing in a forceful way
<b>LEVEL</b>	LEVELS are ROBOT scoring achievements as defined in Table 10-2
<b>LRI</b>	the lead ROBOT INSPECTOR, an event volunteer role
<b>MAJOR FOUL</b>	a credit of 15 points towards the opponent's MATCH point total
<b>MAJOR MECHANISM</b>	a group of COMPONENTS and/or MECHANISMS assembled together to address at least 1 game challenge: ROBOT movement, SCORING ELEMENT manipulation, FIELD element manipulation, or performance of a scorable task without the assistance of another ROBOT.
<b>MATCH</b>	a 30 second AUTO period, an 8 second transition period between AUTO and TELEOP, and a 2-minute TELEOP period in which the ROBOT plays the current season game
<b>MECHANISM</b>	an assembly of COMPONENTS that provide specific functionality on the ROBOT. A MECHANISM can be disassembled (and then reassembled) into individual COMPONENTS without damage to the parts.
<b>MINOR FOUL</b>	a credit of 5 points towards the opponent's MATCH point total

Term	Definition
<b>MOMENTARY</b>	describes durations that are fewer than approximately 3 seconds
<b>NET ZONE</b>	an infinitely tall triangle bounded by the FIELD walls located beneath the BASKETS and ALLIANCE colored tape that is diagonal from corner to corner across the TILE. The outside edge of the tape is 22.75 in. (~57.8 cm) away from the FIELD corner when measured at the FIELD wall. The NET ZONE includes the taped lines.
<b>OBSERVATION ZONE</b>	an infinitely tall 4-sided polygon which is 36.6 in. (~92.9 cm) at the widest point by 13.1 in. (~33.3 cm) long bounded by ALLIANCE colored tape and the adjoining FIELD wall. The OBSERVATION ZONE includes the taped lines.
<b>OPERATOR CONSOLE</b>	the set of COMPONENTS and MECHANISMS used by the DRIVE TEAM to relay commands to the ROBOT
<b>PARK</b>	when the ROBOT is fully or partially inside the OBSERVATION ZONE at the end of a MATCH period
<b>PIN/PINNING</b>	Preventing an opposing ALLIANCE ROBOT from moving, accessing, or exiting an AREA for an extended period by obstructing ALL paths of travel this includes the following conditions: <ul style="list-style-type: none"> <li>A. Limiting the movement of an opponent ROBOT to a small or confined area of the FIELD, approximately one foam TILE or less, without an avenue for escape. If a ROBOT is not attempting to escape it's not considered a violation.</li> <li>B. Preventing the movement of an opponent ROBOT directly or transitively through contact with the FIELD perimeter, game structure, another ROBOT.</li> <li>C. Controlling an opponent's movements by raising or tilting the opponent's ROBOT off the TILES.</li> </ul>
<b>PLOWING</b>	inadvertent contact with a SAMPLE or SPECIMEN, typically via a flat or convex surface, while in the path of the ROBOT moving about the FIELD
<b>RANKING POINTS (RP)</b>	ALLIANCES are rewarded RANKING POINTS (RP) for winning or tying MATCHES, which is determined by MATCH points earned by each ALLIANCE.
<b>RANKING SCORE (RS)</b>	A team's RANKING SCORE (RS) is the average number of RANKING POINTS earned by a team throughout their qualification MATCHES
<b>RED CARD</b>	a penalty assessed for egregious ROBOT or team member behavior or rule violations which results in a team being DISQUALIFIED for the MATCH.

Term	Definition
<b>REFEREE</b>	an official who is certified by <i>FIRST</i> to enforce the rules of the current season's game, an event volunteer role
<b>REPEATED</b>	describes actions that happen more than once within a MATCH
<b>ROBOT</b>	an electromechanical assembly built by the <i>FIRST</i> Tech Challenge team to play the current season's game and includes all the basic systems required to be an active participant in the game –power, communications, control, and movement about the FIELD
<b>ROBOT CONTROLLER</b>	Android device (smartphone or REV Control Hub) that runs the ROBOT CONTROLLER app to control the ROBOT as defined in <a href="#">R701</a>
<b>ROBOT SIGN</b>	A ROBOT SIGN simultaneously identifies a ROBOT'S team number as well as its ALLIANCE affiliation for FIELD STAFF.
<b>RUNG (LOW and HIGH)</b>	The RUNGS are 1in. (~2.5 cm) diameter aluminum extrusion which are 44.5 in. (~113 cm) long and are attached to vertical metal extrusions that make up the SUBMERSIBLE frame
<b>SAMPLE</b>	A SAMPLE is a 3.5 in. (8.9 cm) long by 1.5 in. (3.8 cm) wide by 1.5 in. (3.8 cm) high rectangular prism shaped SCORING ELEMENT.
<b>SCORING ELEMENT</b>	There are two different physical elements used in INTO THE DEEP: the SAMPLE and the CLIP. Red or blue ALLIANCE SPECIFIC SAMPLES can be combined with a CLIP to create a SPECIMEN.
<b>SIGNAL LEVEL</b>	a term used to characterize circuits which draw $\leq 1A$ continuous and have a source incapable of delivering $>1A$ , including but not limited to REV Control and Expansion Hub sensor input/output signals (DIO, analog, I2C, encoder, 485)
<b>SPECIMEN</b>	A SPECIMEN is a SCORING ELEMENT that is made up of one ALLIANCE SPECIFIC SAMPLE and at least one CLIP.
<b>SPIKE MARK</b>	one of twelve 3.5 in. (~8.9 cm) long marks used to identify the placement of SAMPLES before the MATCH. The 3 marks in front of the OBSERVATION ZONES are of ALLIANCE colored tape and the 3 marks in front of each NET ZONE are made of white tape
<b>STARTING CONFIGURATION</b>	the physical configuration in which a ROBOT starts a MATCH
<b>STUDENT</b>	a person who has not completed high-school, secondary school, or the comparable level as of September 1 prior to Kickoff
<b>SUBMERSIBLE</b>	A SUBMERSIBLE is a structure where ROBOTS collect SAMPLES, score SPECIMENS onto the CHAMBERS, and ASCEND using RUNGS.

Term	Definition
<b>SUBMERSIBLE ZONE</b>	SUBMERSIBLE ZONE: a 27.5 in. (~69.9 cm) wide by 42.75 in. (~108.6 cm) long, infinitely tall volume bounded by the inner most edge of the barriers of the SUBMERSIBLE
<b>SURROGATE</b>	a team randomly assigned by <i>FIRST</i> event management software to play an extra qualification MATCH
<b>TELEOP</b>	second period of each MATCH is 2 minutes (2:00) and called the teleoperated period (TELEOP). During TELEOP, DRIVERS remotely operate ROBOTS
<b>TILE</b>	flooring surface of the FIELD is made of 36 (nominal) 24 in. x 24 in. x 5/8 in. interlocking soft foam TILES
<b>VENDOR</b>	a legitimate business source for COTS items that satisfies criteria defined in section <a href="#">12 ROBOT Construction Rules (R)</a>
<b>YELLOW CARD</b>	a warning issued by the REFEREE for egregious ROBOT or team member behavior or rule violations
<b>WTA</b>	Wi-Fi technical advisor, a volunteer role

