2020-2021 NC FIRST TECH CHALLENGE
KICK-OFF AGENDA

Saturday, September 12, 2020

<u>SCHEDULE</u>

GROUP SESSION – ROOM 1

8:00am Opening Session

BREAKOUT SESSIONS – ROOMS 1 - 7

8:45am Workshops - Session 1

9:30am *Break 1 (15 minutes)*

9:45am Workshops - Session 2

10:30pm *Break 2 (15 minutes)*

10:45am Workshops - Session 3

11:30am Break 3 (30 minutes)

GROUP SESSIONS – ROOM 1

12:00pm Game Reveal

1:00pm How to DIY a field for Remote Competition
Game Discussion - *Referees on the field.*

2:00pm End of Kick-off event

WORKSHOP SESSION LIST

8:45 AM WORKSHOP

Beginning Programming with Android Studio	Room 1
Introduction to CAD with Onshape	Room 2
Outreach	Room 3
Building Options	Room 4
Marketing	Room 5
Tips for a Virtual Season – A coaches' Panel Discussion	Room 6
Judging in the Time of COVID 19	Room 7

9:45 AM WORKSHOP

Autonomous Programming Basics	Room 1
Advanced CAD with Onshape	Room 2
Engineering Notebooks	Room 3
Setting up and Using a Virtual Robot Simulator	Room 4
Scoring Mechanisms	Room 5
Strategy	Room 6
Season Overview, Tournament Structure and Competition Schedule	Room 7

10:45 AM WORKSHOP

Designing for Consistent Autonomous	Room 1
Drive Trains: Designs & Decisions	Room 2
Control Theory	Room 3
Linear Motion	Room 4
OnBot Java	Room 5
Running a Rookie Team	Room 6
Coaches' Round table	Room 7

WORKSHOPS & PRESENTERS

Which Workshops Should I Attend? Each workshop is listed below with a description and the presenter. We encourage teams to do their best to get as much coverage at the workshops as possible: divide and conquer with students and mentors alike.

SESSION 1 8:45AM - 9:30AM

Beginning Programming with Android Studio – Room 1
Presenter – Ethan Dominic, FTC Team 2901, Purple Gears
This kick-off session is going to cover the basics of getting started with programming your robot, which will cover configuring phones, setting up the development environment using Android Studio, and downloading your first Tele-Op program to your robot.

Introduction to CAD With Onshape – Room 2
Presenter – Thomas Greene, FTC Team 2901, Purple Gears
In the Introduction to CAD with Onshape presentation, attendees will learn the fundamentals of Onshape. Even with no prior CAD experience, they will learn how to use Onshape, a unique browser-based CAD software that runs on almost every standard device, including Chromebooks and mobile devices. Attendees will learn the skills they need to model their team's robots, including generating accurate motion of gears, bills of materials, and gaining access to an extensive, curated Onshape Parts Library

Outreach - Room 3
Presenters - The RoboKnights, FTC Team 8569
How to approach outreach as a team, while engaging and educating the public about FIRST.

Building Options – Room 4
Presenters – Tundrabots, FTC Team 7083 & Cut the Red Wire, FTC Team 6078
In this session, we will go over the advantages and disadvantages of the different building systems commonly used in FTC. We will discuss systems like Gobilda, Andymark, Rev, Acto, Vex, Tetrix, and full custom.

Marketing - Room 5
Presenters – Wannabee Strange FTC Team 731
Learn about multiple approaches, activities, tactics and resources that can be used to market your team to increase visibility of your team, FTC and FIRST in your community.

Tips for a Virtual Season – Room 6
Presenters – Alan Smith, Rick Hallihan
A season with virtual meetings is new for almost all of us. Come hear from a panel of coaches that have been doing off-season virtual meetings for things that have worked (and things that have not.)

Judging in the time of COVID-19 – Room 7
Presenter - Fiona Last-Powell, NC FTC Lead Judge Advisor
There are several changes to the FIRST Tech Challenge Judging Process this season and all our events in NC will be remote, so let's think through how to do a great team interview whilst home alone on a web-meeting!

SESSION 2 9:45AM - 10:30AM

Autonomous Programming Basics – Room 1
Presenter – Nikki Allen and Will Meyers, FTC Team 2901, Purple Gears
In this session the programmers of team 2901 purple gears will be teaching you the basics of an autonomous program. This includes driving by encoders, turning using a gyroscope that is built into the REV Expansion Hub, and vision processing using VuForia and TensorFlow.

Advanced CAD With Onshape – Room 2
Presenter – Ilam Maya, FTC Team 2901, Purple Gears
This Onshape session is to familiarize you with the more advanced aspect of Onshape, from talking about Part Studios and making custom parts to editing parts in context and creating a part in an assembly from context.

Engineering Notebooks - Room 3
Presenter – SWIFT Robotics FTC Team 7105
Insight on how to put together a great Journal whilst following all the rules and guidelines. This year there is also the Portfolio so we will talk about that and the importance of a strong virtual notebook.

Setting up and using a Virtual Robot Simulator - Room 4
Presenter – Alan Smith FTC Team 16072 Quantum Quacks
Tired of trying to write your autonomous code the night before because the robot isn't ready any earlier? In this workshop, we'll show how to setup and use the Beta8397 simulator so that you can write and test software without your robot present.

Scoring Mechanisms - Room 5
Presenters – Tundrabots FTC Team 7083 & Aperture Science FTC Team 5064
In this session, we will overview the different types of scoring mechanisms that can be used for FTC. We will go overactive intakes, lift systems, and how scoring mechanisms interact with each other.

Strategy Session - Room 6
Presenter - Jan Fischer, FTC Alum
This year is going to be really different. How do you strategize effectively to play alone on a "half" field"?

Season Overview, Tournament Structure, and Competition Schedule - Room 7
Presenter – Shayla Sharpe, Sharpe Pursuits, Inc. - NC FTC Event Planner
In this session, we will provide an overview of the virtual season tournament structure. Due to COVID-19, registration, team communication and tournament week procedures have changed to conform to an online environment.

SESSION 3 10:45AM - 11:30AM

Designing for Consistent Autonomous - Room 1
Presenters – Tundrabots FTC Team 7083 & Quantum Quacks FTC Team 16072
We will discuss how to balance software and mechanical needs for autonomous. This presentation will also go over the different hardware options to improve your consistency for autonomous touch sensors, encoders, odometry, etc.

Drive Trains; Designs and Decisions – Room 2
Presenter – Wannabee Strange FTC Team 731
This presentation outlines the basic types of drive trains and which drive trains to use in different situations. We will also go over the advantages and disadvantages of the different types of drive trains.

Control Theory- Room 3
Presenters – Phi Rho Eagles FTC Team 8300 & Highly Combustible FRT Team 9548
This session will be a simple explanation of control theory in FTC and how it can be used for auto, pseudocode we will be covering topics such as Primitive control methods, PID, and Feedforward control. We will also have take-home Java Examples

Linear Motion - Room 4
Presenters – Beren Hollingsworth – Alum Aperture Science, Team 5064
An overview of options for all sorts of sliders and linear expansion systems.

On-Bot Java – Room 5
Presenter – Sushen Kolakaleti*, FTC Team 4653, Irrational Door Keepers*
The basics of how to program your robot using Java and Android Studio. Starting with how to setup the programming environment and ending with methods of getting the code to the bot, including On-Bot Java.

Running a Rookie Team – Room 6
Presenters – Rick and Tammy Hallihan Infinite Turtles FTC Team 16461
This session will cover all aspects of running a rookie team - planning sessions, design, hardware, software, notebook, outreach, virtual ideas, etc. They will share their insights to having a successful season and valuable lessons learned from their first year in FTC. If you're a rookie team, come learn top tips from an experienced FIRST team that just completed their first season in FTC.

Coaches' Round Table- Room 7
Facilitator – Robyn Stephens, The RoboKnights FTC Team 8569
Let's get together and build community whilst discussing typical season challenges and celebrations as well as unique ones for 2020-2021.