

HOW TO: Conduct Online Meetings

Principles: An Overview

The process of moving a team online will involve constant decision-making, but keeping these basic principles in mind will make the process easier.

1. Versatility -- Using a *small* selection of online tools with a *wide* range of functions will help the team stay organized. The average member shouldn't have to acclimate themselves to tons of new tools.
2. Authenticity -- Online meetings should be held to similar quality standards as in-person meetings. Treating online meetings like a short-term or less important option can lower team morale/confidence.
3. Accountability -- During online meetings, keeping members and student leaders accountable for their behavior and responsibilities is all the more important.
 - 3.1. Behavior -- Anything online is permanent, and online meetings are no exception. It's important to maintain etiquette rules.
 - 3.2. Responsibilities -- Online meetings usually come with more moving parts than regular in-person meetings, which means more responsibility for student leaders.

Setting Up: Platforms and Structure

The base level of your online meeting strategy will involve how you host, schedule, and structure your meetings. All of this is influenced by what may be your most important tool: your meeting hosting platform. Note: your team's school or sponsor might have a platform your team can use.

There are two basic “types” of platforms your team can use to have video meetings:

1. “Link” Platforms -- This software creates calls that are accessible via a link you can send out to attendees (e.g. Zoom, Google Meet, etc).
 - 1.1. Pros: The link can easily be sent to anyone who joins the team, and can allow one-time attendees to be added easily. These platforms *tend* to have a lot more tools for managing meetings (recording features, breakout sessions, etc.).
 - 1.2. Cons: These platforms often require some more safety precautions, because links can easily end up in the wrong hands.
2. “Group Chat” Platforms -- This software creates calls based on a text-based chat that can have members added to it. (E.g. Discord, Skype, Messenger, etc.).
 - 2.1. Pros: Teams can be sure that only approved attendees are added to their meetings, both text and video communications are combined in one platform

2.2. Cons: Adding a one-time speaker can be harder, and these platforms often require a personalized account. Additionally, they tend to have sparser features.

The platform you choose should be the one that's most appropriate for your team's circumstances. Don't be afraid to test a few out.

A common difficulty in hosting online meetings can be that members forget when meeting times are. This can easily be avoided by consolidating a calendar with separate meetings listed. We've provided two examples below:

“Link” Calendar → Designed to let members easily access the meeting they need from one central location.

Good For: Teams that need to send members from one meeting to another on occasion, teams with advisors that need to quickly check in on multiple meetings, large teams that need a hub to stay connected.

	Tuesday		Wednesday		Thursday	
	Meeting	Link	Meeting	Link	Meeting	Link
2pm	CAD Subteam Meeting	Click Here			Mechanical Subteam Meeting	Click Here
3pm			Chairman's Committee	Click Here		
7pm	Administrative Meeting	Click Here			Electrical Subteam Meeting	Click Here

“Group Chat” Calendar → Designed to inform members of when meetings are and provide a contact for the person leading the meeting.

Good For: Teams who just want a reference for when meetings occur and who they're led by, but don't want a “hub” to access meetings, small teams where every member has each other's contact information.

	Tuesday		Wednesday		Thursday	
	Meeting	Contact	Meeting	Contact	Meeting	Contact
2pm	CAD Subteam Meeting	Annie A.			Chairman's Committee	Claire C.
3pm			Administrative Meeting	Bethany B.		

Preparing Your Student Leaders

The transition to online meetings requires lots of communication and creativity. Arm your captains/leaders with the skills they need for success early on to make the process run smoothly.

1. Technology Know-How → Make sure every student leader knows how to use your team's chosen meeting platform and keep themselves and other members safe.
 - 1.1. Video resources → Have student leaders watch tutorial videos that explain the features of your team's meeting platform. Bonus Step: Check their knowledge with a short quiz!
 - 1.2. Safety Features → Establish ground rules. Should all meetings be recorded? How should inappropriate behavior be dealt with? What permissions should members be given during meetings (screen-sharing, private messaging, etc.). All these questions should be answered by the team's mentors and clearly communicated to student leaders.
 - 1.3. Trial Run → Have each of your leaders try your team's software at least once before managing a full-sized meeting.
2. Communication Habits → Online meetings might be harder for your members to remember. They might also be harder to keep interesting. The first step to addressing these issues is an involved and engaged student leadership base.
 - 2.1. Meeting reminders → Make sure each leader develops the habit of reminding members about meetings 2-3 days in advance. Maximum attendance = increased engagement.
 - 2.2. Public speaking → Have a mentor-led discussion about what makes a good public speaker in a video call (looking at the camera, varied pitch, hand gestures)
 - 2.3. Email Updates/Paper Trail → Make sure to set expectations for how student leaders should keep mentors in the loop. Whether that's a weekly email summary, cc'ing mentors on correspondence, or keeping a log, make sure there's an easy way mentors can stay informed of the team's latest activities.
3. Student Leader Meetings → Friendship between your student leadership team will do a lot to connect the team despite the separated nature of online meetings, make an effort to foster that friendship!
 - 3.1. Have calls with all captains/student leaders so they can get an appreciation and understanding of each other's work.
 - 3.2. Online equivalents of traditional bonding activities (e.g. games, dinners, etc.) can go a long way to pulling a team together.

Lesson Adaptations

Oftentimes teams spend years refining their teaching strategies for new members, and much of that becomes unusable when transitioning to online meetings. Still, there are a variety of ways to teach skills remotely without losing the entertaining and interactive aspects of robotics education.

The following adaptations are grouped by skill type:

Independent Computer/Paper Skills (single student projects)

These skills include making and analyzing drawings, basic coding skills, strategy spreadsheets, and CAD practice. These are the easiest lessons to transfer because they don't necessarily require lots of collaboration and they're not based on uncommon equipment.

Strategies Include:

1. Find a software that members can access from their own remote computers
 - 1.1. Many of your students will have access to differing devices --

OS/Windows/Chrome-- and in some cases may not have a device at all
 - 1.1.1. Make sure you find software tools that everyone can use or find multiple similar software tools to cover the types of devices your members have
 - 1.1.2. If a member doesn't have a device, see if information can be typed into packets and dropped off/sent via mail to the member's residence
2. Assign projects that refine their skills and do not require in-person materials
 - 2.1. A "Level-Based" system for increasing project complexity can be particularly useful during online meetings where some students might pull ahead
 - 2.1.1. Example: Have some members work on a "Level 1" strategy spreadsheet so they can understand the metrics your team uses to gauge teams, while members on "Level 2" might instead work on automating spreadsheets for ease of convenience
 - 2.2. Emphasise process instead of outcome → In online meetings, captains and student leaders can't be as hands-on in guiding independent learning. Encourage teaching strategies that compensate for this
 - 2.2.1. Example: Have members use CAD to design a manipulator, then give a presentation explaining the process they took to get there (sources of inspiration, revisions to the original design and why they were made, references used, etc.)
3. Encourage independent usage and learning
 - 3.1. Members can learn other skills that are not traditionally taught

Collaborative Computer/Paper Skills (small group projects)

These skills include designing assemblies, making presentations, and complicated code work. In general, these are creative tasks that benefit students most when they're done in small groups.

Strategies Include:

1. Set up a mode of communication between members
 - 1.1. Especially for school-based teams, members may be used to relying on in-person time to get extra work done and learn from more experienced members
 - 1.2. Use texting or direct messaging on social media as a substitute
 - 1.3. Encourage returning members to reach out on their own time to new members so they don't fall behind in group tasks or get sidelined
2. Give them tasks that require cooperation to be successful
 - 2.1. A task with a lot of moving parts is unlikely to be monopolised by a single group member. Encourage student leaders to assign projects which stretch the limits of members' knowledge base to encourage communication and discussion.
3. Provide opportunities for peer review and redesign
 - 3.1. Presenting work is a fantastic strategy to keep group members accountable in a harder-to-monitor environment like that of online meetings
 - 3.2. In addition, feedback from student leaders can help everyone --regardless of if they're presenting-- improve

Uncommon Component & Machinery Skills

Uncommon Component skills center mostly around assembly for robot subsystems, electrical circuit practice, riveting, soldering, etc. They're significantly harder to reproduce because they involve non-virtual materials. Mechanical skills include drilling, milling, using a lathe, and CNC work.

Oftentimes, lessons for these skills have to be cut down to theory or applied in a limited scope.

Strategies Include:

1. Video resources → Videos are the closest alternative to live demonstrations when it comes to teaching members how to operate machinery.
 - 1.1. Create a resource → If a team has access to their machine laboratory, it is often advantageous to try and film a step-by-step guide on how to use that machinery because it will be the most specific for that team.
 - 1.2. Find a resource → For teams that do not have access to their on-site locations, many resources exist online to teach how to use certain machinery. These resources could also be used to train members.
2. Concepts → With limited access to machinery, it becomes vital to focus on the conceptual basis behind how to operate machinery.
 - 2.1. Principles → Teaching general principles on how to operate machinery can give members pseudo-experience. Specifically focusing on techniques used while

operating machinery and why they are used can help members prepare other members to use machinery.

3. Testing → It is important to evaluate the skills of members before allowing them to operate machinery.
 - 3.1. Safety → Safety on machinery can be taught without direct access to an on-site facility. Because of this, it is important to create a form of safety tests for members to pass to ensure that they understand the general rules to follow while operating machinery.
 - 3.2. Machine operation → While this method may be no substitute for in-person tests, it is still possible to test the understanding of members on machine operations. Tests can be given on how to machine a given part, what techniques to use, and overall machine operation knowledge.

Apportioning and Completing Work

Remote meetings often result in a loss of productivity for a team. However, it is important to sustain effective delegation.

1. Dividing Work
 - 1.1. Create a list of all work that can be done virtually and how in-person work could be adapted to virtual means. This lets you know what is possible and what needs to be completed.
 - 1.2. Maintain proper documentation on what tasks are assigned to who, so you know who to hold accountable for it
 - 1.3. Make sure there is a balance of work given to members so everyone is included and no one is overwhelmed
2. Completing Work
 - 2.1. Frequent check-ins with team leaders → Make sure that everyone knows what they have to do and are finishing their work in a timely manner.
 - 2.2. Create a calendar → Calendars help team leaders understand their current workload and efficiently manage their time. This also provides a holistic understanding of what needs to be done and what has been completed.

Events and Morale

It is very important to maintain the team dynamic and morale in general. This is even more important during an unpredictable and unconventional time of virtual meetings.

Some ways to ensure this are through:

1. Having frequent subteam meetings

- 1.1. Assures that new members are still learning skills, even if not in the same way as done before
- 1.2. Allows for projects that can be done virtually to be completed appropriately
- 1.3. Brings a sense of normalcy and routine
2. Hosting full team events and meetings
 - 2.1. Encourages students to meet others on the team → establish connections
 - 2.2. Teach different technical skills to different members on other subteams → can learn more about and get involved in the other areas of the team
3. Non-formal meetings
 - 3.1. A way to check in on how members are doing
 - 3.2. Strives to create the same family dynamic virtually

Safety

Whether your team is in online, hybrid, or fully in-person meetings, safety should be a top priority. Especially in the confusing process of transitioning into and out of virtual meetings, students need an environment in which they feel safe and supported. As such, please refer to the standards set in the FIRST Youth Protection Program and make sure your team upholds the expectations of the program throughout the virtual meeting process.

About The Compass Alliance

The Compass Alliance was founded by 10 teams from around the world with the mission of helping *FIRST* Robotics Competition teams sustain and grow. A growing Resource Repository, and 24/7 Call Center give anyone of any skill level the tools to learn something new or learn more from anywhere in the world. Remote teams lacking mentors can sign up for a Tag Team to be their remote guide throughout the season, and Help Hubs pinpoint where to gain access to local services other *FIRST* teams offer. Hear For You provides the resources and tools to help teams and volunteers develop mental wellness on their teams and at events. You can learn more about The Compass Alliance, find quality assistance, and get involved at www.thecompassalliance.org

About This Resource

This resource was prepared by The Compass Alliance, with the support and overview of *FIRST*. If you have questions about this resource, please contact thecompassalliance@gmail.com or firstroboticscompetition@firstinspires.org.

Revision History

Revision #	Revision Date	Revision Notes
1.0	Dec. 2020	Initial Release



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