Wingspan #7431
Team Safety Manual

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1 Introduction:

Wingspan #7431 is always compliant with all rules and guidelines outlined in the FIRST® Safety Manual; furthermore, there are some additional precautions that we take to ensure an environment of safety at all times. This is what is outlined in our team safety manual.

1.0.1 Goals:

Maintain a safe and effective work environment at events attended by Wingspan and at all times in its facilities.

1.0.2 Scope:

The dangers of all departments are established along with how to minimize their risk. This manual also describes reporting procedures for incidents.

1.1 Responsibilities:

1.1.1 All Participants:

- Must assist in maintaining an environment of safety at all times
- Undergo required safety training and follow corrective action plans
- Report all safety incidents to the student safety captain and mentors
- Follow all instructions given by the student safety captain

It only takes one for a disaster to happen. Therefore, all team members must take an active role in safety.

1.1.2 Responsibilities of the Student Safety Captain:

- Develop and implement safety protocols among various departments of Wingspan
- Cultivate a culture of safety conscience through various safety training, corrective action plans, and individual team member coaching
- Consistently research, review, and revise safety protocols that mimic and/or reflect industry standards and best practices

- Attend classes relating to and consisting of work safety programs
- Administer first-aid on a limited-basis to injured team members
- Document all injuries and safety violations
- Conduct periodic "safety sweeps" of work areas, before, during and after meets, work and/or production days, etc.
- Submit documents related to FIRST® Safety Awards and team recognition programs

1.2 Safety Training:

1.2.1 Safety Certification

All active members of *Hawk Robotics* including *Wingspan* must complete a Safety Certification to participate in team events and all qualifying competitions.

To receive a *Safety Certification,* members of *Wingspan* are required to read the current *FIRST® Safety Manual*, the *Wingspan Team Safety Manual*, and the *Competition Rules and Expectations* document. Members seeking certification are additionally required to take a safety exam on the above documents and must express excellence in all areas of safety. Members of *Wingspan* are required to receive at least a 17 out of 20. If a member does not pass the exam, the member will receive individual safety coaching and may retake the test.

1.2.2 Tool Training

Optionally, members on *Wingspan* can choose to receive tool specific training. Tool training must be completed before members can use the tool in question. Tool training consists of a demonstration of the tool, use of the tool in a controlled manner, and an informal quiz of the tools features. Tool certifications will be awarded at the discretion of the Team Safety Captain or a designated trainer (for example, a mentor experienced with the specific tool). After receiving a certification, members are permitted to use a tool at their own discretion.

2 General Safety Requirements:

2.1 The “Traffic Light” system:

The traffic light system is a system for classifying required Personal Protection Equipment (PPE) for team meetings and events. Meetings will fall into three (3) categories. GREEN, YELLOW, and RED. Safety risk levels are used for a general PPE requirement and may not reflect actual risk. Risk levels may be changed on a moment's notice and any team members unable to adjust to the change may be removed from activity until risk returns to a lower level. When in doubt about the safety level of a meeting, always err on the side of caution.

2.1.1 GREEN Days:

GREEN days are low-risk days with no real machine work, such as: Finance and Operations planning days, Team meetings, and Software-specific days.
The required PPE on GREEN days is: Closed-toed shoes There are no additional safety requirements with GREEN days.

2.1.2 YELLOW Days:

YELLOW days are medium risk days that may include light machine work and controlled robot usage (To be classified as YELLOW, the robot must be on blocks and unable to move). Meetings are classified as YELLOW days if the Hardware team is present and may be working, OR if any power tools are in use. All requirements shown are in addition to all requirements for GREEN days.
Additional PPE required for YELLOW days is long pants and Non-tinted, ANSI-approved safety glasses.
On YELLOW days, team members must avoid loose fitted clothing such as jackets, jewelry, and lanyards. In addition, all team members with long hair must put their hair into ponytails (If your hair can go into a ponytail, then it applies to this rule).
Lastly, all cellular devices must be put on silent and should not be used in work areas.

2.1.3 RED Days:

RED days are high-risk days that include heavy machine work (such as welding), FIRST® competitions, and any time when the robot is active.
Required PPE on RED days is work specific safety gear (Ex. face shield for welding).
Team members with long hair must put their hair in a bun (If hair is long enough to go into a bun, it should be in a bun. Otherwise, refer to the hair rule for YELLOW days).
All cellular devices must be on silent and must be placed on the PPE shelf.

2.2 Safety Glasses

Safety glasses are very important to ensure complete protection for the eyes.
One (1) pair of non-tinted ANSI-approved safety glasses are assigned to every team member and must be worn at all times when in the hardware designated portable, or any place where:

- A hand or power tool is in use
- The robot is active
- Other specific cases where eyes may need to be protected

Students are permitted to bring home safety glasses, but this is strongly discouraged to reduce the chance of losing them.

Safety glasses are periodically checked to ensure that they are not damaged.

2.3 Work Area Protocols

Being aware of when other people are entering or leaving the workspace is critical when maintaining an environment of safety.

Wingspan members should always ask permission to enter the hardware or software workspace when work is in session and the working team should be aware if you are leaving the workspace. All team members should avoid slamming the door as this may damage components.

2.3.1 Work Area Securement

These guidelines are set in place to ensure the safety of members entering/leaving the workspace when work is taking place. Access to work areas can be one of three permittance levels. Permittance levels are determined by the current color of the workday.

Free access:
There is little to no risk in the hardware portable, and entering/leaving the workspace is permitted without notice.

Restricted access:
There is moderate risk in the hardware portable. Entering and leaving is restricted. To enter, please knock on the door and wait for a member of hardware to allow you to enter. Be prepared to put on PPE, as it will be required for you to remain in the portable.

Prohibited/Emergency only access:
There is a large risk in the hardware portable. Entering is not permitted, please notify the team when exiting the portable. If an emergency entrance is required, please be prepared to use the emergency protocol.

2.4 Emergency Protocol

2.4.1 Emergency Stops

Any time an incident occurs, the Emergency Stop Procedure should be enacted.

Initiating an emergency stop:

The person, a nearby team member, or the Safety Captain will loudly call “FULL STOP”. Team members will stop working as quickly as safely possible. Then, team members will give full attention to the caller / Student Safety Captain for further instruction. Team members should not talk or distract others. Team members should be prepared to assist wherever possible. Student Safety Captain or safety representative will apply first aid or any assistance that is required for the specific emergency. When the Student Safety Captain has ensured the situation has been dealt with, the call “All Clear” signals that work may continue.

2.4.2 First Aid

Wingspan implements many safety precautions, however, if someone does get injured, first aid may be required.

Wingspan has multiple first aid kits, such as for the portable and competition. All team members should know where first aid kits are located, in case the Student Safety Captain is not present.

3 Hardware Safety Requirements

3.1 General Hardware Safety

- Ensure all parts are tightened and do not leave any loose parts
- Stay on task and keep distractions, including phones, away from workspaces
- When working, be aware of any possible tripping hazards, and pick up any problem objects
- If any parts are manufactured with unintended sharp edges, smooth them and if a sharp edge is intentional then cover to avoid injury
- Make sure that all components are surge protected and unplugged when not in use
- Keep food away from the work area and wash hands before entering the work area

3.2 Fire Safety

- Keep Class C Fire Extinguishers nearby in case of electrical fires
- When high-temperature objects are being used, ensure that the workstation is covered with a nonflammable covering

3.3 Stored Energy

- Keep baking soda nearby at all times when a battery is present in case of a spill
- When robot testing has concluded, de-energize any and all energy sources, such as pressurized air and electrical power

3.4 Heavy Lifting

- When lifting heavy objects, be sure to have more than one person lifting and lift with your legs, not your back, to avoid injury
- Be careful and always pre-plan your lifts, the worst thing that can happen is someone mid lift not understanding what to do next

3.5 Tool safety/training

- If donated parts/tools are received, review any donations and sort into 3 piles: Use, Repair, and Throwaway
- If you are unfamiliar with a tool, undergo safety briefing and training for that tool.
- Keep loose clothing and long hair away from rotating machinery and always wear proper PPE.

4 Software Safety Requirements

4.1 Computer Components

- When working on a computer, lay it on a flat, stable surface.
- Be cautious of exposed spinning objects, such as fans.
- Be cautious of sharp objects inside and outside the computer.
- Make sure the surface your computer is on is clean and free of debris.
- Make sure the computer is off / there are no lights on before opening and working on it.
- Be sure to monitor the computer's temperature during work and don't block the vents to the cooling system.
- Always check to make sure that you are plugging the correct cord into the correct port, and remember, “Just because it fits, doesn’t mean it’s going to work.” -Parker Helms, Software Leader 2019-2020.
- Likewise, avoid placing wires and cables in dangerous positions. (ex. on the floor.)
- Check all cables for damage / exposed wire before use.
- Keep magnets away from computers.
- Do not put foreign, unnecessary hardware inside the computers.

4.2 Software Precautions

- Don’t download anything without permission from the Lead Software Engineer or a mentor.

- If it is believed that there is an infection on one of the computers, communicate with a mentor immediately.
- If you have an issue with a computer, shut down the computer, and if necessary, unplug it.
- Do not sign in to any personal accounts on the work computers unless you are on a guest account.
- Save your code frequently.

5 Operations/Strategy Safety Requirements

5.1 Competition Safety Requirements

- Don’t approach people alone, use the buddy system.
- No sudden movement in the stands, move carefully and slowly when close to others.
- Startling / Loud noises and or movements, don’t surprise people, let people know you are there.
- Always know where the emergency meetup point is for any specific event, details for said meetup point are detailed before the event takes place.

5.2 Media Production Safety

- In regards to discarded video equipment, make sure that everything is put in place after use.
- When finding loose equipment, secure equipment before use.
- For electronic generation of heat, put electronics on a flat surface / Ventilated area / Turn off if not in use
- Avoid placing computers on your lap due to overheating.
- Avoid multitasking when in dangerous situations.
- Take breaks regularly to avoid long periods of sedentary work.
- Ensure shoes are tied before entering the workspace.
- Limit distractions when someone is working, and don't get distracted yourself.

6 Covid-19 Safety Requirements

6 Covid Safety Measures

- Make sure to wash your hands often.
- Whenever you finish with a tool or material call over a member of safety to sanitize them
- Meetings will be limited to ten students and the Coaches
- There will be an attendance of who attends meetings.

Form

Hawk Robotics Incident Report

Use this form to report accidents, injuries, medical situations, or student behavior incidents; incidents involving a crime or traffic incident should be reported directly to the appropriate authorities. Upon completing the report, return it to the Coaches/Mentors for review and recommendations.

Incident/Problem Identification

Date/Time _____

Location _____

Activity _____

Injury Occurred? ☐ Medical Treatment? ☐ BPS Report Needed? ☐

Description of Incident/Problem (What occurred? How? Factors leading up to event? Result?)

Determined Cause of Incident/Problem (What caused this to happen?)

Corrective and Preventative Action Plan (What can be done to prevent this from re-occurring?)

Description and Action	Initiated	Closed	Responsible

Reporter Information

Submitted By _____ Reviewed By _____

Signature _____ Signature _____

Date _____ Date _____