



SAFETY MANUAL

SPARC 5665 - 2023-2024



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“Accidents hurt. Safety does not”

GENERAL WORKSHOP RULES

1. SAFETY GLASSES MUST ALWAYS BE WORN!

2. ASK PERMISSION FROM YOUR WORKSHOP

SUPERVISOR BEFORE USING SENSITIVE EQUIPMENT!

3. YOU MUST HAVE BEEN DEEMED COMPETENT BY YOUR

WORKSHOP SUPERVISOR BEFORE USING ANY

EQUIPMENTS!

4. VISITORS MUST REMAIN WITHIN MARKED WALKWAYS AT

ALL TIMES!

5. LONG HAIR MUST BE TIED FROM THE BACK!

6. CLEAN YOUR EQUIPMENTS AFTER USE!

7. HEARING PROTECTION MUST BE WORN WHEN OPERATING

HEAVY MACHINERY!

8. NO LOOSE CLOTHING.

9. NO RUNNING.

10. WEAR CLOSED-TOE AND CLOSED HEEL SHOES.

1. Introduction to Safety

The workshop contains many potential hazards to your safety. However, with proper control and concentration these hazards can be completely eliminated. This manual is designed to outline the basic workshop safety requirements and how you should be using them to keep yourself safe.

Mission Statement: To provide the tools, training, and oversight for FIRST Team 5665 to operate in a safe manner in all aspects of their work whether it be in their workshop or whether it be while in the competition.

2. Safe Conduct

The following recommendations are to detail the expected standard behaviour for all of our team members working within the pit area:

- Never adopt a casual and relaxed attitude in the workshop and always be conscious of the potential hazards to your safety.
- Ensure that personal clothing is suitable to the workshop conditions.

Open footwear should not be worn in the workshop area. Singlets, tank tops or similar clothing are also not suitable for wearing in the pit area.

- Always wear eye protection when using power operated hand or machine tools, or while performing physical tests that could lead to the damaging of your eyes .
- Use protective clothing and devices appropriate to the type of operation being carried out, giving due consideration to the work being carried out in the vicinity.
- Never run in the pit area.

- Do not carry out any work in isolation in the pit area; ensure that at least one other person is in the vicinity.
- Do not handle, store or consume food or beverages in the pit area.
- Before any work is carried out in the pit area, permission must be obtained from the Pit Area Supervisor. Never undertake any work unless the potential hazards of the operation are known as precisely as possible, and the appropriate safety precautions are adopted. Take additional care when carrying or moving any potentially hazardous material or substances.
- Label all safety equipment and maintain it in good operating condition. Check and inspect safety equipment for correct operation in accordance with the manufacturer's instructions and report to workshop supervisor in need of any requirement for maintenance.
- Keep safety information and emergency procedures prominently displayed at all times in the pit area.

Included in the safety information, the telephone numbers of emergency services: in Turkey =112 / in the USA = 911.

First Aider: Abidin ZENGİNLER: +90 533 931 3751

Safety Captain: Turgay Erdoğan +90 532 452 5520

FIRST AID BOX LOCATIONS

Pit Area → On the shelves

3. Safety In The Pit

Housekeeping is an important component in the workshop to prevent any risks of injury from potential hazards in the environment.

The following precautions are to be taken to ensure the safety of our team members while working within the pit area:

- Pit dimensions are 10'x10'x10', do not try to add to your space by setting up in another area!
- Floors are to be kept tidy and dry.
- Benches are to be kept clean and free from chemicals and any equipment that are currently not in use.
- Exits are to be kept free from any type of obstructions.
- Bottles and glassware are to be kept off the floor.
- Access to all emergency equipment (fire extinguishers, first aid kits) must be kept free from obstruction.
- Work areas and equipment are to be thoroughly cleaned after use.
- If a team member is the last to leave the pit area, they must make sure that all equipments are turned off.
- No spilling out into the aisle! Keep your robot, tools and supplies inside your pit!

4. Electrical Safety

Any and all of our members must do these before working on our robot:

- Turn it off by opening the main circuit breaker, and unplugging the batteries before working on it.
- Vent any compressed air and open the main vent valve.
- Relieve any compressed or stretched springs.
- Lower the robot's arms or devices that could fall before starting on your work.
- Respect Electricity!!!
- Inspect AC electrical cords routinely to make sure that they are in good condition.
- Do not overload electrical fixtures.
- Do not daisy chain outlet strips.



5. Robot & Batteries & Tools

5.1.1 The Robot

- Don't put your hands on the robot while it is on.
- Don't work on the robot if it is currently residing on an unstable surface.
- Release compressed air, turn off the robot and relieve other sources of energy before working on it .
- Do not drive too close to anyone.
- Notify anyone in the vicinity before enabling your robot .

5.1.2 Lifting the Robot

- Make sure that no one is currently working on the robot.
- Make sure that your robot is turned off.
- Communicate with your team members!
- Keep a good grip with your safety gloves on.
- Lift with your legs, not your back.
- Turn with your feet— do not twist.



5.2.1 Battery

- Check before using.
- Do not use a dropped battery.
- Do not use a battery that appears to be physically damaged.
- Check the battery's wires.
- It must have a tight connection.
- And must be well insulated.
- Never pick up a battery by the wires.



5.2.2 Battery Spills

- Battery Spill Kit.
- Splash proof goggles.
- Gloves.
- Baking soda.
- Notify mentor and safety captain.
- If needed, give medical assistance.

5.3.1 Power and Hand Tools

- Have a mentor present.
- Use the right tool.
- Know how to use the tool.
- Don't distract anyone using a power tool.
- Concentrate on your work.
- Never leave the tool running and unattended.
- Work on a stable surface.
- Watch out for sharp edges.

6. Fire Extinguishers

This equipment is provided in our workshop and pit area to extinguish minor fires only. If there is any major risk from the fire, the building MUST be evacuated. Before using a fire extinguisher read the instructions ensuring that it is appropriate to the type of fire.

- Water Type Extinguisher - Colour coded red. For use on solid fires only. Not to be used on electrical or chemical fires.
- Carbon Dioxide Extinguisher [CO₂] - Colour coded red with a black band. For use on electrical and flammable liquid fires - It should be noted that this extinguisher can be safely used on all types of fires, however when the gas dissipates, re-ignition can take place.

7. Working Alone

FIRST team SPARC 5665 has established rules that ensure the safety of all staff and students who may be required to work alone in the pit area.

Working alone refers to situations where people may be exposed to risks because:

The area they are working in is remote from others or isolated from the assistance of others because of the nature, time or location of their work; or it involves the operation or maintenance of equipment, or the handling of a hazardous material; or the work is dangerous for a person to perform alone where any of the above is applicable, working alone must be avoided.

For working alone, the following applies to any and all members:

- Staff and students must not work alone in the area where medium to high risk equipment is to be used.

- Emergency assistance – a means of communication to gain

assistance if an emergency is available. Your cellphone can be used to contact the emergency services. If this is necessary, the safety captain and area security should be informed.

8. Safety Documentation & Records

These are the primary safety documents and records that the team maintains:

- FIRST SAFETY Manual
- 5665 Safety Manual
- MSDD: Material Safety Data Sheet (for chemicals – Battery)
- Safety Training Records
- Safety Checklist (Inspect tools and equipment before using, identify any hazards in the work area and check & maintain good housekeeping.).
- Incident Reporting (Must report ANY type of injury to the Safety Captain or lead mentor and also report ANY potential safety issues or hazards.)



9. Incident Reporting

- When an accident, whether minor or major, occurs, immediately tell your team Captain or safety Captain.
- Document the incident in the Corrective Action Log (see Safety

Captain)

- Write down the incident and cause of the incident in your team safety notebook.
- Make sure that the situation that caused said incident is corrected and make sure that does not happen again.
- Replace damaged or worn equipment.
- Learn from your mistakes and the mistakes of those around you.

10. Workshop (5 'S' Principle)

- **Sort** : Sort through items and set them in groups, needed or not needed.
- **Straighten**: Organise the work area.
- **Shine**: Do regular inspection, maintenance and cleaning within your work area.
- **Standardise**: Use an inspection list before starting your work.
- **Sustain**: Make **5S** your way of life :)



-Stay Safe-