robotex International

# GIRLS FIREFIGHTING RULES

COMPETITION COORDINATOR

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# Contents

# 1 Introduction

Firefighting is a competition designed for girls and women with the aim of encouraging them to develop skills necessary in engineering.

The goal of the competition is to locate four candles placed in the competition area and extinguish them within a certain time.

# 2 Competitors

1. One operator and up to four assistants may be registered for each robot (**maximum of five team members in total**). *The team may change the designated operator in accordance with the competition rules.
2. Competitors **can only be female.**
3. Team mentors can be either male or female.
4. The competition is divided into three age groups:
    a. **OPEN** - At the competition day 19 y.o. and older.
    b. **U19** - At the competition day up to 18 y.o. (including 18 y.o.)
    c. **U14** - At the competition day up to 13 y.o. (including 13 y.o.)
5. The age group is determined by the age of the **oldest member of the team**.
6. You must register your team to a correct age category. If during the competition it turns out, that the team is registered to an incorrect age category, the robot of this team will be disqualified from the competition. **NB!** Teams who belong to the younger age group are allowed to compete in the older age group.
7. The organizers reserve the right to check the age of the competitors during the competition. In case of violation the robot of the team, who violated the rules will be disqualified.

# 3 Technical inspection and registration

The robot needs to pass technical inspection before the competition. The robot technical inspection is based on paragraphs “2.” , “5.” and “8.”. During the inspection, it is checked whether the robot or the operator who is handling the robot meets the paragraphs requirements. **Only one team member with a robot** *(the currently selected robot operator)* **can come to the technical inspection. If necessary, they can have a translator or team instructor with them.** The purpose of this is to guarantee a smooth course of the competition and technical inspection.

# 4 The Field

1. The competition area is a 2.5 x 3.5 m white field. The field is printed on a white PVC plate marked with circles indicating the positions of the candles.
2. The boundary of the field is a 25 mm wide black line, outside of which is a 200 mm white area.
3. The field is surrounded by white walls.
4. Each round of the competition will have a different layout. The candles are surrounded by randomly placed walls.

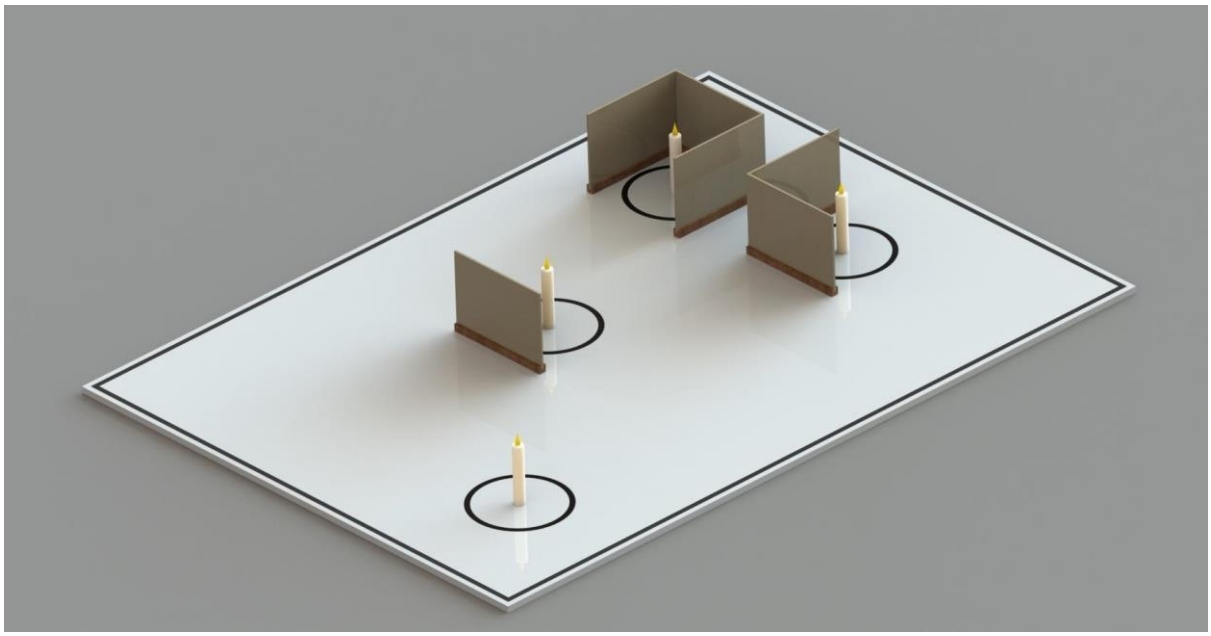

Figure 1 (Example of the field and a candle combination)

5. The candles stand in the center of a white circle with a diameter of 400 mm and are bound by a 25 mm wide black line (Figure 1).
6. The height of the candles depends on the age group. The height of the candles in the younger age group is up to 100 mm, and in the older group, it varies from 100 mm to 400 mm.

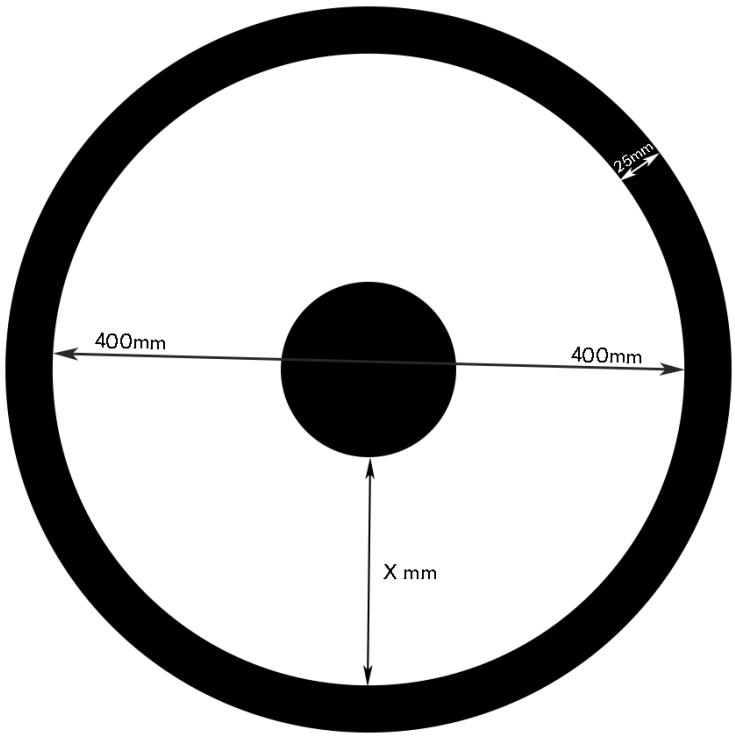


Figure 2 (Candle with the surrounding line)

8 In all age groups, walls obstruct access to the candles:

9 One candle without a wall.

10 One with one wall, one with two walls.

11 One with three walls.

12 The walls are obstacles around the candles on the field, which together with wooden bases, are 400 mm high. The walls rest on wooden bases that are 45 mm high and 45 mm thick. The width of the walls varies from 200 mm to 350 mm. **Note! It should be considered that two walls may not be tightly together, and gaps may occur.**

Figure 3 (Top view of the field)

# 5 The Robot

1. The robot must be autonomous.
2. The robot must fit within 200x200mm +2 mm tolerance at registration and at the start of the competition. During the competition, the robot can expand to a maximum size of 300x300mm +2 mm tolerance.
3. The maximum allowed weight of the robot is 3 kg.
4. The robot must have a start and stop button or remote control.
5. The robot must not damage the field or be dangerous to spectators.
6. The robot can use any means to extinguish the fire, but it must not damage the field or be dangerous to spectators. Immediately after the competition, the field must remain clean. If necessary, the team must quickly clean it before the next competition.

**The robots must be marked with number stickers** (robot number). The stickers are provided by the organizers of the competition.

# 6 The Competition

1. The robot starts each new round on a different field from the starting point designated by the competition referee.
2. Robots must start the attempt at the referee's command.
3. The robot must start moving within 5 seconds of the referee's start command. If the robot does not start within 5 seconds of the referee's start command, the attempt is considered a failure.
4. The first candle is in the robot's view at the start.
5. The competition is divided into two parts: the main round and the final tournament.
6. In each attempt, the robot has up to 3 minutes to extinguish 4 candles.
7. **In the qualification round, competitors have 1 attempt, which contains 3 rounds**. The score for the qualification attempt is the sum of the three round results.
    a Competitors need to complete their 1 attempt in the time frame, which is specified in the timetable. (usually 2-4h, depending on the festivals timetable and number of competitors).
    b **It is forbidden to leave the competition area** with the robot between the rounds until the attempt results have been decided and checked. ***NB! If the robot cannot be found from the competition area*** *at the right time or if the team itself is not present****, the qualification attempt will end.***
8. **In the finals competitors have 1 attempt, which contains 3 rounds**. The score for the final attempt is the sum of the three round results.

a At the beginning of the finals, your robot will be called out and the robot with the operator will need to enter the competition area. If the organizers decide to conduct another technical inspection for all finalists´ robots, they will inform the competitors.

b **It is forbidden to leave the competition area** with the robot between the rounds until the attempt results have been decided and checked. **The robot and operator are allowed to leave the area the Referee/Organizer authorizes it.** ***NB! If the robot cannot be found from the competition area*** *at the right time or if the team itself is not present****, the qualification attempt will end.***

9. Only competitors may handle the robot before and during the attempt.
10. If a competitor touches the robot after the start of the round, the time is stopped, and the round ends. The score will be based on the candles extinguished before touching the robot.
11. If the robot exits the competition area into the participant area, the time is stopped, and the round ends. The score will be based on the candles extinguished before exiting the competition area. A robot is considered to have exited the competition area if completely crosses the black line surrounding the field.

# 7 Scoring

1. Points are awarded for each extinguished candle according to the number of extinguished candles (Appendix 1. Scoring).
2. If all candles are extinguished in less than 3 minutes, i.e., 180 seconds, the unused seconds are added to the score as points.
3. Candles are considered extinguished if the robot has entered the surrounding circle, extinguished the flame, and left the circle without touching the candle.
4. If a candle is extinguished without entering the circle, half of the possible points are awarded. A robot is considered to have entered the circle if at least some part of it is on the black line. (The part does not have to touch the line but must be visible from above that the part is on the line.)
5. If a candle falls over after being extinguished, half of the possible points are awarded.
6. Extinguished candles become obstacles in the competition field, and no points are deducted for touching them.
7. In the qualification round, competitors have 1 attempt, which contains 3 rounds. The qualification attempt score is the sum of the 3 competition rounds. **The top 4 robots with the highest scores advance to the final.**
8. **In the finals competitors have 1 attempt, which contains 3 rounds**. The score for the final attempt is the sum of the three round results. **The top 3 are determined by the highest scores in the final.**

# 8 Organizing

1. The competition fields are open for practice when no official competition is taking place.
2. Before the competition, registration must be completed, during which the robot is technically inspected, the competition number is affixed, and the start-stop functions of the robot are tested.
3. The technical inspection must be completed by the time set by the organizers.
4. Questions and issues arising during the competition are resolved by the referees.
5. **The decisions of the referees are not subject to appeals**. Complaints must be submitted during or immediately after the round. If no settlement is reached with the referee, claims must be submitted immediately to the Robotex Head referee. Any later complaints will not be accepted. In case of any conflicts or disputes, the final word will be said by the referees and/or the organizers. **NB! Rude behavior is not tolerated and the team who does not respect the referee's / head referee's decisions can be disqualified by the head referee and/or event organizers.**
6. **The lighting in the area** needs to be as close to real sunlight as possible *(Midday)*, with consistent color and stability. The field cannot have shadows while the round is running. Lighting is allowed to change between rounds, but it needs to be consistent for every round. Each field at the competition area must be evenly lit.
7. **When competitions start to delay**, organizers have the authority to act in accordance with rules to minimize the delays and bring the competition back on schedule. The competition will continue as smoothly as possible, eliminating any rematches or any moments that could cause delays, and instead using a less time-consuming judging system based on rules. Any objections will not be accepted during the delay, and competition will not be delayed to resolve the objections. If the robot cannot be found in the designated area, the attempt will end.
8. **The arena has at parts uneven lighting and infrared noise**, which may disrupt the work of sensors during the competition. For this reason, the organizers recommend using covers or blinds for sensors, testing the sensors under intense lighting conditions or even under direct sunlight to imitate the lighting conditions of the competition arena.
9. Winners of 1st place cannot compete in the same category next year– they must take a one-year break from that category. At least 50% of the team must consist of non-winners. If the winners' team has three members, next year they should have at least one new member who was not previously on this team to compete in the same category again instead of taking a year off from it. *This rule is aimed at bringing new people, giving everyone a fair chance and encouraging recurring winners to try new*

*competitions they usually do not participate in and to educate and engage new beginners in the field of robotics. **

*** The rule complies only with Robotex International standards and is used for Robotex International competition**.

## 9 Changes and cancellations in the rules

Changes and cancellations made to the rules are adopted by the main organizer of the competition according to the regulation of the regulatory committee of the competition.

# 10 Appendix 1. Scoring matrix

| | Number of candles extinguished | | | | Total possible score |
|---|---|---|---|---|---|
| | First (No walls) | Second (One wall) | Third (Two walls) | Fourth (Three walls) | |
| Full Points | 100 | 200 | 300 | 400 | 1000 |
| Half points (see 7.4 ja 7.5) | 50 | 100 | 150 | 200 | |
| Time Bonus: Clock counts down from 180 seconds and stops when the robot extinguishes the fourth candle (see 7.2) | | | | | 180 |

Table 1. Scoring matrix

# 11 Revision history

1 01.02.2026 Revision history is created. (Many changes have been made to the rules, please read the rules.)