FOR INSPIRATION AND RECOGNITION OF ENGINEERING TEACHING AID 2025

APPLICATION NOTICE FOR THE FIRE COMPETITION IN SCHOOLS - 2025

1. INTRODUCTION

This notice aims to guide teachers and educators in clearly and confidently applying the FIRE (For Inspiration and Recognition of Engineering) competition with their Elementary and High School students.
The competition is promoted by the JACTECH team – SESI SENAI Jacareí, with the goal of encouraging creative thinking and innovation through engineering solutions.

2. ABOUT THE 2025 THEME

Theme: *Smart Cities: How to simply and intelligently improve daily life in cities around the world, thinking about housing, transportation, or communication.*

Explanation for students:
Let's imagine together ways to make our cities better. You can create something that helps people stay more organized at home, move around more easily, or communicate faster.
Example: a traffic light with a sensor that changes automatically to help with traffic flow, an automatic message board at school, or a small cart that delivers messages from one classroom to another.

3. PARTICIPATION LEVELS

Level 1: Grades 1–5 (Elementary School)
Level 2: Grades 6–9 (Middle School)
Level 3: Grades 10–12 (High School)

4. HOW TO APPLY FIRE IN THE CLASSROOM

General Step-by-Step:

- Present the theme to students in a playful way, using visuals and real-life context.
- Form groups of up to 3 students from the same class.
- Explain the 3 categories (Art, Maker Prototype, Autonomous).
- Encourage simple, feasible, and creative solutions.

- Follow the process and guide the use of accessible materials and clear communication.
- Guide students to submit materials by **September 30, 2025**, through the form.

5. CATEGORIES & SUBMISSION METHODS

FIRE includes three main categories, allowing students to explore their creativity in different ways:

- **Art (All levels):**
  Students express their ideas through drawings. Ideal for younger students, this category allows imaginative thinking using simple tools.
  The drawing must be on an A4 sheet (portrait or landscape), scanned or photographed in good quality, and submitted as an image file.
  Strongly encouraged for Level 1, as it allows free exploration and development of visual communication skills.
  Ideas may include drawing an invention, illustrating a creative solution, or artistically representing an urban improvement.
- **Maker Prototype (All levels):**
  Students can build physical or digital prototypes.
  Materials can include recyclables or digital tools like Tinkercad, Scratch, etc.
  The group must submit a video (max 3 minutes) explaining the project's concept and functionality, with a clear introductory slide.
- **Autonomous (Levels 2 and 3 only):**
  For students with more experience in electronics and programming, this category allows development of autonomous devices like robots and smart systems.
  Must include an explanatory video and the programming file used.

6. EVALUATION CRITERIA

Each category has its own criteria, with assessment of creativity, functionality, clarity, feasibility, and technical knowledge.
Complete rubrics are attached to this notice.

7. IMPORTANT DATES

Registration & submission: August 10 – September 30, 2025
Evaluation: October 1 – October 20, 2025
Results & awards: October 25, 2025

8. AWARDS

- Trophies and certificates for top-placed teams
- Individual certificates for all participants

- Special awards for teachers (*Erika Honma Award*) and standout students (*Girls in STEAM*)

9. TIPS BY LEVEL

Level 1 (Grades 1–5):

- Use recyclable materials, modeling clay, drawing, and paper.
- Strongly encourage the use of the Art category, allowing children to freely draw their ideas for improving the city.
- Give examples like “a cardboard box that stores toys by itself” or “a board with colored arrows showing where each student is in the school.”
- Use games and stories for inspiration.

Level 2 (Grades 6–9):

- Encourage the use of simple technologies like Scratch, basic microcontrollers (such as Arduino), or modeling apps.
- Examples: “a gate that opens with a proximity sensor,” “a traffic light made with LEDs that responds to light sensors.”

Level 3 (High School):

- Encourage more complete projects with prototyping and programming.
- Projects can address real urban solutions with impact simulations.
- Examples: “a robot that sorts trash by color,” “a city model with motion sensors to save energy.”

Questions?

The JACTECH team is available via Instagram @jactech_9458 and the official form: https://forms.gle/qrC3xGPv3dZVCEay9