STEAM AZERBAIJAN

SAF 2025 INTERNATIONAL STEAM AZERBAIJAN FESTIVAL

IMAGINATION TO REALITY

CATEGORY

SELECTION STAGE RULES

BAKI 2025

INTRODUCTION

The “Imagination to Reality” category is designed to showcase and develop engineering and technical creativity skills through the use of CNC (Computer Numerical Control) laser technologies. Participants will create digital models using Computer-Aided Design (CAD) software and then transform these models into functional and precise prototypes using Computer-Aided Manufacturing (CAM) technology with CNC laser cutting machines. This process allows students to explore key engineering concepts such as design, precision, material selection, structural integrity, and production strategies. At the same time, they enhance their analytical thinking, spatial imagination, creative planning, and problem-solving skills.The primary goal of the project is to foster practical knowledge and skills in innovative thinking, technical creativity, and digital manufacturing by promoting teamwork, communication, collaboration, and strategic planning. Furthermore, participants gain early exposure to modern technologies and career pathways related to future professional fields.

1.Participation requirements

1.1. Each team must consist **of one team leader aged 18 or above and only two participants aged between 13 and 15**.

Each participant may compete in only one team and in only one category. ● **The same team leader may lead multiple teams** within the same category. ● A mentor **may lead teams in multiple different competition categories of the International STEAM Azerbaijan Festival.**

1.2. All participating teams are deemed to have accepted any amendments made by the **SAF 2025 International Scientific Committee** as well as all terms and **conditions outlined** in the official rules.

1.3. The names of the teams participating in the **International STEAM Azerbaijan Festival must not** reflect **political, religious, military, or conflict-related** themes.

2. Rules for participants

2.1. Participating teams must adhere to the principles of fair competition, refrain from engaging in disputes with other participants, avoid insults, physical confrontations, or any provocative behavior. They must not intentionally damage other teams’ projects or take their belongings without permission. In case of any violation, disciplinary measures will be applied based on the nature and severity of the misconduct.

2.2. All participating teams must be aware of safety rules and must avoid any actions that could endanger the safety of their own team or others.

2.3. Team leaders and accompanying individuals are strictly prohibited from entering the competition area or interfering in any way with the competition process. If a team leader or accompanying person provides informal assistance to their team or

interferes with other teams' performances, the referee is authorized to issue a warning, disqualify the team, and impose appropriate disciplinary measures.

2.4. Each participant is allowed to compete in only one category. Duplicate registrations, false registration, misrepresentation of a participant's age, unauthorized substitution of participants, and similar actions are strictly prohibited. If such violations are identified and officially confirmed, the participant will be disqualified from the competition.

2.5. In the event of unforeseen circumstances not specified in the rules, final decisions will be made by the organizers.

3. Application

3.1. Applications will be accepted through the official website of the International STEAM Azerbaijan Festival.**https://saf.steam.edu.az/az**.

4. Selection Stage

4.1. As part of the selection stage, teams are required to create a short video that presents a **"Ship"** model, which they have designed using computer-aided design (CAD) software and fabricated with various CNC (Computer Numerical Control) machines. The presentation should be engaging and creative. *Detailed requirements are provided in the "Technical Task" document.*

4.2. The model must be constructed using the specified materials (outlined in the "Technical Task" document) and should be **between 30 and 50 cm in size.** The design must emphasize both creativity and functionality; every component should be carefully considered and precisely manufactured using CNC equipment.

4.3. Teams must create a short video that presents their "Ship" model, which has been produced using a CNC laser machine, in a creative and engaging way.

The video must clearly and concisely demonstrate the following elements:

- Design sketches
- The working principle of the model
- Applied technical methods ● Team collaboration and workflow

Requirements:

- The video must be at least **3 minutes in length** and in a minimum resolution of **1080p.**
- The video must be uploaded to the **YouTube** platform.

- At the beginning of the video, **the team name, school name,** and **project title must be clearly indicated.**

Recommendations:

- It is recommended to use dynamic transitions, visual effects, and appropriate background music.
- The team's collaborative efforts, stages of model development, and the model's unique features should be presented in a **visually appealing and comprehensible manner.**

4.4. Teams must also submit a written report—referred to as the "Engineering Notebook"— which includes the technical description of the model, as well as documentation of the design and fabrication processes. **The Engineering Notebook** must be submitted in **PDF** format and should include the following sections:

- Team information
- Project title
- Design sketches
- Technical methods and materials used
- Summary of the development process

Please refer to the sample "Engineering Notebook" for guidance.

4.5. The video link and the Engineering Notebook must be uploaded to the relevant sections on the official competition website.

4.6. The submitted projects will be evaluated based on the criteria listed below.

5. Evaluation

5.1. The submitted model and its presentation will be evaluated based on the following criteria.

Evaluation criteria			Points
1. Content and technical accuracy	1.1 Structure of the Model	A clear explanation of the ship hull structure, the arrangement of components, and the principles of balance	10
	1.2 CAD-CAM Files of the Model	Preparation of the utilized files	10
	1.3 Preparation of Component Files	Inclusion of sketches, dimension plans, and structural diagrams in the video and the engineering notebook	10
2. Video editing and presentation	2.1 Visual Appeal	Professional and context-appropriate use of images, graphics, and animations.	10
	2.2 Expression and Presentation Language	Clear and logical delivery of information.	10
	2.3 Technical Quality	The visuals, explanations, written information, and audio must be clear.	10
3. Uniqueness of the model	3.1 Design and Originality	If the model is based on an existing design	5
		If the model is created from scratch	15
4. Engineering notebook	4.1 Planning and Documentation Structure	The project stages (concept, design, cutting, assembly) should be presented in a sequential and comprehensible manner.	10
	4.2 Technical Materials and Dimensions	The document must include dimensions, scale, material thickness, and cutting specifications. This information should comprehensively cover the complete assembly of the model.	10
Total score			**100**