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Newsletter September 2025



NEW BEGGINING AND CHALLENGES

Formula Student is a competition for future engineers around the world, with the goal of preparing young people for all the challenges they will face during their engineering careers. University teams use their knowledge to build a vehicle inspired by Formula 1, within a set of predetermined strict rules. The competition is divided into several categories, depending on the type of powertrain the team uses.



How do students build a Formula car? At first, it is a desire, then a concept, and later ideas are born that lead to designing, engineering, and manufacturing the vehicle.

“Road Arrow” has, in its 15 years of existence, built 9 internal combustion engine vehicles and 2 electric vehicles!

ROAD ARROW AT FORMULA STUDENT 2025

The competitions are held across Europe, and this year our team proudly participated in three **prestigious events**: in **Croatia, Poland, and Italy!**

Within the Formula Student framework, every team must undergo **six rigorous inspections** and technical tests – a true engineering challenge in itself. **“Road Arrow” successfully passed all of them at each competition**, proving the team’s technical excellence and uncompromising attention to detail.



After all inspections, numerous runs in the dynamic disciplines on track followed, as well as presentations in the static disciplines.

There are three static disciplines in which teams present their engineering and economic solutions applied to their vehicles in front of esteemed judges.

INSPECTIONS

Competitions are held in countries across Europe, and our team participated in three this year: **in Croatia, Poland, and Italy!**

Within the Formula Student competition, there are six inspections and tests that represent a major engineering challenge for every team, and "Road Arrow" successfully passed all of them at each competition!



Mechanical inspection includes checking all mechanical components – the chassis, suspension, steering system, and safety elements (seatbelts, seat, roll hoop). The goal is to ensure the structure can withstand loads during driving and that there is no risk of breakage or failure.

Electrical inspection refers to the entire electrical system of the vehicle – cables, connectors, fuses, insulation, and functionality of the boards. For teams with electric vehicles, the high-voltage section is especially checked to ensure everything is properly grounded and protected from direct human contact. During the battery inspection, the accumulator is examined in detail: its design, cell packaging, cooling and protection systems, as well as the BMS (Battery Management System), which manages charging, balancing, and discharging of the cells and communicates with other boards.



The rain test simulates driving in the rain – the vehicle is sprayed with water to check the insulation of the electrical systems.

The brake test is a practical check of the braking system: the vehicle must reach a certain speed and come to a stop evenly, with all four wheels locking simultaneously.

The tilt test involves tilting the vehicle at an angle of 60° to determine whether fluids leak and whether the battery and fuel behave safely.

After all inspections, numerous dynamic discipline runs on the track followed, as well as static discipline presentations. There are three static disciplines in which teams present their engineering and economic solutions applied to their vehicles in front of esteemed judges.



STATIC DISCIPLINES

The Business Plan Presentation shows the team's ability to commercialize its vehicle and establish a start-up company with the most detailed and realistic financial and marketing analyses. We are proud of the fact that our team ranked in the top 10 in this discipline at all three competitions this year, with the best result **being 6th place** at the competition in Poland!



Cost & Manufacturing Event requires teams to document every part that exists on the vehicle, thus preparing future engineers for the precise formatting present in the industry. In addition, judges assess the teams' awareness and capability to create a budget and examine the CO₂e emissions of a specific vehicle system, as well as solve a real problem related to the vehicle within a few days at the competition itself. Our team's best placement this year was **5th in Poland and 13th in Italy!**

The Engineering Design Event aims to gather from the team all engineering decisions made about the vehicle, from concept selection to data collected through testing. The most complex of the three static disciplines, it carries the most points and is usually divided according to six engineering areas in the electric vehicle category.



Knowledge from all technical faculties of our university is combined with the desire to showcase, in the best light, the effort and expertise invested in designing, producing, and testing this year's vehicle. Seventh place at the competition in Poland is the best ranking we achieved in this discipline this year!





DYNAMIC DISCIPLINES

Dynamic disciplines take place at the end of each competition, since each of them requires the vehicle to be safe to enter the track, which is verified through inspections and tests. There are four disciplines:

1. Acceleration Event
2. Skidpad Event
3. Autocross Event
4. Endurance Event



The Acceleration Event represents a test of the vehicle's acceleration. Each team is separately timed for covering a 75-meter distance, and then, depending on the times set by other teams, the ranking is determined.

Skidpad is a discipline that tests the vehicle's stability in a constant-radius corner. The track resembles the shape of the number eight and consists of a left and a right turn. Drivers are allowed one test lap and a total of four timed runs. The average speed between the left and right turns of the same and fastest completed lap is taken as valid for ranking the teams.



The Autocross Event is the most similar to qualifying in Formula 1. Drivers have four attempts to set the fastest time on a track made up of turns of various radii and slaloms. The ranking of the times set in this discipline directly determines the order in which the endurance race is driven the next day.

The Endurance Event is, for Formula Student, the equivalent of the main Formula 1 race, as it is the only event on the last day of the competition and carries by far the most points (325 out of 1000). The endurance race is 22 kilometers long – eleven driven by one driver and the same distance by the other. Every team aims to design its vehicle in such a way that it completes this distance with the best performance, which is why it often happens that vehicles do not even reach the finish line.



2025 RACING SEASON

During the 2025 racing season, "Road Arrow" achieved notable results in competitions. The team took 8th place in the endurance race in Italy and **5th place in the Cost & Manufacturing event in Poland**, while at all three competitions we were among the **top ten in the Business Plan Presentation**. In addition, **7th place was earned in the Design Event in Poland**, while the **overall placement in Italy was 14th**. The competition in Croatia was marked by the successful completion of the endurance race with the combustion vehicle after 4 years, in the Retirement Cup.



This season brought the team numerous valuable experiences, friendships, and confirmation that investing energy and knowledge pays off. Behind every achieved success stand dedication, hard work, and the constant improvement of team members. Togetherness and a strong team spirit proved to be the pillars of all results, enabling "Road Arrow" to make recognizable progress and stand out among the competition.

NEW BEGGINING AND CHALLENGES

The season has come to an end, and impressions are slowly settling. Team members are taking a well-deserved rest to regain their strength for everything that lies ahead. The new season is just around the corner and brings many new challenges, as well as the opening of applications for new members. A dynamic period of preparation awaits us already in October so that we can be ready to welcome the new season!



What remains behind us are the achievements, beautiful memories, new friendships, and an abundance of knowledge and skills we have gained. Our team is richer for a unique experience. We sincerely thank everyone for their support — from major sponsorships to dear friends of the project — every form of help made this racing summer special and unforgettable for “Road Arrow”.

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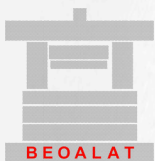
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Road Arrow team