

FORMULA
STUDENT **EAST**

FOR
OUR FORMER AND FUTURE
JUDGES

AUG
1<>6
2023

<INFORMATION PACKAGE>

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RELEASE

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FURTHER DETAILS AT [FSEAST.EU](https://fseast.eu)

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FORMULA STUDENT EAST



DEAR FORMER AND FUTURE JUDGES,

WE HAVE CREATED A BASIC INFORMATION PACKAGE
FOR YOUR ATTENTION, WHICH CAN BE USED AS A GUIDELINE
WHEN ATTENDING FORMULA STUDENT EAST.

REGISTER!
[FSEAST.EU/VOLUNTEERS](https://fseast.eu/volunteers)

ABOUT FS EAST



From 2016 the Association of Automotive Engineers (AAME) organizes Formula Student East as a Formula Student style engineering competition representing the Eastern European automotive region. The Association was established in 2010 and is dedicated to focusing on the educational function of the event as its mission is to help student generations of today become the outstanding professionals of tomorrow. The competition also provides the chance for FS teams from the Eastern European region to compete in an international environment by offering half of the slots for them, the other half for teams from all over the world.

In 2023 we continue our journey with 84 open slots for the FS teams in three categories:

- 24 slots in CV category for internal combustion vehicles
- 36 slots in EV category for electric vehicles
- 24 slots in DV category for driverless vehicles

THE WEBPAGE AND SOCIAL MEDIA PLATFORM OF THE EVENT

- fseast.eu
- facebook.com/formulastudenteast
- linkedin.com/company/association-of-automotive-engineers/

THE STORY BEHIND FORMULA STUDENT EAST

<https://youtu.be/IQcNXErkCXo>

DATE & VENUE

Formula Student East 2023 will be organized at the renowned **Hungaroring racetrack in Mogyoród** between **1st and 6th of August**. You can find further information about the racetrack at hungaroring.hu

The judging activities will take place from 2nd to 4th of August, and they consist of three phases: initial judging, finals, and as a **new addition this year, we will dedicate one day for feedback in every static event.**

A detailed event map and schedule will be published prior to the event.

WHAT'S NEW FOR 2023?

In the inaugural 2022 season we welcomed 4 cars equipped with hybrid powertrain within the CV category. In 2023, the second year of the given ruleset, we expect the proportion of hybrid cars within the category to increase significantly.

This year we plan to introduce a dedicated feedback session for the Engineering Design and Cost & Manufacturing Events (just like we already have such for the Business Plan Presentation Event) when the students have a chance to meet with the judges once again after the initial judging. We welcome and encourage all the judges to participate in this feedback session.

WHAT IS THE ROLE OF THE JUDGES?

A judge is either an experienced Formula Student alumna/alumnus or a practicing professional, who comes from the higher education or from the industry: an engineer, a manager, a financial expert etc.

The main task of the judges on the event is to listen to the presentation of the teams or to have a discussion with the team members and evaluate their performance based on the FS East Rules. As a proper preparation for the role of a judge an online training will be held before the event for the corresponding events.

Since the Static Events are divided into three major events, volunteers can apply to judge the following disciplines:

- Engineering Design Event Judge
- Cost and Manufacturing Event Judge
- Business Plan Presentation Event Judge

Note: In the case of the Engineering Design Event the discipline is split into further topics. A detailed description of all the judging duties and functions can be found below.

Each Static Event consists of two rounds of evaluation:

- Initial judging – Multiple judging groups evaluate the teams parallel with each other.
- Final judging – The best performing teams of the initial judging qualify for the final, where they compete directly against each other, and they are evaluated by one judging group.

BUSINESS PLAN PRESENTATION EVENT

The objective of the event is to evaluate the team's ability to develop and deliver a comprehensive business model which demonstrates that their product - that is based on their prototype race car or a component of the car – could become a rewarding business opportunity. The judges should be treated as if they were potential investors or partners for the presented business model.

The judges are organized into **judging groups**. A group judges 9-12 teams and vehicles during the event. One judge group consists of 2-3 judges:

1. Preferably one judge should be a business/marketing professional.
2. The second judge in an optimal case is a Formula Student alumnus/alumna.
3. Ideally, the third one is an engineer.

The schedule of the BPP Event is roughly the following:

- Prior to the event, you will receive all the necessary information and documents from the organizers, which aids your preparation for the event.
- Online BPPE Training will be held 1-2 weeks before the event, where we will explain your tasks and you will also have a chance to meet the fellow judges in your group.
- **Day 1 (Wednesday, 2nd of August) all day** – Initial judging. During the day you will see the teams' presentations and score the teams assigned to your group. The day ends with a debriefing, where all the questions raised can be discussed with other judges.
- **Day 2 (Thursday, 3rd of August) morning & afternoon** – Feedback session for the teams with dedicated slots for each of them.
- **Day 2 (Thursday, 3rd of August) afternoon/evening** – Final judging, where the best performing teams will compete directly against each other with public presentations. We welcome the interested judges to join the Final.

COST AND MANUFACTURING EVENT

The objective of the event is to evaluate the team's understanding of the manufacturing processes and costs associated with the construction of a prototype race car. This includes trade off decisions between content and cost, make or buy decisions and understanding the differences between prototype and mass production. The judges are organized into judging groups. A group judges up to 6-7 teams and vehicles a day during the initial judging. One judge group consists of at least 2 judges.

Preferably the judge is an engineer with experience in manufacturing technologies (or controlling), through own involvement with a company, or on the other hand, he/she personally likes to manufacture all kind of things. Due to the versatility of the event, engineers working in design roles are also welcomed to participate as Cost and Manufacturing Judge.

During the online judge training the judges will receive a comprehensive instruction package about what they should ask, and for which items they should pay special attention to, when checking the Bill of Material (BOM) next to the cars.

The schedule of the CM Event is roughly the following:

- Prior to the event, you will receive all the necessary information and documents from the organizers, which aids your preparation for the event.
- Online CME Training will be held 1-2 weeks before the event, where we will explain your tasks and you will also have a chance to meet the fellow judges in your group.
- **Day 1 (Wednesday, 2nd of August) all day** – The first part of the initial judging (most likely EV and DV teams). During the day you will visit and score the teams assigned to your group. The day ends with a debriefing, where all the questions raised can be discussed with other judges.
- **Day 2 (Thursday, 3rd of August) morning & early afternoon** – The second part of the initial judging (most likely CV teams).
- **Day 2 (Thursday, 3rd of August) late afternoon & evening** – The final judging for all three categories will be held together in the evening. During the final the best performing teams will compete directly against each other. Prior to the final a briefing for the participating judges will be held in the afternoon where the questions for the teams will be prepared. We welcome the interested judges to join the Final.
- **Day 3 (Friday, 4th of August) morning** – Feedback session for the teams of all the three categories.

ENGINEERING DESIGN EVENT

The objective of the event is to evaluate the engineering effort that went into the design of the car and how the engineering meets the intent of the competition. The car that illustrates the best use of engineering to meet the design goals and the best understanding of the design by the team members will win the Engineering Design Event.

The judges are organized into judging groups. Each group evaluates 4-7 teams and vehicles (depending on the vehicle category and the schedule) a day during the initial judging. The groups are organized to include experts from all fields that shall be evaluated within the given vehicle category (7 topics for CV & EV category, 11 for DV category):

- **Overall Vehicle Concept** – Evaluating the main goals and the development process of the vehicle and its subsystems, checking if the team has reached the goals, evaluates the design theory, season planning, milestones, testing and validation plans.
- **Team & Project Management** – Evaluating the team and project management processes and tools, the documentation and knowledge transfer practices.
- **Chassis, Ergonomics, Sensor Packaging** – Evaluating the design, manufacturing and validation of the primary structure of the vehicle (mostly CFRP monocoque or tubular spaceframe), the ergonomics of the cockpit and – in case of the DV category – the packaging of the sensors of the driverless system (cameras, LIDAR, etc.).
- **Vehicle Dynamics, Suspension, Actuators** – Evaluating the design, manufacturing and validation of the suspension system of the vehicle; including vehicle dynamics and the kinematic design of the suspension geometry, the structural design of the suspension components, the design of the brake system and steering system and – in case of the DV category – the integration of braking and steering actuators. The topic is broad, we recruit judges with diverse expertise (**Vehicle Dynamics; Suspension Kinematic Design; Suspension Structural Design; Braking & Steering Systems and Actuators**), but don't worry if you don't tick all the boxes: we will team you up with other judges complementing your expertise.

- **IC Powertrain** – Evaluating the design, component selection, manufacturing and validation of the powertrain system of the vehicle; including the engine, lubrication, cooling, fuel subsystem, mild-hybrid electric subsystem, drivetrain. The topic is broad, we recruit judges with diverse expertise (**Engine; 48V Mild-Hybrid System; Drivetrain**), but don't worry if you don't tick all the boxes: we will team you up with other judges complementing your expertise.
- **Electric Powertrain** – Evaluating the design, component selection, manufacturing and validation of the powertrain system of the vehicle; including the HV traction battery, power electronics, motors, drivetrain, cooling. The topic is broad, we recruit judges with diverse expertise (**Traction Battery; Inverter & Motor; Drivetrain**), but don't worry if you don't tick all the boxes: we will team you up with other judges complementing your expertise.
- **Electronics, Control System, Signal Processing** – Evaluating the design, component selection, manufacturing or implementation and validation of the electronic system, EE-architecture, ECUs, wire harness, low-level control systems and – in case of the DV category – signal processing.
- **Aerodynamics** – Evaluating the design, manufacturing and validation of the aero pack and body panel of the vehicle and the cooling system.
- **Perception (only in DV category)** – Evaluating the design of the machine vision subsystem, the selection of the sensors (cameras, LIDAR, etc.), the implementation of the video processing, test and validation of the subsystem.
- **Motion Planning (only in DV category)** – Evaluating the design of the motion planning subsystem, the implementation of the mapping and localization (SLAM), the trajectory planning method, test and validation of the subsystem.
- **Trajectory Tracking (only in DV category)** – Evaluating the design of the trajectory tracking subsystem, the method how the vehicle drives itself along the planned trajectory and the implementation of vehicle dynamics within, test and validation of the subsystem.
- **Autonomous Safety (only in DV category)** – Evaluating the overall safety concept, the set of safety goals, the implementation and test of the safety features.

The schedule of the ED Event is roughly the following:

- Prior to the event, you will receive all the necessary information and documents from the organizers, which aids your preparation for the event.
- Online EDE Training will be held 1-2 weeks before the event, where we will explain your tasks and you will also have a chance to meet the fellow judges in your group.
- **Day 1 (Wednesday, 2nd of August) all day** – The first part of the initial judging (DV teams). During the day you will visit and score the teams assigned to your group. The day ends with a debriefing, where all the questions raised can be discussed with other judges. During the debriefing it will be decided which teams qualify for the DV Engineering Design Final.
- **Day 2 (Thursday, 3rd of August) all day** – The second part of the initial judging (CV & EV teams), similarly to Day 1. During the debriefing it will be decided which teams qualify for the CV & EV Engineering Design Final.
- **Day 2 (Thursday, 3rd of August) afternoon & evening** – The final judging for the DV teams will be held in the evening. During the final the best performing teams will compete directly against each other. Prior to the final a briefing for the participating judges will be held in the afternoon where the questions for the teams will be prepared. We welcome the interested judges to join the Finals.
- **Day 3 (Friday, 4th of August) morning** – Feedback session for the teams of all the three categories.
- **Day 3 (Friday, 4th of August) afternoon & evening** – The final judging for the CV & EV teams will be held in the evening, similarly to the DV Final on Day 2. Prior to each final a briefing for the participating judges will be held in the afternoon where the questions for the teams will be prepared. We welcome the interested judges to join the Finals.

HOW CAN YOU BECOME A JUDGE?

If you are interested in joining FS East as a judge, please apply on our website: <https://fseast.eu/volunteers/>

If you have any further questions, please feel free to contact us via hello@fseast.eu e-mail address.

As FS East grows, we'd like to involve new volunteers. Feel free to spread this document among your colleagues, friends and former team members!

Besides judges we need volunteers in several other roles too. As the static events are concentrated into the first half of the FS East event schedule, you can make the most out of your FS East experience if you apply for another role for the second half. We would like to encourage you to explore the other volunteering roles on our volunteer page linked above.

WHAT DO WE PROVIDE?

In return for your efforts, we provide accommodation, catering, cool FS East uniforms and fun times while you stay with us. (:

You are welcome to join the teams, organizers and fellow volunteers to stay in the camping during FS East but accommodation in hotels and hostels in Budapest for the night(s) prior to the participation day(s) is possible.

FS East is a professional meeting point, with hard work during the day, but fun and networking in the evenings. We would like to encourage you to join us in the evenings at the campsite, where we can relax with some snacks and beer.



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SEE YOU AT FS
EAST 2023,
**WE WILL BE
THERE!**

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CHANGELOG

Version	Date	Modification	Page
1.0.0	10th of April 2023	Initial release	-