FORMULA STUDENT
ALPE ADRIA

VIRTUAL AUTOX COMPETITION
FSAAxIPG AUTOMOTIVE

COMPETITION HANDBOOK
2026

FS Alpe Adria

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CHANGELOG

Version	Section	Change Description
0.5	1-13	Section Creation
0.6	13	Updated Name list
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I. INTRODUCTION

I.1 IPG Automotive

As a global leader in virtual test driving technology, IPG Automotive develops innovative simulation solutions for vehicle development. Designed for seamless use, the software and hardware products can be applied throughout the entire development process.

IPG Automotive is an expert in the field of virtual development methods for the application areas of Autonomous Vehicles, ADAS, Powertrain and Vehicle Dynamics.

Together with its international customers and partners, the company is pioneering simulation technology that is increasing the efficiency of development processes.

Through its engagement in Formula Student, IPG Automotive actively supports the education of the next generation of engineers, promoting the adoption of industry-relevant tools and methodologies within the academic environment.

I.2 Formula Student Alpe Adria (FSAA) 2026

Formula Student Alpe Adria (FSAA) continues to establish itself as one of the most dynamic and rapidly growing Formula Student competitions worldwide.

The 2026 edition will take place from the 18th to the 23rd of August 2026 at the Bugatti Rimac Proving Ground in Mičevec, Croatia, bringing together:

- Approximately 80 competing teams
- More than 40 Electric Vehicles (EV)
- More than 20 Combustion Vehicles (CV)
- More than 10 Alumni teams

In total, over **2,000 participants** — including students, engineers, judges, volunteers, and industry partners — are expected to attend.

With this scale, FSAA 2026 is set to become **the largest Formula Student events of the 2026 summer season.**

In parallel with the physical competition, FSAA has developed a strong virtual dimension through **Virtual Formula Student Alpe Adria (vFSAA).**

Since its introduction, vFSAA has hosted **three international event**s, initially based on Assetto Corsa and later expanding into professional simulation environments, involving:

- More than 120 teams
- Participation from all six inhabited continents

This evolution reflects FSAA's commitment to expanding the boundaries of Formula Student by integrating simulation, accessibility, and global participation into its ecosystem.

I.3 Collaboration between FSAA and IPG Automotive

The collaboration between Formula Student Alpe Adria and IPG Automotive represents a continuous effort to integrate simulation technologies into the Formula Student ecosystem.

This partnership has evolved through several key milestones:

- Spring 2025 – Virtual Formula Student Alpe Adria: Night of Champions
  The first joint initiative, introducing a new form of virtual competition within the FSAA environment.
- Summer 2025 – First Virtual Autocross Competition at FSAA
  The inaugural Virtual AutoX event was held on-site, bringing simulation directly into the paddock and allowing drivers to compete in a fully virtual environment.
- Autumn 2025 – IPG Driverless Competition at vFSAA III
  A global virtual competition focused on driverless technologies, further expanding the scope of simulation-based challenges.

Building on these successful initiatives, the **Virtual Autocross Competition at FSAA 2026** represents the next step in this long-term collaboration.

The shared objective of FSAA and IPG Automotive is to:

- Promote the use of advanced simulation tools
- Bridge academia and industry practices
- Enhance understanding of vehicle dynamics
- Support innovation within the Formula Student community and the automotive sector

I.4 Virtual Autocross Competition (AutoX)

The Virtual Autocross Competition is a simulation-based driving discipline integrated into Formula Student Alpe Adria 2026.

In this competition, all participants drive identical virtual vehicles under the same conditions, ensuring that **performance is determined solely by the driver's skill.**

The objective is to achieve the fastest lap time on a track representative of the FSAA Autocross and Endurance layouts, while maintaining full control of the vehicle and respecting track limits.

The Virtual Autocross Competition combines:

- The **precision and repeatability of simulation**
- The **competitiveness of motorsport**
- The **accessibility of a digital environment**

It creates a unique platform where students, teams, and participants can experience high-level driving challenges without the constraints of physical testing.

By placing the driver at the center of the competition, Virtual AutoX reinforces one of the fundamental principles of Formula Student: **a race car is only as fast as the driver who controls it.**

II. GENERAL INFORMATION

II.1 Scope of the handbook

This Handbook defines the rules, procedures, and organizational framework for the Virtual Autocross Competition (AutoX) at Formula Student Alpe Adria 2026.

It is intended to provide all participants with clear and comprehensive information regarding:

- Competition format and structure
- Participation requirements
- Session procedures
- Scoring and classification

This document applies to all participants, including drivers, team members, and any individuals taking part in the Virtual Autocross Competition.

In case of any ambiguity or inconsistency, the final interpretation of the rules rests with the event organizers.

II.2 Official Language and Communication

The official language of the competition is **English**.

All official documents, instructions, and communications will be provided exclusively in English.

Communication channels are defined as follows:

- **Before the event:**
  Communication between participants and organizers will take place via email and official announcements published by Formula Student Alpe Adria.
- **During the event:**
  All relevant information, updates, and organizational instructions will be communicated directly on-site at the Organization Building.

Participants are responsible for ensuring that they are informed of all relevant communications.

II.3 Event Location

The Virtual Autocross Competition will take place at the **Bugatti Rimac Proving Ground, Mičevec, Croatia,** within the **Organization Building** of Formula Student Alpe Adria 2026.

All simulation equipment and driving stations will be provided by the organizers.

Participants are required to be physically present at the designated area in order to take part in their assigned session.

II.4 Official Time Zone and Time Format

The official time zone of the event is **Central European Summer Time (CEST).**

All schedules, session times, and deadlines will follow the format: **YYYY-MM-DD hh:mm (24-hour format)**.

Participants are responsible for managing their attendance according to the official event schedule. Failure to attend a booked session on time may result in the loss of the session.

II.5 Software and Simulation Environment

The Virtual Autocross Competition is based on a professional simulation environment provided by IPG Automotive.

The simulation setup includes:

- **CarMaker software (IPG Automotive)**
- Predefined vehicle models (EV and CV categories)
- Standardized hardware and simulation configurations

All participants will use identical simulation equipment and software configurations provided by the organizers.

No external hardware, software modifications, or setup changes are permitted.

This ensures:

- Equal conditions for all drivers
- Maximum fairness and reproducibility
- A consistent and controlled competition environment

III. ELIGIBILITY AND REGISTRATION

III.1 Eligibility Requirements

Participation in the Virtual Autocross Competition is open to all teams and individuals attending Formula Student Alpe Adria 2026.

III.2 Registration Procedure

Registration for the Virtual Autocross Competition consists of the following steps:

1. **Application to the Formula CarMaker Program**
   Participants must apply for the Formula CarMaker Program via the official IPG Automotive platform using the following link:
   https://www.ipg-automotive.com/support/licenses/formula-carmaker
2. **Registration to the Virtual Autocross Competition**
   Participants must register for the Virtual Autocross Competition via the official Google Form provided by the Formula Student Alpe Adria organization.
   The link to the registration form will be communicated through official channels.

III.3 Required Information

The following information must be provided:

- Team Name
- University
- Race Number
- Vehicle Class (EV or CV)
- Driver 1 – Name and Surname
- Driver 2 – Name and Surname

Fields such as Team Name and University may be left blank for participants not affiliated with a team (e.g. visitors).

III.4 Optional Livery Submission

Teams may optionally upload a custom vehicle livery via the designated Google Drive link provided by the organizers.

The livery must comply with common standards of appropriateness and file size limitations

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III.5 On-Site Registration

Registration may also be completed on-site at the Organization Building, where volunteers will provide support.

III.6 Registration Fee

Participation in the Virtual Autocross Competition is **free of charge**.

IV. EVENT FORMAT AND SCHEDULE

IV.1 General Event Structure

The Virtual Autocross Competition will take place during Formula Student Alpe Adria 2026 from Tuesday to Saturday, from 18th August to 22th August 2026.

IV.2 Session Booking (Doodle System)

The Virtual Autocross Competition will take place during Formula Student Alpe Adria 2026 from Tuesday to Saturday, from 18th August to 22th August 2026.

IV.3 Daily Schedule (Tuesday-Friday Competitive Sessions)

Sessions will take place daily according to the following structure:

- 09:00 – 12:00 Sessions
- 12:00 – 13:00 Break
- 13:00 – 16:00 Sessions
- 16:00 – 17:00 Break
- 17:00 – 18:30 Sessions

Each session has a duration of **30 minutes**.

IV.4 Saturday Event Structure

IV.4.1 Finals Event (Evening Stage)

The Finals will take place on Saturday evening during the Award Ceremony on the main stage.

IV.4.2 Non-Competitive Sessions (Open Sessions)

Open sessions will be held on Saturday during the following time slots: 09:00–12:00 and 13:00–16:00.

V. COMPETITION FORMAT - VIRTUAL AUTOCROSS

V.1 Objective of the Competition

The objective is to achieve the fastest lap time on a virtual track representative of the FSAA Autocross and Endurance layouts.

V.2 Vehicles

Two vehicles will be provided:

- One representing a Formula Student Electric Vehicle (EV)
- One representing a Formula Student Combustion Vehicle (CV), including gear shifting

Both vehicles are identical for all participants within their respective class.

The shape of the vehicle model is based on the **MAD Formula Team MFT02 V1.42 Final**, designed by Diego Rosado and available at:
https://www.overtake.gg/downloads/mad-formula-team-mft02.58653/

Teams may optionally submit a custom livery. If provided, the livery will be used during the sessions; however, it has no influence on vehicle performance.

V.3 Track definition

The competition will take place on a virtual track representative of the Endurance Track of FSAA 2026.

V.4 Session Structure

V.4.1 Practice Laps

Each driver will complete **3 practice laps**.

V.4.2 Timed Laps

Each driver will complete **5 timed laps**.

V.4.3 Best Lap Definition

The best valid lap time will be used for classification.

V.5 Ghost Car System

A ghost car representing the fastest lap will be displayed to assist drivers.

V.6 Driver Requirements

Each team may nominate **two drivers**, selected among those driving the real vehicle at FSAA 2026.

VI. SCORING AND PENALTIES

VI.1 Lap Time Calculation

Lap times are measured automatically by the simulation system.

VI.2 Cone Penalties

A penalty of **+2 seconds** is applied for each cone hit.

For each lap, the penalty is applied for all cones hit during that lap, as well as for any cones hit in the final chicane of the previous lap.

Each time a cone is hit, an **acoustic signal** will be triggered, and the **number of cones hit will be displayed on the screen** during the session.

VI.3 Valid Lap Definition

A valid lap is defined as a lap completed within track limits.

VI.4 Final Time Calculation

The final lap time is determined by adding all applicable penalties to the recorded lap time.

For each driver, the **fastest lap time (including penalties)** achieved among the five timed laps will be used for the final classification.

VII. LEADERBOARD AND CLASSIFICATION

VII.1 Live Leaderboard

A live leaderboard will be displayed at the Organization Building.

VII.2 Displayed Information

- Team
- Driver
- Raw Time
- Number of Cones
- Final Time

VII.3 Classification Rules

Drivers are ranked based on their best lap time including penalties.

VIII. FINALS FORMAT

VIII.1 Qualification for Finals

The top 4 drivers in each category (EV and CV) qualify for the Finals.

VIII.2 Driver Selection Rules

Only one driver per team may participate in the Finals.

If two drivers from the same team are ranked among the top four drivers in their category, the driver with the second fastest time will be considered ineligible for the Finals.

In such a case, the next eligible driver in the classification will be invited to participate in the Finals.

VIII.3 Finals Overview

The Finals consist of head-to-head races and will take place on the same track used during the competition sessions.

The two drivers will race simultaneously on two simulation rigs located on the main stage.

Each driver will be able to see the car of the opponent during the race; however, no physical interaction between the vehicles is implemented, as the opponent's car will appear as a **ghost car**.

During the race, each driver will also have access to a **delta time display**, indicating the time difference relative to the opponent.

A penalty of **+2 seconds** will be applied for each cone hit.

VIII.4 Semi-Finals

The Semi-Finals will be conducted separately for each vehicle category, namely **Electric Vehicles (EV)** and **Combustion Vehicles (CV)**.

For each category, the four qualified drivers will compete in two Semi-Final races.

The pairing of the drivers will be based on their classification results from the qualifying sessions, as follows:

- The driver with the **fastest lap time** will compete against the driver with the **fourth fastest lap time**

- The driver with the **second fastest lap time** will compete against the driver with the **third fastest lap time**

Each Semi-Final race will consist of **three (3) consecutive laps**.

The performance of each driver will be evaluated based on the **total time required to complete the three laps**, including any applicable penalties.

The driver with the lower total time in each Semi-Final will advance to the Grand Final of the respective category.

VIII.5 Grand Final

The winners of the two Semi-Finals in each category will advance to the Grand Final.

The Grand Final is going to be contested as a head-to-head race over **five (5) consecutive laps** on the same track used throughout the competition.

Both drivers will compete simultaneously on the main stage, under the same conditions defined for the Semi-Finals.

The performance of each driver will be evaluated based on the **total time required to complete the five laps**, including all applicable penalties.

The driver with the fastest total time will be declared the **winner of the Virtual Autocross Competition** in the respective category.

VIII.6 Visualization and Broadcasting

The race will be displayed on the **mega screen located behind the stage**, showing both drivers' runs along with the live time gap between them.

In addition, the Finals will be broadcast on the **official YouTube channel of Formula Student Alpe Adria**.

IX. AWARDS

IX.1 Finalists Recognition

The four finalists will be officially recognized.

IX.2 Prizes

Prizes will be awarded to the finalists.

IX.3 Award Ceremony

The awards will be presented during the **Saturday Formula Student Alpe Adria Award Ceremony** by representatives of **IPG Automotive**.

X. NON-COMPETITIVE SESSIONS (OPEN SESSIONS)

X.1 Purpose and Concept

The non-competitive sessions are intended to provide all attendees with the opportunity to experience the Virtual Autocross simulation environment in an open and accessible format.

These sessions are designed to promote engagement, learning, and interaction with simulation tools, allowing participants to explore vehicle behaviour and driving dynamics without the pressure of competition.

X.2 Schedule

The non-competitive sessions will take place on **Saturday** during the following time slots:

- 09:00 – 12:00
- 13:00 – 16:00

During these periods, participants will have access to the simulation rigs to complete their runs.

X.3 Eligibility and Participation

The non-competitive sessions are open to all attendees of Formula Student Alpe Adria 2026, including team members, organizers, volunteers, judges, sponsors, and visitors.

Participation is not limited to registered competition drivers, allowing a broader audience to experience the simulation environment and engage with the Virtual Autocross activity.

X.4 Registration Requirements

Participation in the non-competitive sessions requires registration via the official Google Form provided by the organizers.

Completion of the registration form is **mandatory**. However, fields that do not apply to the participant (such as Team Name or University) may be left blank.

X.5 Track Definition

The non-competitive sessions will take place on a virtual representation of the **Virtual Alpe Adria Track**, as used in the IPG Driverless Competition of Virtual Formula Student Alpe Adria III (vFSAA III).

X.6 Session Format

Participants will be assigned to available simulation rigs and will complete driving runs in a non-competitive environment.

The sessions are intended to provide a flexible and accessible experience, without strict session allocation or ranking pressure.

Organizers may manage the flow of participants to ensure fair access to the simulation rigs.

X.7 Leaderboard (Non-Award Classification)

The best lap time of each participant may be recorded and displayed on the leaderboard.

This classification is for informational and entertainment purposes only, and no awards or official rankings will be assigned based on the non-competitive sessions.

XI. FAIR PLAY AND CONDUCT

XI.1 Spirit of the competition

The Virtual Autocross Competition is based on the principles of fairness, respect, and sportsmanship.

All participants are expected to compete in a manner that reflects the values of Formula Student, demonstrating integrity, respect for others, and a commitment to fair competition.

XI.2 Driver Behaviour

Participants must:

- Follow the instructions provided by the organizers and volunteers
- Respect the simulation equipment and facilities
- Avoid any behaviour that could disrupt the event or affect other participants

Any intentional misuse of the simulation systems or unsportsmanlike behavior may result in exclusion from the session or the competition.

XI.3 Organizer Authority

The organizers reserve the right to take any decision necessary to ensure the smooth and fair execution of the event.

This includes the right to:

- Deny participation in case of inappropriate behavior
- Interrupt or terminate a session if required
- Enforce all rules defined in this Handbook

All decisions made by the organizers are final.

XII. ORGANIZER RIGHTS AND FINAL NOTES

XII.1 Right to Amend

The organizers reserve the right to amend or update this Handbook at any time if necessary.

Any changes will be communicated through official channels.

XII.2 Technical Issues and Force Majeure

In case of technical issues, system malfunctions, or external circumstances beyond the control of the organizers (force majeure), the organizers reserve the right to:

- Adjust the schedule or session format
- Repeat or cancel sessions
- Modify procedures to ensure fairness

Participants acknowledge that such situations may occur and accept the decisions taken by the organizers.

XII.3 Final Authority

The organizers have the final authority in interpreting this Handbook and resolving any disputes or unclear situations.

Their decisions are binding and not subject to appeal.

XIII. CONTACT INFORMATION

Participants are encouraged to contact the organizers for any questions or clarifications related to the Virtual Autocross Competition.

For general questions, participants are encouraged to use the official communication channels provided by Formula Student Alpe Adria.

For direct contact, please refer to the following:

Event Ambassador
Vincenzo Bevilacqua – vincenzo@fs-alpeadria.com

Technical Support
Rohan Prajapati – rohan.prajapati@ipg-automotive.com
Daniel Kneib – daniel.kneib@ipg-automotive.com

fs-alpeadria.com
-
ipgautomotive.com

fsalpeadria
-
formulacarmaker

FS Alpe Adria
-
IPG
Automotive
GmbH

Formula Student
Alpe Adria
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