



# Competition Handbook

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## AT 1 Administrative Regulations

### AT 1.1 Formula Student Austria

Formula Student Austria is part of the Formula SAE Competition Series and open to entries with both conventional and electric powertrains.

This document contains the event specific rules and procedures for the Formula Student Austria Competition.

If you have any question regarding the Rules 2021:

- If you are registered for FSG, please use the FSG issue tracker <https://www.formulastudent.de/fsg/rules/faq/> - there are FSA officials monitoring this as well
- If you have any question regarding the FSA rules or are not registered at FSG, feel free to contact the rules committee under [rules@fsaustria.at](mailto:rules@fsaustria.at)

### AT 1.2 Formula Student Austria 2021 Rules

The Formula Student Austria (FSA) competition will comply with the ruleset known as “Rules 2021”. Changes and additions specific to FSA are located within this document, and supersede the respective sections of the published “Rules 2021” document.

The Formula Student Austria Competition Handbook is to be considered part of the rules.

In case of any contradiction between this document and “Rules 2021” the FSA rules are to be considered valid.

### AT 1.3 Competition Language

The competition language is English.

### AT 1.4 Competition Date and Location

Formula Student Austria 2021 takes place from Sunday, 2021-07-25 to Thursday, 2021-07-29 at the Red Bull Ring in Spielberg/Austria.

### AT 1.5 Competition Time

The Formula Student Austria official time:

From	Till	Time
2020-10-28	2021-03-28	CET
2021-03-29	2021-10-25	CEST

All dates are in the YYYY-MM-DD (ISO 8601) format.

### AT 1.6 Vehicle Classes and Scoring System

The event will be run with two classes – IC and electric – with all static and dynamic events being run together but scored separately. There will be no driverless (FSD) class. (Change of Rules2021(A 1.2.1)

### AT 1.7 Personal Transport

Use of small vehicles on-site is allowed but teams are reminded to use them responsibly, especially regarding pedestrian safety and loud noise.

### AT 1.8 Unofficial timing and telemetry equipment

No unofficial timing and telemetry equipment (e.g. IR Transmitters, radio extenders, etc.) is allowed inside the dynamic area. Exempt from this rule is the driver change/preparation area, where team members with dynamic passes are allowed to remain during the course of the dynamic events, if the equipment does not interfere with the conduct of the event.

### AT 1.9 COVID-19 Specific Regulations

To comply with applicable laws and regulations and to mitigate health risks, there may be significant changes to the event format. These may include but are not limited to: limitation of team size (min: 10), changes to static event formats, requirement to attend online sessions and mandatory health precautions on premises (e.g. mask wearing, CoV-testing).

## AT 2 Registration & Eligibility

### AT 2.1 Registration Date

The registration for FSA 2021 starts on Friday, 2021-02-05 at 1900 CET.  
Refer to the FSA website for details.

#### AT 2.1.1 Registration fee

Registration fee for Formula Student Austria is EUR 4620 (four thousand six hundred and twenty) including USt (VAT). This includes:

Handling Fee	Eur 670
Competition Participation (incl. 20 Team Members)	Eur 2680
Camping Fee (x10)	Eur 545,45
VAT	Eur 724,55

Payment is accepted only by bank transfer. Bank details will be sent to every successfully registered team by E-mail. Every team has to send a confirmation of the money transfer by e-mail. Payment is due within 7 days of successful registration. Failure to do so will result in the loss of your slot and your team being placed on the waiting list.

*Note: Faculty Advisors also count as team members and have to be registered as such.*

#### AT 2.1.2 Cancellation and Refunds

In case of the team withdrawing or being deregistered from the competition the “Camping Fee” share (and applicable taxes) of the registration fee will be rewarded.

In case of FS Austria being cancelled, the registration fee except the handling fee (and applicable taxes) will be refunded.

#### AT 2.1.3 Additional Team Members

Additional team members can be registered for EUR 35 (non-refundable) each until the TMD ([AT 3.1](#)). After the TMD the fee increases to EUR 70.

Payment is possible in cash at the on-site registration; please be sure to have the exact amount ready.

### AT 2.2 Registration Capacity and Waiting List

Registrations will be given out in the order of the quiz results; afterwards in the order of submission. FSA will limit the number of entries to 58 (28 EV / 30 IC). After this limit is reached, additional entries will be placed on the waiting list and will eventually become a registered entry if another registered team redraws or is removed. Slots may be moved between classes at a later time (i.e. if a waiting list “runs out”)

#### AT 2.2.1 Slots

A certain number of slots at FSA 2021 are reserved. If a team fits more than one reserved slot it will take up the one listed higher up in this document.

Reserved slots will automatically be assigned to the respective teams. To allow for this, the team needs to be registered on the FSA website by the time the quiz starts. After this time the reservation expires.

#### AT 2.2.2 2019 Top Finishers

Three (3) slots in each class are reserved for the top finishers of FSA 2019:

Combustion	Electric
<ul style="list-style-type: none"><li>• TU Graz (TU Graz Racing Team)</li><li>• UAS Graz (Joanneum Racing)</li><li>• UAS Ravensburg-Weingarten</li></ul>	<ul style="list-style-type: none"><li>• TU Munich</li><li>• Trondheim U</li><li>• Tallinn TU UAS</li></ul>

#### AT 2.2.3 Austrian Teams

Five (5) slots are reserved for Austrian entries

Combustion	Electric
<ul style="list-style-type: none"><li>• UAS Graz (Joanneum Racing)</li><li>• UAS Vienna (OS.car Racing Team)</li></ul>	<ul style="list-style-type: none"><li>• TU Graz (TU Graz Racing Team)</li><li>• TU Vienna (TUW Racing)</li><li>• Uni Innsbruck (Campus Tirol Motorsport)</li></ul>

#### **AT 2.2.4 Wildcard slots**

Up to three (3) slots, independent of class, will be available as “wildcard” slots. Wildcard slots will be assigned by FSA based on the “wildcard application” which has to be completed before the registration starts. See the FSA website for details.

## AT 3 Dates & Documents

Note: Some of these Details might be subject to change to react to changes and requirements by other events in the FSAE series. Check <https://fsaustria.at/fsa-2021/rules/> regularly for updates

### AT 3.1 Submission Dates Summary

Document	IC	EV	Date	Document Template
Fuel Type	•		at Registration	n/a
SES/SE3D	•	•	2021-03-19 13:00	Rules 2020
IAD	•	•	2021-03-19 13:00	FSG
ESF		•	2021-04-02 13:00	FSG online submission
EDR	•	•	2021-06-04 13:00	FSAE
DSS	•	•	2021-06-04 13:00	FSA
BP ES & Pitch Video	•	•	2021-05-21 13:00	FSA / (n/a)
Team Member Designation	•	•	2021-06-04 13:00	n/a
Vehicle Status Video	•	•	2021-06-25 13:00	n/a
Event Program Team Page	•	•	2021-06-25 13:00	FSA
Cost Report Documents	•	•	2021-07-09 13:00	FSG online submission

Documents not listed in this table are not required.

### AT 3.2 Cost Report Documents

The BOM & CBOM is to be created using the FSG CR tool. The whole CR is then to be exported using the corresponding “PDF Export” function in the CR tool.

The exported PDF should be zipped together with the Cost Report Explanation file (CREF) and Supporting Material (SM) (e.g. drawings)

There are no rules regarding the style of the CREF other than it should be a comprehensive explanation of the assumptions and calculations that were used to derive the part/process costs used in the CBOM.

The file format of the CREF shall be PDF.

The ZIP archive containing all documents must be uploaded no later than the deadline listed in AT 3.1

The submission should look like this:

```
[ZIP archive]
├─ [C/D/BOM] PDF exported from FSG
├─ [CREF] Cost Report Explanation File, PDF
└─ [SM] Supporting Material, PDF
```

#### AT 3.2.1 CBOM

The CBOM must be created for the “Electrical System”.

#### AT 3.2.2 DBOM

The DBOM must be created for the “Suspension System”.

### AT 3.3 Business Plan Documents

All Business Plan Documents are “Group B” Documents according to Rules2020\A5

### AT 3.4 ESF

The ESF has to be completed using the FSG online ESF tool.

### AT 3.5 Health Insurance Certificate (change of Rules 2020\A4.6)

Requirement waived. See <https://fsaustria.at/fsa-2014/hic-dl/> for details

### AT 3.6 FSG Online submissions

For certain documents the use of online tools provided by FSG (Formula Student Germany) is required.

To use these tools, a team has to be registered for the current FSG event. For teams not attending both FSA and FSG, a registration for the end of the FSG waiting list is sufficient and no payment is required.

## AT 4 Technical Requirements

### AT 4.1 Ready-to-Drive Sound (Change of Rules 2020\EV4.12.3)

Sound-type requirement waived

### AT 4.2 Accumulator Temperature Monitoring Device (change of Rules 2020\EV5.8.5, IN3.1.2)

The logging device will not be installed at FSA

### AT 4.3 Technical Inspection Sticker

The sticker will be 150x100 mm (WxH). A suitable spot shall be reserved on the upward-facing bodywork between the front roll hoop and the front bulkhead.

## AT 5 Engineering Design

### AT 5.1 Engineering Design Judging Criteria (change of Rules 2020\S3.8.2)

Rules 2020\Table6 is void. The Judging Criteria for FS Austria are

- Design Report
  - Design Approach
  - Knowledge/Understanding
  - Execution/Build
  - Use of Resources
  - Creativity/Ingenuity
  - Presentation
  - Product Design & Style
  - Documentation & Management
  - Innovation
- in the engineering fields
- Suspension
  - Frame & Body
  - Aero
  - Drivetrain (EV/IC)
  - Elec(tro)nic Systems
  - Ergonomics

for 10 (intermediate) points each. The final design score will be calculated from the intermediate score through normalization and scaling.

## AT 6 Business Plan Presentation

### AT 6.1 Applicable Rules (Change of Rules 2020\S1)

Rules 2020\S1 is void and replaced by AT6

### AT 6.2 Business Plan Presentation Objective

#### AT 6.2.1

The objective of the BPP is to evaluate the team's ability to develop and deliver a comprehensive business model, which demonstrates their product – a prototype race car – could become a rewarding business opportunity that creates a monetary profit.

#### AT 6.2.2

The judges should be treated as if they were potential investors or partners for the presented business model.

#### AT 6.2.3

The race car doesn't have to be the core of the business idea; however, the business plan presentation must relate to the specific prototype race car entered in the competition. The quality of the actual prototype will not be considered as part of the BPP judging.

## **AT 6.3 Business Plan Presentation Procedure**

### **AT 6.3.1**

The Business Plan Presentation will be held in a three-stage process.

### **AT 6.3.2**

Stage 1 and Stage 2 will be held virtually prior to the competition. The Executive Summary (AT 6.4) and the Racing Elevator Pitch (AT 6.5) must be submitted beforehand according to the dates in AT 3.1

### **AT 6.3.3**

Stage 1 and Stage 2 will be handled as a drop-out stage. You need to convince the judges of your idea, in order to progress to the next stage. Teams that fail to do so, will not be eligible for points from / participation in the next stages.

### **AT 6.3.4**

Stage 3 will take place during the competition, as part of the static events. Teams can choose if they want to compete in person at the event site, virtually or in any hybrid combination.

### **AT 6.3.5**

Teams unable to attend within the assigned time period in Stage 2 or Stage 3 will receive zero points. The teams are responsible for the performance of their equipment and connectivity.

## **AT 6.4 Executive Summary**

To convince the potential investors or partners that the team's presentation is worthy of their time, it is required that an executive summary is submitted before the competition. The executive summary should contain a brief description of the team's business plan

## **AT 6.5 Stage 1: The "Racing Elevator Pitch":**

### **AT 6.5.1**

The teams must submit a prerecorded 30-second video by providing a link to a video sharing service such as youtube or vimeo. The link must be included in the Executive Summary (AT 6.4). The video must be playable in a recent chromium-based browser without additional software or logins.

### **AT 6.5.2**

Teams are not limited in the way they present these 30 seconds. Visual aids of any kind are allowed, but not required

### **AT 6.5.3**

The target is to catch the attention of the judges, so that they want to know more about your business idea

### **AT 6.5.4**

Two weeks after submitting the video and the Executive Summary, teams will be informed if they have made it to Stage 2.

## **AT 6.6 Stage 2: The "Business Pitch":**

### **AT 6.6.1**

Content of the "Business Pitch" is a compact version of the Business Plan Presentation with a specific focus on business figures. The teams have to present a realistic financial concept of a profitable project

### **AT 6.6.2**

The Business Pitch is limited to 3 minutes. The judges will stop any presentation exceeding 3 minutes. Immediately following the Business Pitch there will be a 5 minutes question and answer session

### **AT 6.6.3**

The goal is to convince the judges that the team's idea is worth an investment.



#### **AT 6.6.4**

Teams are not limited in the way they present these 3 minutes, but it must be presented by one or more team members, however not more than three.

#### **AT 6.6.5**

The event organization will provide the links to the respective software and communicate the slots in time.

#### **AT 6.6.6**

48h after presenting the Business Pitch, teams will be informed if they have made it to Stage 3.

#### **AT 6.6.7**

All teams who made it to Stage 3 will be assigned a specific Deep Dive Topic, which has to be part of the 10 Minute Business Plan Presentation.

#### **AT 6.6.8**

All team members must present their student and team member credentials, if requested by event officials.

### **AT 6.7 Stage 3: The 10 Minute Business Plan Presentation**

#### **AT 6.7.1**

The 10 Minute Business Plan Presentation will be part of the static events onsite of the competition covering all areas of the business idea

#### **AT 6.7.2**

Presentations are limited to a maximum of ten minutes. The judges will stop any presentation exceeding ten minutes

#### **AT 6.7.3**

The presentation will not be interrupted by questions. Immediately following the presentation there will be a Q&A session.

#### **AT 6.7.4**

A maximum of two team members may present the business plan physically at the event. For presenting and/or the Q&A session, only three members are allowed to dial in virtually. All team members that join the presentation virtually must present their student and team member credentials prior to Stage 3, if requested by event officials.

#### **AT 6.7.5**

All team members involved in the BPP must be introduced to the judges at the beginning of the presentation. Only team members who have been introduced may answer the judges' questions even if they were not actually presenting.

#### **AT 6.7.6**

The Business Plan Presentation Finals will be live streamed.

### **AT 6.8 Feedback**

#### **AT 6.8.1**

After the finishing of all three stages feedback will be available to the teams upon request on the event site, in person or virtually. If you drop out before stage three the respective teams will be informed about feedback possibilities.

### **AT 6.9 Presentation equipment**

The presentation equipment provided will be either a large-screen TV or a data projector. Available connections will be VGA and/or HDMI, depending on the equipment. If audio playback is required then the team has to provide the equipment (speakers). The presentation rooms will be made available for inspection and testing before the BPP event starts.

## AT 6.10 Business Plan Presentation Scoring

### AT 6.10.1

The scoring of the stages is subsequent. For example, if a team fails to participate in Stage 1, there is no possibility for that team to score points at a later stage. Teams that fail to attend their presentation at any stage within their assigned time period will receive zero points for this stage as well as all following stages.

### AT 6.10.2

The maximum score for the BPP event is 75 Points.

### AT 6.10.3

The BPP will be evaluated according to the following categories:

Stage	Category	Points
<b>Stage 1</b>	Business Idea	5
	Content	5
	Demonstration and Delivery	5
	Do investors want to know more	5
	Business Figures	5
<b>Stage 2</b>	Content	5
	Demonstration and Delivery	5
	Are investors convinced of profitability	5
<b>Stage 3</b>	Novelty	5
	Content	10
	Finances	5
	Deep Dive Topic	10
	Demonstration and Delivery	5
	Structure	10
	Questions	10
General Impression	5	
<b>Total</b>		<b>100</b>

### AT 6.10.4

The scoring for the non-finalist is calculated as follows:

$$\text{PRESENTATION SCORE} = 71 \cdot \frac{P_{\text{your}}}{P_{\text{min-F}}}$$

Where:

“P<sub>your</sub>” is the score awarded to your team by the business judges in the initial judging

“P<sub>min-F</sub>” is the lowest score awarded to any team participating in the finals in the initial judging

### AT 6.10.5

The scoring of the BPP finalists will vary from 75 to highest non-finalist score and is scored immediately after the BPP finals by all judges.

## AT 7 Dynamic Events

### AT 7.1 Skid Pad Track Conditions

The Skid Pad track conditions will not be artificially altered.

### AT 7.2 Acceleration Staging (Change of Rules 2020\D5.2.3)

The vehicle will be staged so that it breaks the timing beam after 0.30m of travel.

### **AT 7.3 Definition of a valid run**

A valid run is registered by completing the required event distance, starting by breaking the first timing beam and ending by breaking the (final) timing beam (the required number of times).

*Note: DOO and OC penalties apply during the whole time the car travels under its own power - as per D9.1.4.*

*DNF per Rule D9.1.15 can only be registered during a run*

### **AT 7.4 Endurance Running Order (supplement to Rules2021\D7.3)**

#### **AT 7.4.1 Running order goal - Supplement to D7.3.1**

The running order creation can deviate from a speed-based approach to accommodate organizational needs. Officials may allow or require cars to run out of order if needed to finish the endurance event within the given time limits.

#### **AT 7.4.2 Ready-by Time**

Each team will be assigned a “ready-by” time in the published running order document. This is the earliest time the team may be required to run (i.e. enter the track).

#### **AT 7.4.3 Out-of-order Running (OOO)**

Running out of order occurs when (1) all teams ranked before the team in the running order either ran or forfeit their run and (2) the teams’ Ready-By time has passed. Running OOO will be penalized according to D9.2.1

#### **AT 7.4.4 Running at a later slot**

All teams running out of order are required to inform the officials of their intent to run at a later time before the last car in the running order has entered the track. Failure to do so will result in a DNA for the run. There is no guarantee that a later slot will actually be available within the given time constraints.

#### **AT 7.4.5 OOO Running Order**

After the last car of the running order finishes endurance, all teams registered to run out of order are required to be in the endurance queue. Failure to do so will result in a DNA for the run. Teams will start according to the original running order

### **AT 7.5 Clarification of “Part” for Rules2021\IN12.1.6**

This rule will generally not be applied to “parts” such as minor amounts of tapes and adhesive film as well as insignificant parts broken off due to collisions with cones or the track. (i.e. small part of a front wing endplate)

## AT 8 Document History

### VersionChanges

Date	Version	comments/changes
2021-01-10	1.0.0	Initial Version
2021-01-13	1.0.1	Error Corrections regarding Dates (2020->2021)
2021-01-17	1.0.2	Added AT1.9 (Covid Regulations)
2021-03-15	1.0.3	Added Submission Dates
2021-03-16	1.1.0	Added AT6 (Business Plan) Changed TOC to a depth of 2
2021-03-16	1.1.1	Added additional video submission info