



FORMULA  
*STUDENT*  
CZECH REPUBLIC

# EVENT HANDBOOK 2023

V1.0

<b>EVENT INFO</b>	<b>4</b>
REGISTRATION	5
EVENT REGISTRATION	5
PROCEDURE	7
CAMP REGISTRATION	8
SCHEDULE	9
PRELIMINARY VERSION	9
<b>RULES</b>	<b>10</b>
CAMP SITE	11
SAFETY	11
CONSIDERATION	11
ELECTRICITY	11
WATER	11
SANITARY FACILITIES	11
REFRESHMENT	11
COMPLIANCE	11
WARNING	12
GUESTS	12
PADDOCK	13
GUIDES	13
LEAVING THE PADDOCK	14
TAKING THE CAR OUT OF THE PADDOCK	14
WORKING ON THE TRACTIVE SYSTEM (EV AND OPTIONAL DV CUP BASED ON EV)	14
RUNNING ENGINES OR MOTORS	15
RULES ADDENDUM	16
FSCZ RULES 2023	16
FSCZ DOCUMENT SUBMISSION	17
FSCZ PROCEDURES AND SCORING	17
FSCZ SPECIFIC ADDENDUM TO THE FSG RULES:	18
<b>EVENTS</b>	<b>20</b>
STATIC EVENTS	21
ENGINEERING DESIGN	21
BUSINESS PLAN PRESENTATION	23
COST & MANUFACTURING	24

PENALTIES	25
PENALIZED ACTIONS	25
RESULTS	26
RESULT PUBLISHING	26
PROTESTS	26



# EVENT INFO

# REGISTRATION

## EVENT REGISTRATION

For the 2023 event there will be a maximum of 20 CV and 40 EV slots open.

In case any registered CV or EV team will have autonomous functions integrated, it will have the option to register also in the Optional Driverless Cup and participate in DV dynamic events and present its Autonomous Functionality Engineering Design. Yes, this means a team can win the CV/EV category and the Optional DV Cup. Or any team can compete in CV/EV while not having autonomous functions in a vehicle on the other hand.

Up to 10 slots of a total of 60 can be used for participation in the Optional DV Cup, but any registered team from CV or EV category can apply for it. The list of Optional DV Cup participants will be closed on July 7 considering the position of a team on the Registered List and its DV abilities demonstrated by the VSV video.

Event registration will take place on January 27th at 3:00 pm (CET) on <https://portal.fsczech.cz>. It will consist of the Rules and an engineering quiz. The team captain, who will be the only one eligible to participate, must complete all questions correctly to be registered.

Teams are sorted according to the quiz completion time to the “Registered” (20 CV, 40 EV) and “Waiting” Lists.

The top 3 teams from the 2022 Event have their slots for the 2023 Event pre-registered, thus do not need to take part in the Quiz. We ask these teams to confirm their interest before January 27th by emailing [registration@fsczech.cz](mailto:registration@fsczech.cz).

### PRE-REGISTERED TEAMS

- WHZ Racing Team
- eForce FEE Prague Formula
- BRS Motorsport
- FS Team Tallinn Driverless
- KA-Racing Driverless
- FaSTDa Racing
- BME Motorsport
- UniBo Motorsport

**Registration for Czech teams only opens on January 25 at 3:00 pm CET. The following teams can register:**

- CULS Prague Formula Racing
- Formula TU Ostrava

- FS TUL Racing
- CTU CarTech
- TU Brno Racing
- UWB Racing Pilsen

## PROCEDURE

### 1. Participate in event registration (online)

- Create a user account on <https://portal.fsczech.cz> and apply for team participation (Team Captain approves it). In case there is not your team listed, create it. You become its Team Captain automatically. Your role is listed in your profile after login (top right corner).
- Event registration link will be displayed on January 27th at 12:00 am (CET) under the tab Event → Registration.
- Pass the registration quiz by answering all questions correctly.
- In case your team will get on the list of registered teams in any category, you are allowed to apply for participation in Optional DV Cup

### 2. Pay the Fee or Deposit

- Wire transfer instructions are emailed by the <https://portal.fsczech.cz> at the moment of the Quiz completion with information about the team's position.
- **Team on the Registered List**
  - Registration Fee of 1 700 EUR (excl. 21% tax) must be paid or a wire transfer confirmation must be provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before February 3rd for participation in the CV or EV. 90% of the Registration Fee is refundable before April 3rd. A later refund is not possible.
  - Participation in the Optional DV Cup is charged 300 EUR (excl. 21% tax) and must be paid or a wire transfer confirmation must be provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before July 14th. Refunds are not possible.
- **Team on the Waiting List**
  - Registration Deposit of 750 EUR must be paid or a wire transfer confirmation provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before February 3rd.
    - Registration Deposit is fully refundable under the following conditions:
      - Team will not move to the Registered List three weeks before the Event.
      - Team will actively withdraw no later than three weeks before the Event.
    - Deposit is NOT refundable under the following conditions:
      - Team on the Waiting List rejects the offered position on the Registered List.

## CAMP REGISTRATION

Teams willing to stay at the campsite have to pay for their team members at the Camp Desk or in advance. The price is 70€ (incl. 15% tax) per person for the whole event. Please note that payment on site can be made only in cash and the nearest ATM or exchange office is in the city Most (not in the venue). Payments on the basis of Pro-forma invoices are preferred - please ask invoice before the event on [registration@fsczech.cz](mailto:registration@fsczech.cz), no later than one week prior event. The campsite can be taken by teams starting on Sunday 6. 8. 6 pm, but payment must be done at regular working times. Showers will be available on Monday from 12 am.

### Camp Check-in Availability

Day	Operating hours	Location
Sunday 6. 8.	TBA	TBA
Monday 7. 8.	10 am - 12 am (Optional DV Cup), 1 pm - 8 pm (EV/CV)	Registration Desk
Tuesday 8. 8.	8 am - 12 am	Registration Desk

In case of need, you can ask us for an alternative check-in time.

### Latest Check-out

Sunday 13. 8. till 12 am.

# SCHEDULE

*The detailed schedule will be published in later versions of the handbook!*

## PRELIMINARY VERSION

### Monday 7. 8.

AM: Registration Optional DV Cup only, Optional DV Cup Pits open, Optional DV Cup Scrutineering

PM: Registration All Categories, Optional DV Cup Scrutineering

### Tuesday 8. 8.

AM: CV&EV Pits open, Registration All Categories, Optional DV Cup Scrutineering

PM: Scrutineering all categories

Business Plan Event

### Wednesday 9. 8.

Scrutineering all categories

Business plan event

Cost & Manufacturing Event

PM: AM: Acceleration & SkidPad Optional DV Cup

### Thursday 10. 8.

Scrutineering EV&CV without Optional DV Cup

Engineering Design Event

Cost & Manufacturing Event

AM: Acceleration & SkidPad Optional DV Cup

PM: AutoX Optional DV Cup, SkidPad EV&CV, Acceleration EV&CV

### Friday 11. 8.

AM: Scrutineering all categories, SkidPad EV&CV, Acceleration EV&CV, Optional DV Cup TrackDrive

PM: AutoX EV&CV

### Saturday 12. 8.

Endurance EV&CV



# RULES

# CAMP SITE

## SAFETY

- Do not leave valuables in your tent, lock them in the car, if needed.
- Venue/Organizer is not responsible for any stuff lost or stolen and for damage to property and health of campers, despite the fact that camping will be protected. It is recommended not to bring valuable items or lock them in the team's car for safety.
- No animals, weapons, or drugs are allowed. It's strictly prohibited to bring any things that can be classified as dangerous.
- No open flames.
- No pit-bike running. All vehicles must be operated on designated roads with a speed limit of 5kph.
- Any operation with the fences is prohibited.
- Leaving or entering the Campsite is possible only with the proper (official red) wristband.
- There will be on-site security at all times.

## CONSIDERATION

Campers are expected to behave in a manner that is courteous to other campers. The law of the Czech Republic implies a time between 10 pm and 6 am as nighttime with noise regulation of 40dB.

## ELECTRICITY

Camp is equipped with mains electricity of 230V. Bring the extension wire (EU socket) and think when using it, especially in bad weather conditions.

## WATER

Tap water is safe to drink.

## SANITARY FACILITIES

Campground is equipped with water sinks, electricity, toilets, and showers. Please save water and respect your colleagues.

## REFRESHMENT

Restaurant is located at the race track, see map.

## COMPLIANCE

While receiving the wristband camper agrees with the established rules of the Campsite. Organizers have the right at their discretion to apply the following sanctions against violators of the rules:

## **WARNING**

**Expulsion from the campsite without a refund.**

## **GUESTS**

**Approved by the Organizers are allowed in the campsite only.**

# PADDOCK

**Paddock is open 7:30 am - 9 pm.**

If any of the below-mentioned instructions are not obeyed, it may result in the deduction of points, team member role disownment, or disqualification.

**All participants are advised to follow the general workplace safety rules**

- Never distract another person's attention, as you might cause him or her to be injured. If necessary to get the attention of another person, wait until it can be done safely.
- Where required, you must wear protective equipment, such as goggles, safety glasses, masks, gloves, hair nets, etc. appropriate to the task.
- Keep your work area clean.
- Running and horseplay are strictly forbidden.
- Do not block access to fire extinguishers.
- Do not operate machines or equipment until you have been properly instructed and authorized to do so by your supervisor.
- Do not engage in such other practices as may be inconsistent with ordinary and reasonable common sense safety rules.
- Help to prevent accidents.
- Lift properly, use your leg muscles, not your back muscles. For heavier loads, ask for assistance.
- Do not throw objects.
- Clean up spilled liquid, oil, or grease immediately.
- Place trash and paper in proper containers.

**The following activities are strictly forbidden**

- Welding.
- Storage of pressurized tanks with volumes larger than 10 liters.
- Grinding using power tools.
- Storage and handling of fuels (Drain of the fuel or oil system only after agreement with the Pit Marshall).

## GUIDES

- Grinding using power tools is allowed in the designated workplace, ask at Info Point.
- Welding is allowed in the designated workplace under the supervision of the authorized person, ask at Info Point.
- Welding of the frame and other parts of the assembled vehicle is allowed when the fuel system has been removed.

## LEAVING THE PADDOCK

- Paddock must be left before Saturday 8 pm in the condition it has been received. Its condition will be approved by the Pit Marshall and the team may apply for the deposit withdrawal between 6 pm - 8 pm only.
- Team is allowed to take the team tag when leaving the Paddock.

## TAKING THE CAR OUT OF THE PADDOCK

- All cars must be accompanied by a wingman, who walks in front of a car and is responsible for a straightforward way ahead.

## WORKING ON THE TRACTIVE SYSTEM (EV AND OPTIONAL DV CUP BASED ON EV)

- An ESO accompanied by a reasonable amount of team members who can interfere in case of emergency must attend every activity which involves an active tractive system.
- Opening any tractive system enclosure is only permitted if it is de-energized and disconnected from any high-voltage source. If the enclosure is inside the vehicle, the accumulator container needs to be removed from the vehicle.
- Opening the accumulator containers is only permitted in the charging area. Opening the accumulator container in the pits leads to the team's disqualification.
- The tractive system in pits may only be activated in compliance with all following rules:
  1. Complete Scrutineering procedure must be successfully finished.
  2. The car must be jacked up and all driven wheels removed.
  3. One team member must be prepared to push an emergency button at any time, and another person secures the perimeter around the car.
  4. Team members who perform a task on the vehicle must wear compliant safety gloves and use appropriate measurement devices and tools.
  5. The tractive system must only be active for the minimum necessary time (team should estimate time needed for a task beforehand).
  6. Maximum 2 members of the vehicle's team are allowed to stay in the vicinity of a car and one of them must be ESO.
  7. Dedicated pit area around the vehicle must be visibly separated but must not be an obstacle in case of emergency (e.g. warning tape).
  8. Appropriate extinguisher must be nearby and instructed person must be ready to use it in case of emergency.

## RUNNING ENGINES OR MOTORS

- Running engines (IC) or activation of ready-to-drive mode (EV, E-DV) is allowed after completed Scrutineering in the designated areas only. Activation of ready-to-drive mode in pits leads to team disqualification.

# RULES ADDENDUM

## FSCZ RULES 2023

The Formula Student Czech Republic (FSCZ) competition will comply with the FSG Rules 2023. Changes and additions specific to FSCZ are located within this document and supersede the respective sections of the published FSG Rules 2023 document.

The Formula Student Czech Republic Handbook 2023 is to be considered part of the rules. In case of any contradiction between this document and FSG Rules 2023, here mentioned rules are to be considered valid.

Additionally, any team in the combustion class can either run a standard combustion vehicle according to the standard rules or run a hybrid combustion vehicle according to the FS CV Hybrid rules.





**CZ-TR-9:** FS-Rules 2023 v1.1. S 3.7 is replaced by CZ-ED-7 & CZ-ED-8. See the Static event section for more details.

**CZ-TR-10:** FS-Rules 2023 v1.1. Rules marked with [DC Only] or describing driverless procedures will apply for teams participating in Optional DV Cup.

**CZ-TR-11:** FS-Rules 2023 v1.1. T 14.2. Due to technical reasons, no official data loggers are planned to be provided to the teams\*. Teams should be able to show the system state in case of failure from their debug systems in case of protests. This includes a basic set of signals defined in the FSG rules and the set of vehicle-individual signals that have to be monitored by the EBS to ensure redundancy and fault detection.

**CZ-TR-12:** FS-Rules 2023 v1.1. D 4.3.1. Each team has a maximum of four runs.

**CZ-TR-13:** FS-Rules 2023 v1.1. D 4.3.3. Staging – The foremost part of the vehicle is staged 10m - 15m in front of the timekeeping line. The final distance might be published before the starts according to the real conditions of the track.

**CZ-TR-14:** FS-Rules 2023 v1.1. D 4.3.6. The vehicle will exit at the intersection moving in the same direction as entered and must come to a full stop inside the marked exit lane. The length of the finish line may be shorter than 25 m according to the real possibilities of the track. The final distance will be published at the event. Usage of the EBS inside the marked exit lane will not lead to the DSQ.

**CZ-TR-15:** FS-Rules 2023 v1.1. D 5.3.1. Each team has a maximum of four runs.

**CZ-TR-16:** FS-Rules 2023 v1.1. D 6.4.2 Each team has a maximum of four runs.

**CZ-TR-17:** FS-Rules 2023 v1.1. D 8.2.3. Each team has two runs consisting of ten laps.

**CZ-TR-18:** Optional DV Cup only: Energy efficiency is measured during the track drive event. The final evaluation is based on a faster run from two valid runs.



# EVENTS

# STATIC EVENTS

## ENGINEERING DESIGN

### **CZ-ED-1:** General

Teams submit EDR and DSS according to the Rules. The event will be held live in the Paddock.

### **CZ-ED-2:** Schedule

Engineering design event timeline will be updated later

### **CZ-ED-3:** Timeslot description

Every team has a time slot of 60 minutes reserved for:

- 05 minutes - Short presentation of the Season 2023 goals by team captain (up to 5 minutes).
- 40 minutes - Following discussion with judges in breakout groups according to the list of categories.
- 10 minutes - Only for judges - evaluation.
- 05 minutes - Feedback from judges to team.

**CZ-ED-4:** Judges will be visiting teams in their pits. Teams are advised to be there on time with a car in the race ready condition. There will always be at least one judge per each judging category.

### **CZ-ED-5:** Feedback procedure

TBD

### **CZ-ED-6:** replaces S 3.4.3 - Engineering design finals

Some teams may be chosen to participate in the design finals to determine the engineering design event winner. The design finals will be held separately from the initial judging and teams will be informed about their participation during the event.

- Design finals will be held only for CV&EV categories on Thursday 10.08.
- Best team from each group will be invited to participate in the ED finals.
- Teams invited to the ED finals will be informed at 17:30 latest.

### **CZ-ED-7:** replaces S 3.7.1 - maximum number of points

The overall engineering design event maximum scoring is 150 points for CV&EV and 300 points for Optional DV Cup categories.

### **CZ-ED-8:** replaces S 3.7.2 - ED points breakdown

The maximum scores listed in the table below apply for the engineering design event on FSCzech 2023 event:

<b>Category</b>	<b>CV/EV</b>	<b>Optional DV Cup</b>
Overall Vehicle Concept	35	-
Vehicle Performance	30	-
Mechanical / Structural Engineering	25	-
Tractive System / Powertrain	25	-
LV-Electrics / Electronics / Hardware	20	-
Driver Interface	10	-
<b>Autonomous Functionality</b>		
DV - Vehicle concept		40
DV - Hardware		40
DV - Sensor Perception	-	40
DV - Localization and Mapping	-	40
DV - Planning and Control	-	40
DV - Data Processing and Usage of Tools	-	40
DV - SW Development, FuSa and Cyber Security	-	40
Engineering Design Report (EDR)	5	-
Autonomous Design Report (ADR)	-	20
<b>Total</b>	<b>150</b>	<b>300</b>

## BUSINESS PLAN PRESENTATION

### **CZ-BP-1:** General

Teams submit BPPV according to the Rules. The event will be held live in tents equipped with a beamer or LED screen. Be ready to use VGA and HDMI connections.

### **CZ-BP-2:** Schedule

Presentations are held in the circuit's tents. The schedule will be published later.

### **CZ-BP-3:** Timeslot description

Business plan presentation event will take place on:

Tuesday 8.08 - Wednesday 9.08 for EV& CV categories

### **CZ-BP-4:** Every team has a time slot of 35 minutes reserved for:

1. Business plan presentation max 10 minutes including deep dive topic presentation
2. Q&A session with judges 10 minutes

### **CZ-BP-5:** replaces S 1.4.3 - Business plan presentation finals

Some teams may be chosen to participate in the BPP finals to determine the BPP winner. The BPP finals will be held separately from the initial judging and teams will be informed about their participation during the event.

BP finals will be held only for CV&EV categories. FSE finals will take place on TBD in the evening on the main stage. CV finals will take place on TBD in the evening on the main stage.

### **CZ-BP-6:** Time slots assignment

TBA

### **CZ-BP-7:** Deep Dive Topic

TBA

## COST & MANUFACTURING

### CZ-CM-1: General

Teams submit CRD according to the Rules. The event will be held live in the Paddock.

### CZ-CM-2: Schedule

The schedule will be published later.

### CZ-CM-3: Timeslot description

Every team has a time slot of 30 minutes reserved for:

1. Part 1 “BOM Discussion”
2. Part 2 “Cost Understanding”

**CZ-CM-4:** Judges will be visiting teams in their pits. Teams are advised to be there on time. Be aware that judges are taking into account only what is on the car, not what should be on it, thus the car should be in ready-to-race condition.

### CZ-CM-5: Costed bill of material

For FSCZ 2023 a CBOM for the “[Brake and Steering System](#)” must be submitted.

### CZ-CM-6: Detailed bill of material

For FSCZ 2023 a DBOM for the “[Engine and Drivetrain](#)” must be submitted.

### CZ-CM-7: Real case scenario task

There will be no real case for FSCzech 2023

### CZ-CM-8: Time slots assignment

TBA

# PENALTIES

## PENALIZED ACTIONS

Action	Penalty*
Wearing open shoes in designated areas (outside the campsite area)	5
Power tool usage outside designated area	25
Welding outside designated area	50
Engine / E-motor running outside designated area	Team disqualification
Alcohol ** / smoking outside designated areas	100
Driving scooter in any area	25
To many members in the Dynamic Area	10
Media Pass holder assisting a team in the Dynamic Area	10
Requesting Scrutineering without being ready	5

\* If repeatedly violated, the penalty is doubled every time.

\*\* If any team member is tested with an alcohol level higher than 0.0 ‰, he or she will be immediately disqualified for the rest of the competition. A second team member is found to have an alcohol level higher than 0.0 ‰ will result in the entire team being disqualified immediately.

# RESULTS

## RESULT PUBLISHING

The results will be posted on the results board at the Info Point as soon as they are available. Furthermore, they will be published online on the FSCzech website.

Expected Date & time of result publishing (without top 3 names)

Day	Time	Event
Friday	10 am	Engineering Design
Friday	10 am	Business Plan Presentation
Friday	10 am	Cost & Manufacturing
Saturday	7:30 am	Endurance running order
Saturday	11 am	Acceleration
Saturday	11 am	Skid Pad
Saturday	11 am	Autocross
Saturday	11 pm (online)	Endurance, Fuel Economy, Energy Efficiency

## PROTESTS

**Required Review:** Any team that intends to protest a rule, score, judge's decision or any other aspect of the competition, must present the issue to the FSCzech Officials. Please contact Info Point, they will arrange a meeting with a representative.

- Cause for Protest:** A team may protest any rule interpretation, score, or official action (unless specifically excluded from protest) that they feel has caused some actual, non-trivial, harm to their team, or has had a substantive effect on their score. Teams may not protest rule interpretations or actions that have not caused them any substantive damage.
- Protest Period:** Protests must be filed within one hour after the action being protested has occurred or the scores for the activity involving the protest subject are posted.
- Protest Format:** Protests must be handed in in written form and submitted by the team captain to Info Point.
- Protest Bond:** The protesting team must post a 25 points bond to be deducted from their score if the protest is denied.

- **Decision:** The decision of the officials regarding any protest is final. Officials. Please contact Info Point, they will arrange a meeting with a representative.