

**FORMULA**  
STUDENT **EAST**

# EVENT HANDBOOK

WHO IS READY?

**VERSION 1.0**

RELEASE DATE: 8TH OF JULY 2019

FURTHER DETAILS AT [FSEAST.EU](http://FSEAST.EU)

**#FSEAST #MAKESOMENOISE**



# EMERGENCY INFORMATION



## MINOR INJURY

### MEDICAL CENTRE

Please accompany the injured person to the medical centre. Emergency aid is provided there. The medical centre is available every day round the clock.



## SEVERE INJURY

### CONTACT SOMEONE WITH A TWO-WAY RADIO

Most of the officials and security have a two-way radio. Ask them to call the medical centre or an ambulance on radio channel 5.

### CALL AN AMBULANCE YOURSELF

Call an ambulance yourself if someone is severely injured and requires urgent help. The emergency number for every landline and mobile phone is 112. (Also see information about emergency calls below.)

### DURING DYNAMICS

When the dynamic area is open, a special rescue team is on site. To contact them, ask someone with a two-way radio (official, security).



## HOSPITAL

### MAIN HOSPITAL

Zala Megyei Szent Rafael Kórház  
Address: 8900 Zalaegerszeg, Zrínyi Miklós street 1.  
Phone: +36 92 507-500  
Fax: +36 92 331 405  
E-mail: zmkorhaz@zmkorhaz.hu  
Homepage: www.zmkorhaz.hu  
(Also see directions in Chapter 1.1)



## EMERGENCY NUMBERS

If an emergency occurs outside the times of the competition, call 112. This number works with all landlines, as well as mobile phones or coin-operated telephones as international GSM-standard. It is always free of charge, but should be used only in case of emergencies.

### OFFICIALS

In case of an emergency, please call one of them, no matter what time it is.

Event Manager:	Tamás Csütörtöki	+36 30 370 0733	0-24h
Ticket Center:	Mátyás Kiss	+36 70 676 3666	7-20h
Event Control:	Judit Várnagy	+36 30 503 7161	7-20h

Regular emergency number:	112	0-24h
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## BEHAVIOUR IN CASE OF REGULAR FIRES (FUEL, OIL, PAPER, WOOD, ETC.)

1. Call for help (firefighters/ambulance) by either finding an official with a radio or calling 112.
2. Assist injured people to leave the area, provide first aid if you can.
3. Try to extinguish the fire, if this is possible without risking your own safety. If an electric consumer is on fire, first cut the power to it.
4. Leave the area and instruct others to do so as well.
5. Wait for the firefighters/ambulance to arrive.
6. Handling of the situation by the firefighters, medical treatment provided by ambulance.



## BEHAVIOUR IN CASE OF ACCUMULATOR FIRES

1. Immediately leave the area in a radius of 5 meters and instruct others to do so as well. Assist injured people to leave the area. An overheated accumulator is extremely dangerous, so do not put yourself in danger by trying to put it out.
2. Provide first aid to the injured, if you can. See below section on what to do in case of electric shock – in any case, do NOT give the victim water or food.
3. Call for help by finding an official with a radio or by calling 112 yourself. Wait for the firefighters and ambulance to arrive, who will handle the situation.
4. Stay out of the way of fumes coming from the accumulator or the car; mind the wind direction.



## BEHAVIOR IN CASE OF ELECTRIC SHOCK

- Call for medical help by finding an official with a radio or by calling 112 yourself, preferably in parallel to the steps below.
- Push one of the emergency shutdown buttons and wait until the TSAL is switched off. Note that this can take up to 5 seconds, wait patiently.
- Try to speak with the victim and ask him/her about his/her health.
- Insulate yourself if you must move a victim away from a live contact – wear dry gloves or cover your hands with multiple layers of cloth and cover potential contact paths with the car with the HV isolation blanket.
- Watch your footing to make sure that you do not slip or fall when trying to move the victim.
- Do not move the victim if there is a possibility of neck or spinal injuries, unless he/she is in immediate danger.
- Do NOT give water or food to the victim.
- Give artificial respiration if the victim is not breathing.
- Give CPR if the victim's heart has stopped (only if you are trained in CPR) or use an Automated External Defibrillator.
- Cover burns with a sterile dressing. On the surface, electrical burns may not look serious, but the burn can be severe deeper in the tissue.
- Keep the victim comfortable, warm and at rest, and monitor his/her breathing until the ambulance arrive.
- The victim might undergo ventricular fibrillation several minutes after experiencing a shock..



ROUTE TO HOSPITAL  
ON NEXT PAGE





Greetings from the East village!

**CAMPING**  
ZALAEGRSZEG  
AIRPORT  
8900 ZALAEGRSZEG,  
HATHÁZI STREET 87-90.

#GPS  
46.891137  
16.790835

FORMULA STUDENT EAST

**EVENT SITE**  
ZALAZONE  
AUTOMOTIVE  
PROOVING  
GROUD

#GPS  
46.889281  
16.826614



**GROCERY STORE**  
Weekdays: 6:00-11:30 / 14:30-18:00  
Saturday: 6:30-12:00

**PHARMACY**  
8:00-15:30 only on weekdays

**"CSIGA" GROCERY STORE**  
Open from 8:00-14:00  
Saturday 8:00-12:00

**SCHLOSSER TYRE SERVICE**  
+36 70 9400 100  
www.tehnergumi.hu

**"AKKSI" ACCUMULATOR SHOP**  
Weekdays: 7:30-15:30

**"ALKATRÉSZ BÁZIS" CAR PARTS SHOP**  
Weekdays: 8:00-17:00  
Saturday: 8:00-12:00

**"KARMACS" TIRE SERVICE**  
Weekdays: 8:00-17:00  
Saturday: 8:00-12:00  
www.mobilio.hu

**SPAR SUPERMARKET**  
Weekdays: 6:30-20:00  
Saturday: 6:30-18:00

**PENNY SUPERMARKET**  
Open from 7:00-21:00

**"HORVATH" BEARINGS SHOP**  
Weekdays: 7:30-17:00  
Saturday: 8:00-12:00

**BARDI CAR PARTS SHOP**  
Weekdays: 7:30-17:30  
Saturday: 8:00-12:00

FORMULA STUDENT EAST

**HOSPITAL**  
ZALA COUNTY SAINT  
RAFAEL HOSPITAL  
ZALA MEGYEI SZENT RAFAEL KÓRHÁZ  
8900 ZALAEGRSZEG,  
ZRÍNYI MIKLÓS STREET 1.  
+36 92 507-500

#GPS  
46.835820  
16.846705

After leaving the event site turn left onto Ságodi street. At the first crossroad keep left on the same road and go ahead until you reach Gébárti street, then turn left. At the first opportunity turn right back to Ságodi street. Keep following the road and turn right at Kaszaházi street, which leads you into the city centre. When you reach Balatoni street, turn right onto the main road then take a left turn at Széchenyi tér to Kossuth Lajos street. At the end of the road, the hospital is going to be right in front of you. Go ahead to Zrínyi Miklós street to find the entrance on your right.

**BUSINESS PRESENTATIONS**  
ZALAZONE  
TECHNICAL  
BUILDING

FORMULA STUDENT EAST  
ZALAZONE  
DYNAMIC  
PLATFORM



# '19 EVENT SCHEDULE

## DAY #0

### 16TH JULY // TUESDAY

- 08:00 - 20:00 Team Registration, Campsite Check-In & Moving in to the Pits @Ticket Center
- 08:00 - 20:00 Moving in to the FS East Camp

aller

hello

## DAY #1

### 17TH JULY // WEDNESDAY

- 08:00 - 20:00 Event Site is Open
- 08:00 - 19:00 Event Control
- 08:00 - 20:00 Team Registration, Campsite Check-In & Moving in to the Pits @Ticket Center
- 08:00 - 20:00 Moving in to the FS East Camp
- 08:30 - 12:00 Scrutineering, DV priority
- 09:00 - Driver Registration, ESO Registration, ASR Registration, Fire Extinguisher Handout @Event Control
- 13:00 - 18:00 Scrutineering, DV priority, EV
- 18:30 - 19:30 Team Welcome Presentation @Catering Tent
- 20:00 Pits Close

## DAY #3

### 19TH JULY // FRIDAY

- 07:00 - 19:00 Event Site is Open
- 07:30 - 18:00 Ticket Center
- 08:00 - 19:00 Event Control
- 08:00 - 08:30 Team Briefing @Catering Tent
- 08:30 - 18:00 Business Event @ZalaZONE Technical Building
- 08:30 - 18:00 Cost and Manufacturing Event @Teams' Pits
- 08:30 - 18:00 Engineering Design Event @Teams' Pits
- 08:30 - 12:30 Scrutineering, CV, DV, EV
- 08:30 - 12:30 Test Track Open, CV, DV, EV
- 08:30 - 12:30 Acceleration, DV
- 08:30 - 12:30 Skid Pad, DV
- 12:30 - 13:30 Lunch Break
- 13:30 - 18:30 Scrutineering, CV, DV, EV
- 13:30 - 18:30 Test Track Open, CV, DV, EV
- 13:30 - 18:30 Acceleration, DV
- 13:30 - 18:30 Skid Pad, CV, EV
- 19:00 Pits Close

## DAY #4

### 20TH JULY // SATURDAY

- 07:00 - 22:00 Event Site is Open
- 07:30 - 18:00 Ticket Center
- 08:00 - 19:00 Event Control
- 08:00 - 08:30 Team Briefing @Catering Tent
- 08:30 - 13:00 Scrutineering CV, EV
- 08:30 - 13:00 Test Track Open, CV, EV
- 08:30 - 13:00 Acceleration, CV, EV
- 08:30 - 13:00 Skid Pad, CV, EV
- 08:30 - 09:30 Practice Track Open, DV
- 08:30 - 09:00 Track Walk, DV
- 09:00 - 13:00 Autocross and Trackdrive, DV
- 12:00 Presenting the initial Business Event results @Event Control
- 12:30 Presenting the initial Cost and Manufacturing Event results @Event Control
- 13:00 Presenting the initial Engineering Design Event results @Event Control
- 13:00 - 14:30 Business Event review period @Event Control
- 13:00 - 14:00 Dynamic Area Reconstruction
- 13:00 - 14:30 Lunch Break
- 14:00 - 14:30 Track Walk CV, EV
- 14:30 - 19:00 Autocross, CV, EV
- 14:30 - 16:00 Cost and Manufacturing Event review period @Event Control
- 16:00 - 17:30 Engineering Design Event review period @Event Control
- 17:00 - 19:00 Business Event Final @Catering Tent
- 20:00 - 22:00 Engineering Design Event Final @Dynamic Area
- 19:30 Pits Close

## DAY #5

### 21ST JULY // SUNDAY

- 07:00 - 20:30 Event Site is Open
- 07:30 - 17:30 Ticket Center
- 08:00 - 18:00 Event Control
- 08:00 - 08:30 Team Briefing @Catering Tent
- 08:00 - 09:00 Cost and Manufacturing Event Final @Dynamic Area
- 08:30 - 09:00 Track Walk CV, EV
- 09:00 - 12:00 Endurance, Part 1, CV, EV
- 12:00 - 13:00 Lunch Break
- 13:00 - 17:30 Endurance, Part 2, CV, EV
- 17:30 - 18:30 Dynamic Area Deconstruction
- 17:30 Moving out of the Pits
- 21:00 Award Ceremony & Farewell Party @FS East Camp

## DAY #2

### 18TH JULY // THURSDAY

- 07:00 - 19:00 Event Site is Open
- 07:30 - 18:00 Ticket Center
- 08:00 - 19:00 Event Control
- 08:00 - 08:30 Team Briefing (@Catering Tent)
- 08:30 - 12:30 Scrutineering, CV, DV, EV
- 08:30 - 12:30 Test Track Open, CV, DV, EV
- 12:30 - 13:30 Lunch Break
- 13:30 - 18:30 Scrutineering, CV, DV, EV
- 13:30 - 18:30 Test Track Open, CV, DV, EV
- 16:00 - 16:30 Panoramic Photograph
- 19:00 Pits Close

## MARKERS



## DAY #6

### 22ND JULY // MONDAY

- until 12:00 Moving out of the FS East Camp

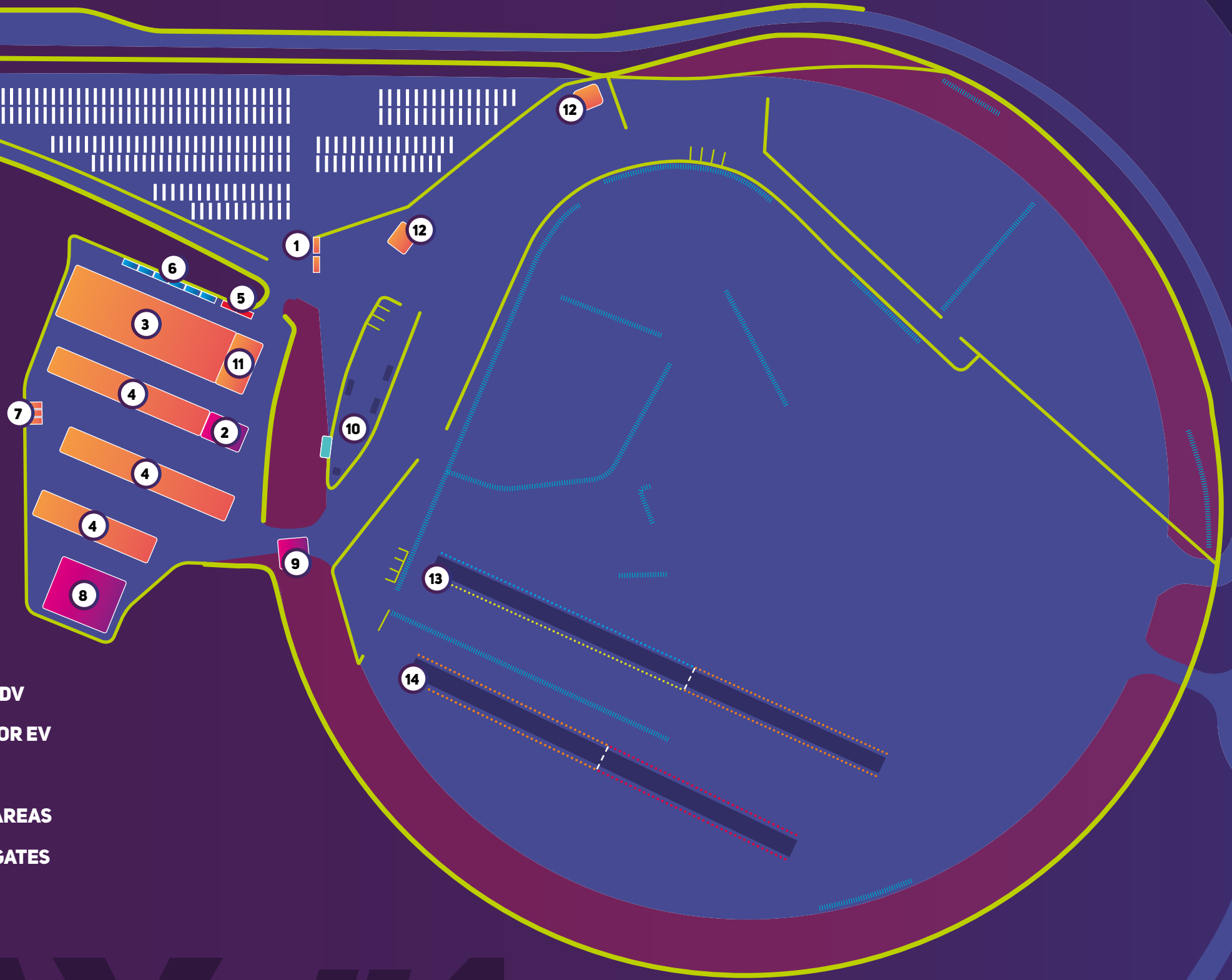
WHO AM I TO DISAGREE?





















# FORMULA STUDENT EAST

# DAY #1

**17TH OF JULY**  
WEDNESDAY // ALL DAY



- |   |                                  |   |                          |
|---|----------------------------------|---|--------------------------|
|  | <b>ENTRANCE / TICKET CENTER</b>  |  | <b>GRAND STAND</b>       |
|  | <b>EVENT CONTROL</b>             |  | <b>EBS TEST FOR DV</b>   |
|  | <b>CATERING</b>                  |  | <b>BRAKE TEST FOR EV</b> |
|  | <b>TEAM PITS</b>                 |  | <b>FENCE</b>             |
|  | <b>FIRST AID / RESCUE</b>        |  | <b>ENGINE TEST AREAS</b> |
|  | <b>TOILETS</b>                   |  | <b>WATER WALL GATES</b>  |
|  | <b>WELDING &amp; TYRE CHANGE</b> |  | <b>CONES</b>             |
|  | <b>CHARGING / SCRUT</b>          |   |                          |
|  | <b>FUEL STATION</b>              |   |                          |
|  | <b>DYNAMIC SCRUT</b>             |   |                          |
|  | <b>SPONSOR EXHIBITION</b>        |   |                          |

# DAY #1

# #HEREISTHEWHEREIS



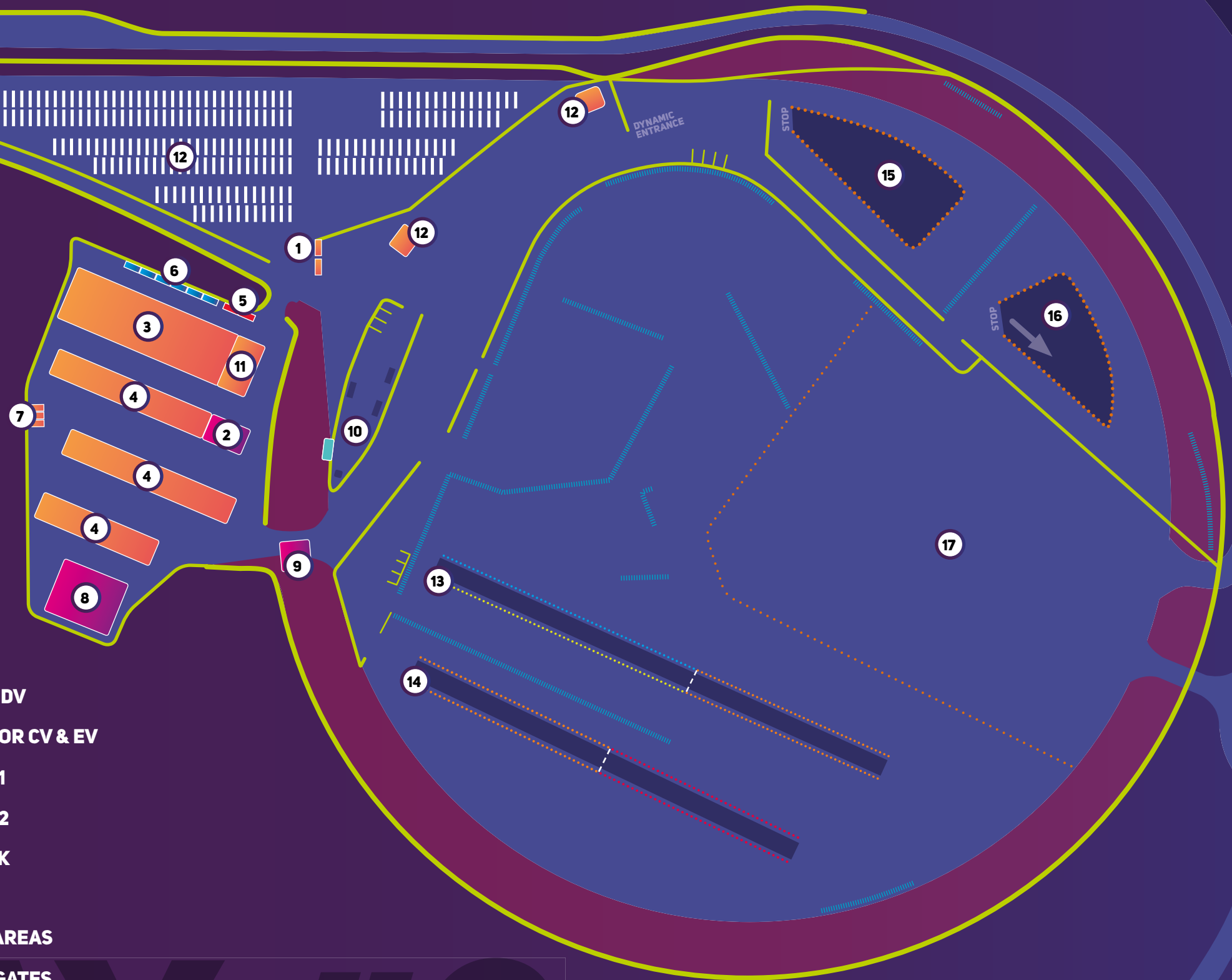
# FORMULA STUDENT EAST

## DAY #2

18TH OF JULY  
THURSDAY // ALL DAY

- 1 ENTRANCE / TICKET CENTER
- 2 EVENT CONTROL
- 3 CATERING
- 4 TEAM PITS
- 5 FIRST AID / RESCUE
- 6 TOILETS
- 7 WELDING & TYRE CHANGE
- 8 CHARGING / SCRUT
- 9 FUEL STATION
- 10 DYNAMIC SCRUT
- 11 SPONSOR EXHIBITION

- 12 GRAND STAND
- 13 EBS TEST FOR DV
- 14 BRAKE TEST FOR CV & EV
- 15 TEST TRACK #1
- 16 TEST TRACK #2
- 17 DV TEST TRACK
- FENCE
- ENGINE TEST AREAS
- WATER WALL GATES
- CONES



# #HEREISTHEWHEREIS

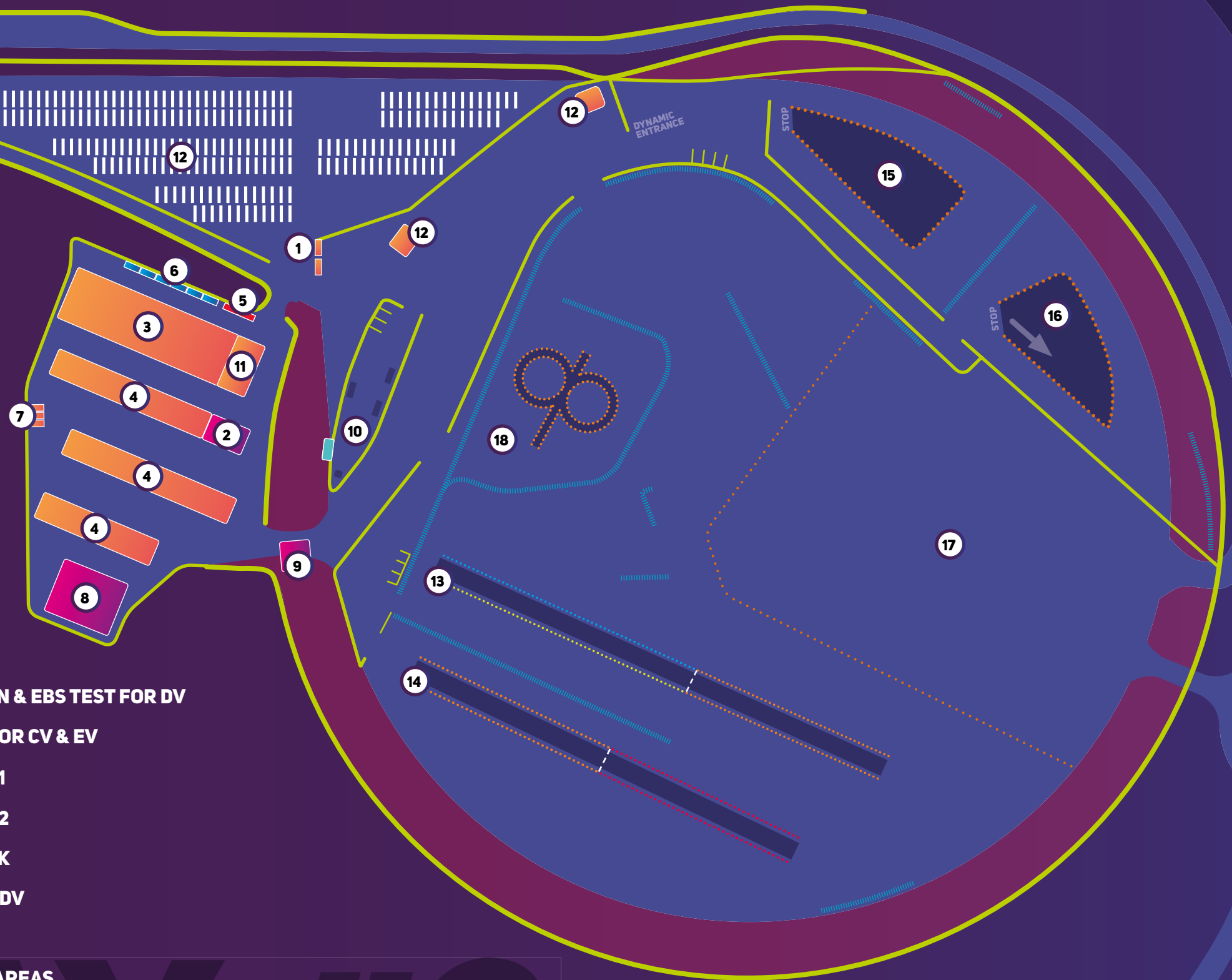


# FORMULA STUDENT EAST

## DAY #3

19TH OF JULY  
FRIDAY // BEFORE NOON

- |                            |                                   |
|----------------------------|-----------------------------------|
| 1 ENTRANCE / TICKET CENTER | 12 GRAND STAND                    |
| 2 EVENT CONTROL            | 13 ACCELERATION & EBS TEST FOR DV |
| 3 CATERING                 | 14 BRAKE TEST FOR CV & EV         |
| 4 TEAM PITS                | 15 TEST TRACK #1                  |
| 5 FIRST AID / RESCUE       | 16 TEST TRACK #2                  |
| 6 TOILETS                  | 17 DV TEST TRACK                  |
| 7 WELDING & TYRE CHANGE    | 18 SKID PAD FOR DV                |
| 8 CHARGING / SCRUT         | FENCE                             |
| 9 FUEL STATION             | ENGINE TEST AREAS                 |
| 10 DYNAMIC SCRUT           | WATER WALL GATES                  |
| 11 SPONSOR EXHIBITION      | CONES                             |



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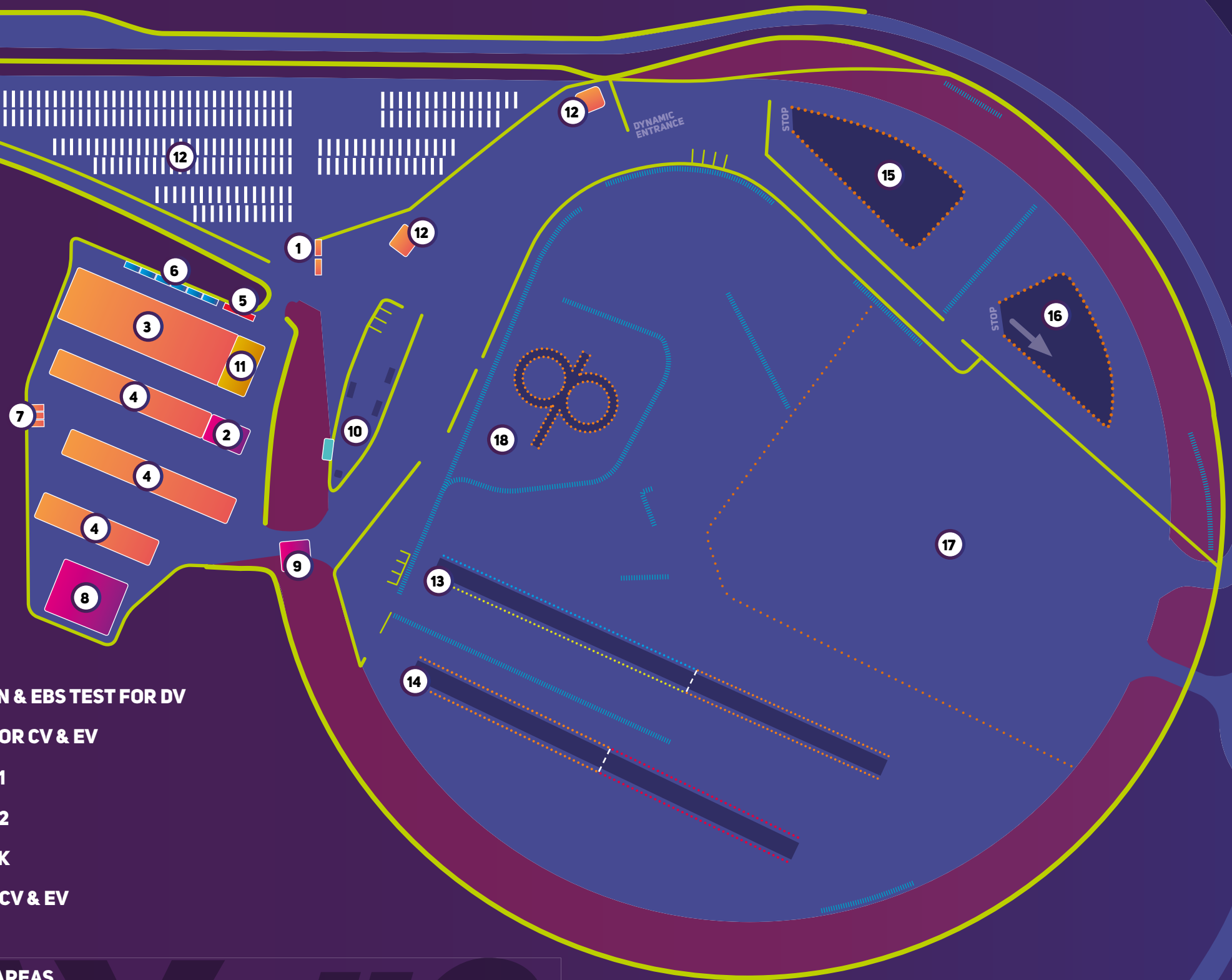


# FORMULA STUDENT EAST

## DAY #3

19TH OF JULY  
FRIDAY // AFTERNOON

- |    |                          |    |                                |
|----|--------------------------|----|--------------------------------|
| 1  | ENTRANCE / TICKET CENTER | 12 | GRAND STAND                    |
| 2  | EVENT CONTROL            | 13 | ACCELERATION & EBS TEST FOR DV |
| 3  | CATERING                 | 14 | BRAKE TEST FOR CV & EV         |
| 4  | TEAM PITS                | 15 | TEST TRACK #1                  |
| 5  | FIRST AID / RESCUE       | 16 | TEST TRACK #2                  |
| 6  | TOILETS                  | 17 | DV TEST TRACK                  |
| 7  | WELDING & TYRE CHANGE    | 18 | SKID PAD FOR CV & EV           |
| 8  | CHARGING / SCRUT         |    | FENCE                          |
| 9  | FUEL STATION             |    | ENGINE TEST AREAS              |
| 10 | DYNAMIC SCRUT            |    | WATER WALL GATES               |
| 11 | SPONSOR EXHIBITION       |    | CONES                          |



# #HEREISTHEWHEREIS

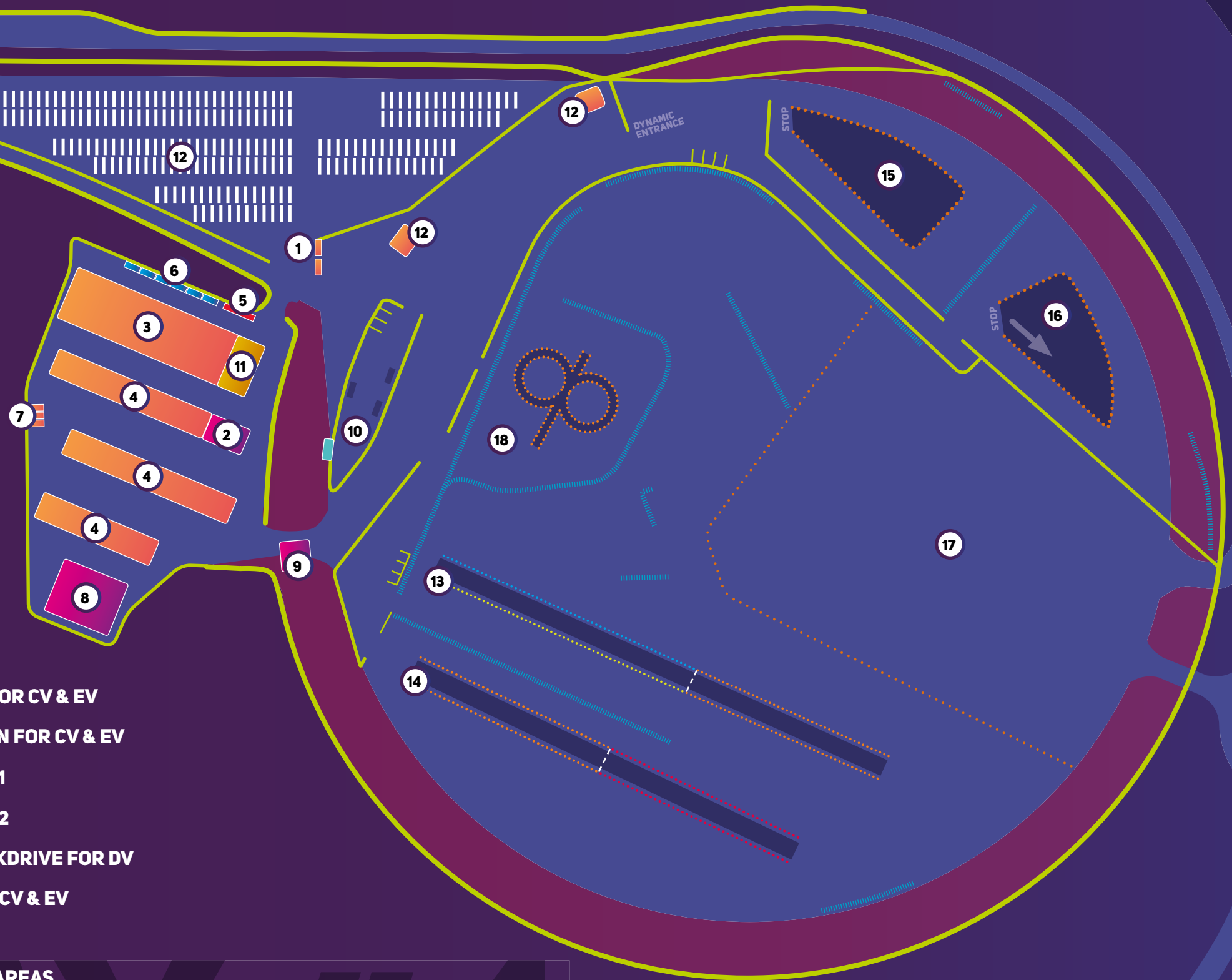


# FORMULA STUDENT EAST

## DAY #4

20TH OF JULY  
SATURDAY // BEFORE NOON

- |    |                          |    |                          |
|----|--------------------------|----|--------------------------|
| 1  | ENTRANCE / TICKET CENTER | 12 | GRAND STAND              |
| 2  | EVENT CONTROL            | 13 | BRAKE TEST FOR CV & EV   |
| 3  | CATERING                 | 14 | ACCELERATION FOR CV & EV |
| 4  | TEAM PITS                | 15 | TEST TRACK #1            |
| 5  | FIRST AID / RESCUE       | 16 | TEST TRACK #2            |
| 6  | TOILETS                  | 17 | AUTO-X TRACKDRIVE FOR DV |
| 7  | WELDING & TYRE CHANGE    | 18 | SKID PAD FOR CV & EV     |
| 8  | CHARGING / SCRUT         |    | FENCE                    |
| 9  | FUEL STATION             |    | ENGINE TEST AREAS        |
| 10 | DYNAMIC SCRUT            |    | WATER WALL GATES         |
| 11 | SPONSOR EXHIBITION       |    | CONES                    |



# #HEREISTHEWHEREIS








# FORMULA STUDENT EAST

## DAY #4-5

20TH-21ST OF JULY

SATURDAY BEFORE NOON  
& SUNDAY ALL DAY

- |    |                          |   |                          |
|----|--------------------------|---|--------------------------|
| 1  | ENTRANCE / TICKET CENTER | 12  | GRAND STAND              |
| 2  | EVENT CONTROL            | 13  | BRAKE TEST FOR CV & EV   |
| 3  | CATERING                 | 14  | ACCELERATION FOR CV & EV |
| 4  | TEAM PITS                | 15  | TEST TRACK #1            |
| 5  | FIRST AID / RESCUE       |  | TRACK MARSHAL POST       |
| 6  | TOILETS                  |  | FENCE                    |
| 7  | WELDING & TYRE CHANGE    |  | ENGINE TEST AREAS        |
| 8  | CHARGING / SCRUT         |  | WATER WALL GATES         |
| 9  | FUEL STATION             |  | CONES                    |
| 10 | DYNAMIC SCRUT            |   |                          |
| 11 | SPONSOR EXHIBITION       |   |                          |



# #HEREISTHEWHEREIS

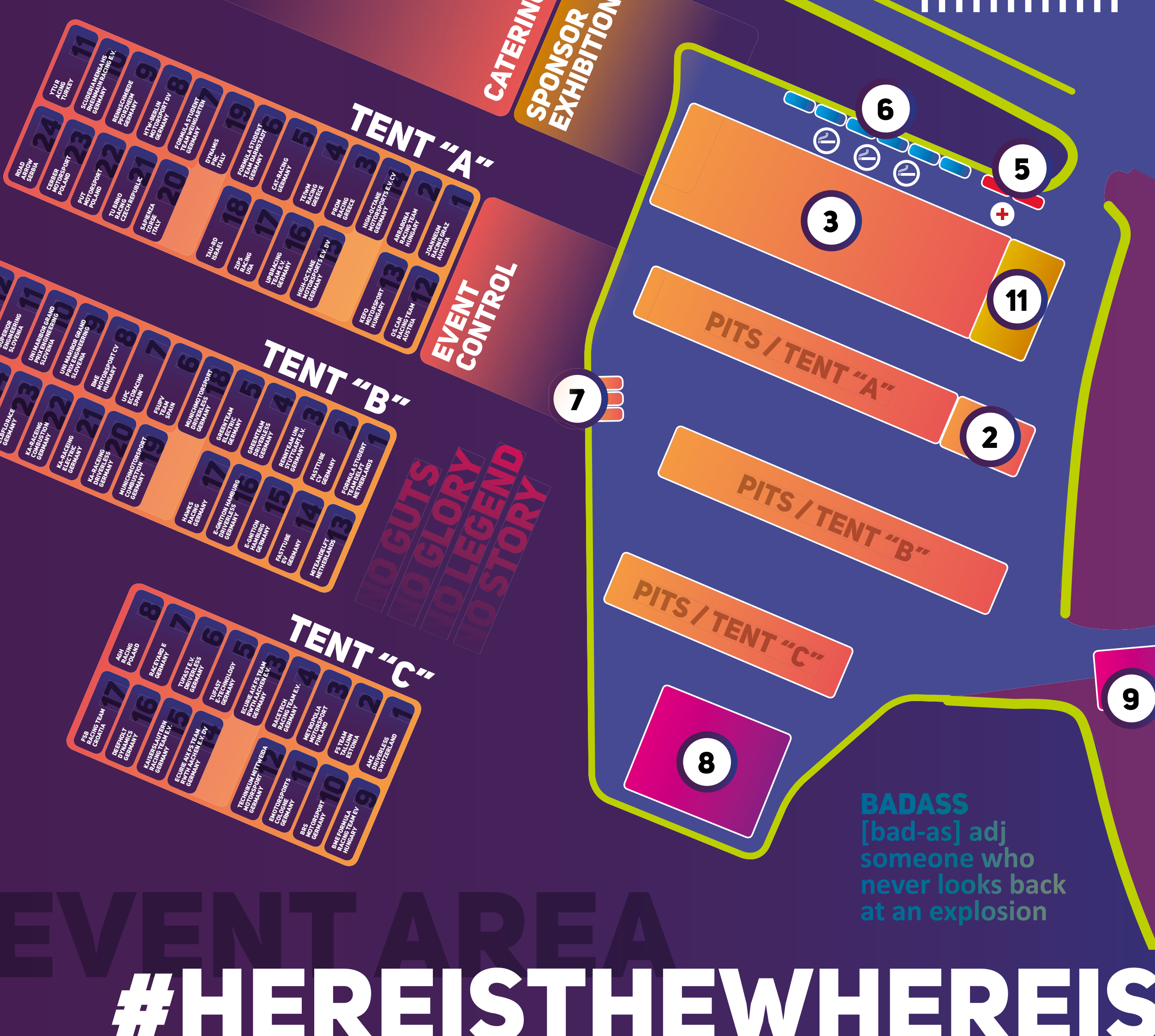


COVER ME!

The team pits are located right next to the dynamic platform. The uneven surface of this area could be harmful for the tyres of the cars, therefore we recommend you to use tyre covers on the way between your pit and the dynamic area.

EVENT AREA

- 2 EVENT CONTROL
- 3 CATERING TENT
- 5 FIRST AID & RESCUE +
- 6 TOILETS
- 7 VELDING & TYRE CHANGE
- 8 CHARGING / SCRUT
- 9 FUEL STATION
- 11 SPONSOR EXHIBITION
- 🚬 SMOKING AREA





## ORGANISATIONAL ASPECTS

### ARRIVAL TO THE EVENT SITE

**Schedule:** Tuesday, 16th July (from 8:00)  
**Location:** Zala ZONE Automotive Proving Ground, Zalaegerszeg

### ARRIVAL AND REGISTRATION FOR THE EVENT

**Schedule:** Tuesday, 16th July (from 8:00 to 20:00)  
 Wednesday, 17th July (from 8:00 to 20:00)  
**Location:** Ticket Center

The first moment for the teams of Formula Student East is arriving to the venue, to the Ticket Center. Our colleagues record your arrival, and give you any possible info about the next steps - registration, parking, unpacking the trucks, moving into the camping site etc.

**ONLY the Team Captain is allowed to register his/her team.** He/she can be accompanied by only ONE team member! During the first step of the registration procedure Team Captains submit a printed version of the Standard Terms document signed by all team members which is available on the Rules & Important Documents page of the FS East website.

By signing the Standard Terms the teams state that they accept the rules of the event, that only team members will work on the car, also understanding and following the safety guidelines of the event. After that Team Captains are handed over the starter packages, which include an Event Handbook, dynamic pass wristbands and all passes for the registered team members.

Campsite check-in is also handled at the Ticket Center, after a successful registration all team members receive the wristbands that grant access to the FS East Camp.

You will also get your Car Pass and Camper Car Pass stickers at the Ticket Center, which you have to fill out with all necessary information and stick on all of your cars.  
 If the registration procedure is over then the team is ready to enter the premises of the event.

Moving in to the pits is handled based on a reservation system, which offers pre-determined time slots for the teams that they can apply for. This enables a planned arrival and reduces the queue at the entrance. The time slots and details of the process are announced at [fseast.eu/logistics-2019](https://fseast.eu/logistics-2019) prior to the event.

Teams are able to move in to the pit in their designated time slot, which is coordinated by our logistics team. After you got your starter package, our colleagues will guide you to your pit for unpacking .

**Useful contact:** Nándor VARJU +36 31 784 2827

If you have to wait until you're able to enter the event site, our colleagues will show you the place to park your vehicle(s) and wait until you get the permission to enter .

### SAFETY REGULATIONS REGARDING ENTRANCE

Please pay high attention and **DO NOT block any emergency exits of the event.** Please follow our officials' instructions at all times. **DO NOT park your truck to the gates until the officials order you to do so.**

### DRIVER REGISTRATION

**Schedule:** Wednesday, 17th July from 9:00  
**Location:** Event control

Each team has to register at least 4 drivers. The drivers have to be registered in the Event Control where they have to show their valid driver's license. Each registered driver will get a numbered wristband.

### ESO REGISTRATION

**Schedule:** Wednesday, 17th July from 9:00  
**Location:** Event control

**Electric teams also have to register dedicated members with thorough knowledge about the vehicle's electrical systems:** at least one Electrical Safety Officer person (ESO), and at most 4 more team members who can enter the charging area (altogether maximum 5 people). The ESOs also have to sign the registration document.  
 The ESOs have to be nominated on [login.fseast.eu](https://login.fseast.eu).

### ASR REGISTRATION

**Schedule:** Wednesday, 17th July from 9:00  
**Location:** Event control

**Autonomous teams also have to register dedicated members with thorough knowledge about the vehicle's autonomous systems:** at least one Autonomous Systems Responsible person (ASR), and at most 5 more team members who have to be present whenever the autonomous systems are operated (altogether maximum 5 people).  
 The ASRs also have to sign the registration document.  
 The ASRs have to be nominated on [login.fseast.eu](https://login.fseast.eu).

### FIRE EXTINGUISHER HANDOUT

**Schedule:** Wednesday, 17th July from 9:00  
**Location:** Event control

For safety reasons you have to pick up a fire extinguisher at the Event Control. The deposit for the fire extinguisher is 25 euro, which you will get back after finishing the event. The fire extinguishers have to be returned to the Event Control by 19:00, 21st July.  
**This is also the time when you get back your deposit for the extinguisher.**

### PARKING AND VEHICLE PASSES FOR THE EVENT

Every entering vehicle has to ask for a Car Pass at the Ticket Center upon arrival.

#### 1. PARKING AT THE EVENT SITE

You are able to leave your passenger cars, vans and trucks in the designated 'Car Park' areas out of the event site. The parking spaces are limited, the spots are filled on a first come first serve basis. Every team who is leaving their cars in the parking zones has to have a valid car pass sticker on its front window. These stickers are handed out during team registration and also can be requested later at the Ticket Center. You can only enter the event site with a valid car pass on your car during moving in and out of the pits. The car pass has 4 fields: team name, driver's name, cell phone number, licence plate number.  
 Each cell has to be filled out on the spot and stuck on the windscreen.

#### 2. PARKING AT THE CAMPSITE

Car Passes are also required in order to enter the FS East Camp. In case you come with a caravan or prefer to sleep in your car, you have to ask for a Camper Car Pass during Campsite Registration at the Ticket Center or the Logistics Team. Vehicles with a Camper Car Pass will be parked in a designated area, but still not permitted to enter the roads between the tents.

**NOTE:** The exit routes have to be unobstructed all the time, that is why we need to rule the venue's traffic.  
 Please follow our guides in any case - unloading your vehicles, leaving the venue, moving by car/truck at the venue.

The pits can be unpacked AFTER endurance. Teams who finish the competition earlier can ask our colleagues for help for early unpacking.

## ALL PARKING AREAS SHOULD BE LEFT UNTIL 12:00 ON MONDAY, 22ND OF JULY.

**Inside the event area walking speed is the limit for cars too, 5 km/h maximum!**



# FORMULA STUDENT EAST

## TICKET CENTER

**Schedule:** From July 16th, 8:00 to July 21st 17:30

**Location:** Event site entrance

Teams and visitors receive their passes for entering the venue at the Ticket Center..

## EVENT CONTROL

**Schedule:** from 17th July, 8:00 to 21st July, 18:00

**Location:** Event area

Event Control is the central contact point for teams and all issues concerning the event.

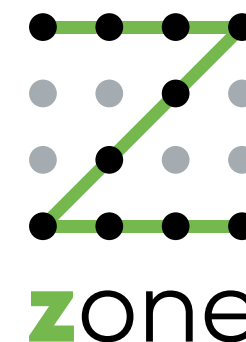
### Event Control provides:

- Information point for all competitors (concerning schedule, general questions etc.)
- Contact interface to the officials
- Registration of the drivers
- Registration of ESOs, ASRs and charging area staff
- Team briefing wristband handout
- Fire extinguisher handout point
- Transponder handout point
- Data logger handout point
- Document submission point (printed copies)
- Lost and found
- Feedback



# ZalaZONE

Automotive Proving Ground  
Zalaegerszeg



## FEATURING:

- Dynamic Platform
- Braking Surface
- Handling Course(s)
- Connecting Road Testing
- High Speed Oval
- AV Smart City Zone
- 5G & ITS G5 Networks



[zalazone.com/en](https://zalazone.com/en)



## OFFICIALS

At the venue, we will answer your questions directly.  
To contact us before and after the event, please write us an e-mail to [hello@fseast.eu](mailto:hello@fseast.eu).  
The fastest and easiest way to communicate with us is on-site.



**Alexander DUDÁS**  
Board | External Relations



**Dávid KISS**  
Board | Technical Inspection



**Gergely LÁGLER**  
Board | Financial  
& Sponsoring & Legal



**Gergely LÉGRÁDI**  
Board | Dynamic Area



**Roland TARCSAI**  
Board | Static Events



**Tamás CSÜTÖRTÖKI**  
Board | Event

## THE BADASS

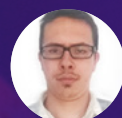
EXECUTIVE COMMITTEE



**Ádám HALMOS**  
EC | Autonomous Technical  
Responsible



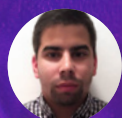
**Ádám SZABÓ**  
EC | Electrical Technical  
Responsible



**Álmos Dávid TÓTH**  
EC | Race Control Tower  
Leader



**Benjámin BRUNCSICS**  
EC | Static Events Leader  
Successor



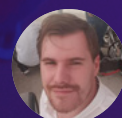
**Krisztián BANA**  
EC | Cost and Manufacturing  
Event Leader



**Krisztián DÖMÖTÖR**  
EC | Driverless Design Event  
Leader



**Krisztina HORICSÁNYI**  
EC | Business Event Leader



**Peter KRAKOW**  
EC | Mechanical Technical  
Responsible



**Tamás BERKECZ**  
EC | Score Counting Leader



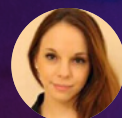
**Tamás LÉNÁRT**  
EC | Engineering Design  
Event Leader

## THE A-RANGER

EVENT TEAM



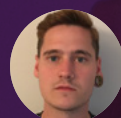
**Dániel VÁRNAGY**  
EC | Graphic Design  
Responsible



**Fruzsina ZARNOCZKI**  
EC | Junior Event Manager



**Judit VÁRNAGY**  
EC | Event Control Leader



**Mátyás KISS**  
EC | Ticket Center  
Responsible



**Nándor VARJU**  
EC | Logistics Leader



**Szandra HOFER**  
EC | Communication Leader



**Tímea NAGY**  
EC | Event Manager



**Zdena KROUPOVÁ**  
EC | Event Control  
Coordinator



**János KUN**  
Speaker | #talkmachine



**Gábor SEBŐK**  
EC | Security Staff Leaderr

## THE BOSS

BOARD MEMBERS

## THE SPARKPLUG

OPERATIVE TEAM

### TECH



**János TÓTH**  
OT | Data Logger Responsible



**Gábor PROKSA**  
OT | Driverless Scrutineering  
Responsible

### STATIC



**Csilla SZALAY**  
OT | Static Events



**Zoltán VARGA**  
OT | Business Event

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**Anna CSÁSZÁR**  
OT | Sponsoring Support

### DYNAMIC



**Ákos TÓTH**  
OT | Dynamic Area Organiser



**András HORVÁTH**  
OT | Dynamic Area Organiser



**Kinga FAZAKAS**  
OT | Dynamic Area Organiser



**Kitti HORVÁTHOVÁ**  
OT | Dynamic Area Organiser



**Krisztián PINTÉR**  
OT | Dynamic Area Organiser



**Péter JAKUBOVICS**  
EC | Driverless Design Event  
Leader



**Tibor ZALAVÁRI**  
OT | Dynamic Area Organiser

# WE ARE THE CORE



**SCRUTINEERING:** ALAA SELIM, ANDRÁS MILÁN JUHÁSZ, ANIKÓ PÓCS, BÁLINT HANULA, BÁLINT HEREIN, DEAN LAKOŠELJAC, GÁBOR PROKSA, GERGELY SZABÓ, GERGELY VÖLGYI, GERGO IGNECZI, HANNA HORVÁTH, JÁNOS SIBINGER, JÁNOS SZALAY, KÁROLY BÁLINT, LÁSZLÓ TRESZKAI, LEVENTE SZŰR, MÁTÉ SZARKA, PÉTER PÁCSONYI, SEBASTIEN KERN, VIKTOR HAJDÚ, VIKTOR RÓFÖS-HORVÁTH, ZDNEK HOUF, ZSOLT MAFTEI, ZSOLT BÁTCAI

**TRACK MARSHALS:** ADÁM CSUHA, ÁKOS BERKI-MÜLLER, ALEX BUKTA, ÁRON MÁTÉ HEÉ, ATTILA KERÉK, BALÁZS KÖNYVES, BÁLINT POLYÁK, BARNABÁS BANKÓ, BENCESZALAI, BENDEGÚZKOMORÓCZKI, BENJAMIN RÉTI, BORSIKA LOTTIMOLNÁR, DÁNIEL PREISENDÖRFER, DENIS TATAR, DOMOKOS KISZEL, DÓRA KOVÁCS, ESZTER GURBICZ, GERGELY JAKUBOVICS, KRISTÓF HEGE, LEVENTE VAKÁN, MARCELL FINCZA, MÁRK MÁTYÁS KISS, MÁTÉ TAMÁS FAZEKAS, MÁTYÁS ILOSKICS, NÓRA POKORÁDI, NORBERT PAPP, PÉTER KATONA, RÉKA JÁZMIN BURUZS, RÓBERT MAGAI, RÓBERT PUSZTAVÁMI, SFAXI SOHAIB, SZABOLCS ÁDÁM GALAMBOS, SZILÁRD MOHAI, TAMÁS GÁSPÁR, TAMÁS HORVÁTH

**EVENT SUPPORT:** ANDRÁS SIMON, BOTOND SÜLI, KITTI BAJSZ, KLAUDIA CSUZI, KLAUDIA DZIEDZIC, PATRYCJA DZIEDZIC, SZONJA OROSZ

**JUDGES:** ÁBEL SZABÓ, ÁDÁM CZIKÓ, ADELA BÉRES, ALEKSANDAR ZIVANOVIC, ANDRÁS DOBSZAY, ANDRÁS PÉTER SZÉKELY, ANDRÁS SZUNDI, ANDRÁS VOITH, ATTILA MAJOR, BALÁZS MÉSZÁROS, BALÁZS SCHERER, BÁLINT SZABÓ, BENCE BOGDOLA, BENEDEK SZABÓ, CHARALAMPOS AFENTOULIDIS, CSABA UDVARI, DÁNIEL CSAPÓ, DÁNIEL FESZTY, DÁVID MIGÁCS, DR. ADRIENN BURUZS, DR. GYÖRGY BUDIK, DR. ISTVAN ERVIN HABER, ENIKŐ MÁTHÉ, GÁBOR BALATINCZ, GÁBOR HORVÁTH, GÁBOR KELEMEN, GÁBOR PAÁL, GEORGE WATSON, GERGELY MATIN, GERGŐ PÁLFI, IGOR FELC, IMRE SOMOGYI, ISTVÁN BURUZS, JÁNOS GÁL, JÁNOS KRISCH, JÁNOS VÁRSZEGI, KORNÉL STRAUB, KRISTÓF KOVÁCS, KRISTÓF MÁTRAI, LÁSZLÓ ALBERT, LÁSZLÓ MAKIDA, LÁSZLÓ NÁDAS, LEVENTE MÁTYÁS CSEPREGI, MÁRK SZIGETI, MARKUS NENZEL, NIKITA ASTRVERKHAU, OLIVÉR PIBER, OTTÓ BARABÁS, PÉTER KAKAS, PÉTER NAGY, PÉTER OROSZ, PÉTER SÁNTA, PÉTER VÖRÖS, PIERRE-YVES MASSILLE, PIOTR SZYMANSKI, RICHÁRD CSISZÁR, RICHÁRD KOZMA, RÓBERT ADOK, RÓBERT VASAS, SÁNDOR DRIENYOVSZKI, SÁNDOR KISILLÉS, SÁNDOR KLING, SEBASTIAN BARBU, TAMÁS GYURACZ, TAMÁS HENCZI, VIKTOR MAYER, VIKTÓRIA GÖDÉR, VIKTÓRIA PRAVDA, WOJCIECH NOWAK, ZOLTÁN DOBOS, ZOLTÁN DOMOKOS, ZOLTÁN MAKAI, ZOLTÁN PROHÁSZKA, ZSÓFIA BODÓ, ZSOLT BOTTYÁN

**WE ARE THE CORE**



## ANNOUNCEMENTS

The event will proceed according to the official time schedule as far as possible. Listen to the announcements and look out for the placards at the event control for changes in the schedule.

## PIT AND INFELD TIMES

**The pits are open on all event days according to times determined in the Event Schedule.**

It is not allowed to stay or work in the pits any other periods.

Teams who remove their vehicle (EV and IC) or tractive system accumulator from the competition site after the competition has begun will be disqualified from the competition.

**Violation of any of the above rules will result in a disqualification for the whole event.**

## PIT EQUIPMENT

In every pit there is regular 230 V AC, 16 A power sockets. During the night the pits are guarded. You can see the pit arrangement on the team list and on the team flags on the pit entrances.

## SURVEILLANCE

After closing time, there will be a security company for surveillance of site, pits and cars. During the day, the teams are responsible for the security of their car and the equipment in their pit. Do not leave any valuables open in your pit at any time. Security is unable to monitor everything all the time. Also keep in mind to close your pit shades at venue closing.

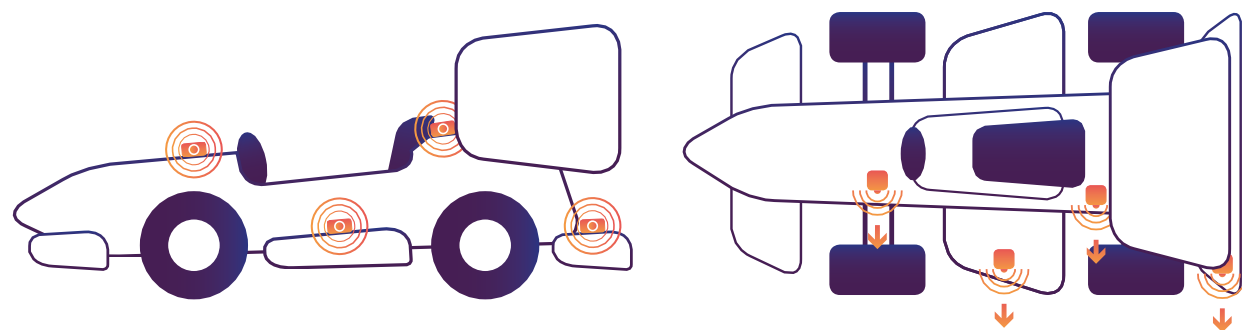
## TRANSPONDERS AND TIMEKEEPING

**You get a transponder used for timekeeping at Event control in charge for 50€ deposit.** You have to mount on your car yourself. The transponder must not be removed until the competition ends, since it is vital for the timekeeping system.

At the end of the competition, please return the transponder to Event control, where you will get back your deposit.

The exact time of handout will be announced at the site.

Transceiving surface of the transponder must not be faced to the ground, but point to the left parallelly to the ground and perpendicularly to the centerline of the vehicle. The transceiving surface must not be obscured by any parts of the vehicle. Transponders will be provided by FS East Event. Transponders must be placed safely (securely attached, protected from debris and hot surfaces) on the left side of the vehicle (preferably on the nose cone, sidebox or diffuser) for timekeeping.



If you are unsure of the position or orientation, or if a transponder comes loose or falls off, please contact a member of the timekeeping team at Event control.

Please note that the shown data is unofficial. No protests can be handed in based on the live-timing.



## POWERED BY INNOVATION

**AVL is the world's largest independent company specializing in the development, simulation and testing technology of power-train systems.** With annual R+D spending of EUR 120 million, AVL is a key catalyst of the development of the global automotive industry.

AVL is committed to the Hungarian market on multiple levels. **In 17 years, its Hungarian subsidiary, AVL Hungary** – the proud sponsor of Formula Student East 2019 – became the cutting-edge R&D center of the group.

In Hungary, AVL employs near 400 experts in R+D and related design, simulation, testing, software development, calibration and production engineering across high-tech facilities in **Budapest, Zalaegerszeg and Kecskemét.**

Our achievements contributed to Hungary becoming a key player in vehicle development and automation in the CEE region. The fruits of AVL Hungary's R+D activities are present

in the passenger cars, commercial on road, construction equipment and large engines industries on five continents, as well as in the passenger cars and commercial vehicles manufactured in Hungary.

### Our future begins in Érd

AVL Hungary establishes a new corporate research and development competence center and a test base with conventional and electric test benches on 5.7 hectares in Érd. The office building is expected to operate from summer of 2020 and the test base will be fully operational as of 2021, and it **creates 350 new jobs in Érd.**

At AVL, we believe that engineering work is a meeting point of science, art and engineering innovation – and as such - needs to derive from passion.

We are passionate about what we do and seek to share that passion with you, the leading engineers of tomorrow.

### We are hiring, come join us!



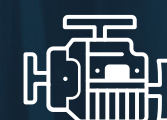
Design



Simulation



Calibration



Production Engineering



Mechanical Development



Software Development

Find out more: [www.avl.com/open-jobs](http://www.avl.com/open-jobs)

Get in touch with us on LinkedIn: [www.linkedin.com/company/avl-in-hungary/](http://www.linkedin.com/company/avl-in-hungary/)



# NO MORE FLAT BATTERIES



m  
v m

Providing energy

With our professional experience  
we're paving the smoothest road  
for vehicles of the future.

## RULES AND GUIDELINES

Everyone (participants, volunteers, & visitors) at Formula Student East would like to enjoy an accident free event. The following guidelines have been established to advise teams of potential unsafe practices in the paddock and pit area.

### ALCOHOL

**PLEASE NOTE:** Alcohol at the event site is strictly forbidden!

Along with the fun, we want a safe competition. There will be alcohol testing (breathalyzers) during the event.

0 % is the allowable alcohol content during this event for everyone.

**If ANY team member (driver or not), is tested with an alcohol level higher than 0.0 %, he or she will be immediately disqualified for the rest of the event. The second person of the same team caught with an alcohol level higher than 0.0 % will result in the entire team being disqualified immediately.**

For the Formula Student East Camp other rules apply for alcohol consumption.

### FIRES AND SMOKING

**No open fires are allowed in the pit area and in the engine test area.** This includes BBQ grills, oxy-acetylene torches, heaters, cigarettes, etc. **Smoking is strictly prohibited in the dynamic area, in all buildings, and in the pit area.** Smoking is permitted only in the dedicated area of the event site and outside the ticket center.

### JACKING

When jacking your car up off the ground a safe, stable, load rated support device must be used.

**The use of crates, piles of wood, or strong team members is NOT ALLOWED.**

### WORKING ON THE CAR

- Angle grinders can **ONLY** be used in the dedicated welding area.
- In case of using angle grinders, safety glasses are required.

When using metal cutting equipment that produces metal chips, eye protection is required for the operator as well as any team member assisting. During the use of loud power tools like drills or angle grinders, ear protection is required. Any operation producing litter or debris, e.g. cutting of carbon fibers, should not be performed in the pits.

**Please take care about your environment by not littering.**

### WORKING ON THE TRACTIVE SYSTEM (EV AND E-DV)

An ESO and at least one more team member who can interfere in case of emergency must attend every activity which involves the 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 within the vehicle, the accumulator container needs to be removed from the vehicle.

Opening the accumulator containers is only permitted in the charging area, not in the pits.

**Activation of the tractive system of the car in the pits is prohibited.**

**The tractive system may only be activated in the dynamic and the scrutineering area for testing purposes under following conditions:**

- Separate the car with a barrier tape, provided by FS East on request.
- The car must be jacked up and the driven wheels demounted.
- One team member must be prepared to push an emergency button at any time.
- Team members who take part in the measurement activities must wear compliant safety gloves and use appropriate measurement devices and tools.
- The tractive system must only be active when it is necessary.
- Only members of your team and Scrutineers are allowed to stay behind the barrier tape.

**After any activity on the tractive system during which seals were broken, an E-Scrutineering is mandatory.**

The FS East rules in sections 7.1 "Pit rules" and 7.2 "Charging area" must be adhered to when operating or servicing electric vehicles. If any of the above mentioned instructions is not obeyed, it may result in deduction of points, ESO role disownment or disqualification.



## ELECTRIC VEHICLE FIRES

The organisers are aware of a number of incidents where prototype electric vehicles caught fire and were completely destroyed. In some cases fire extinguishers were used to control the fire, but they didn't have any effect. For this reason the organisers reserve the right to take any action in order to stop or control the fire. This can even include pouring lots and lots of water on the accumulator, which can have the effect of cooling the cells sufficiently to stop and control thermal runaway.

If a team wishes to choose a preferred method for the case their electric vehicle catches fire, they can do so by discussing it directly with the chief of electrical scrutineering (Dávid Kiss) during the event by latest thursday 16:00. It is technically more difficult to handle electric vehicle fires in the pits, therefore the team must keep the possibility that the car can be easily pushed out of the pit. The HV accumulator must be observed for minimum one hour after it was charged.

**Any fire or accident must be immediately reported to the organisers.**

## RUNNING ENGINES OR MOTORS

You are allowed to run engines (IC) or put the car into ready-to-drive mode (EV) ONLY in the designated engine test area, after passing scrutineering. Please read the applicable rules in section 3.1.5 attentively.

**!! FS ENGINES MAY NOT BE RUN IN THE FS EAST CAMP !!**

## DATA LOGGERS

The data loggers will be handed out at the Event control during opening hours, in change for a 100 € deposit. You have to install the data logger in the car prior to E-scrutineering, according to the data logger instructions available on the FS East website. You can find any necessary information in the Data Logger Specification. You can ask our E-scrutineers for help with the installation.

The proper functioning of the data logger will be tested during the second part of E-scrutineering. An E-scrutineer will read out your data logger data via a USB connection on Saturday evening and on Sunday if your car makes it past the driver change during the endurance.

The officials will check if the power consumption was higher than 80 kW, if the accumulator was higher than 600 V or lower than what your cell configuration allows in the ESF. According to FSG rules, a violation of any of the limits during any of the dynamic disciplines will result in a disqualification for the whole discipline. For example if too high power consumption was recorded at a single acceleration run, that means a DQ for all four acceleration runs.

After the data was read out after the endurance, the data logger has to be removed from the car and returned to the event control, where you get back your deposit. Please note that if your data logger is located inside the accumulator container, you have to remove it inside the charging area.

We encourage all teams to record own efficiency data for the unlikely event of an data logger failure during the endurance event. Any attempt to manipulate the intended function of the data logger may lead to a disqualification from the entire event.

If you have any questions regarding the data logger, please ask for the data logger responsible at the Scrutineering area, or contact directly to Szabolcs Veréb (+36-20/235-8911)

## WELDING

Formula Student East provides an approved welder. Welding is allowed in the designated welding area only.

## FIRE EXTINGUISHERS

Your fire extinguishers are to be immediately accessible at all times. All team members must be familiar with their use. At least one fire extinguisher must accompany the car wherever it goes.

## VEHICLE MODIFICATIONS

If you make any major modifications to your car, cars must return to scrutineering for re-approval.



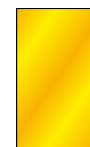
### WHITE FLAG

Warns of a slow moving vehicle on track.



### RED-YELLOW STRIPED FLAG

Warns drivers of a slippery track surface, usually due to oil or water.



### YELLOW FLAG

Indicates danger, such as a stranded car, ahead. A single waved yellow flag warns drivers to slow down, while two waved yellow flags at the same post means that drivers must slow down and be prepared to stop if necessary. Overtaking is prohibited.



### RED FLAG

The session has been stopped, usually due to an accident or poor track conditions.



### BLUE FLAG

Warns a driver that he is about to be lapped and to let the faster car overtake. Pass three blue flags without complying and the driver risks being penalised. Blue lights are also displayed at the end of the pit lane when the pit exit is open and a car on track is approaching.



### GREEN FLAG

All clear. The driver has passed the potential danger point and prohibitions imposed by yellow flags have been lifted.



### CHEQUERED FLAG

Indicates to drivers that the session has ended. During practice and qualifying sessions it is waved at the allotted time, during the race it is shown first to the winner and then to every car that crosses the line behind him.



### BLACK & ORANGE FLAG

Accompanied by a car number, it warns a driver that he has a mechanical problem and must return to his pit.



### BLACK FLAG

Accompanied by a car number, it directs a driver to return to his pit and is most often used to signal to the driver that he has been excluded from the race.

## FLAGGING

All drivers must know the competition-flagging signals.

## BEHAVIOUR

Alcohol and drugs have no place at this event. Alcohol is only allowed at the campsite and at the farewell party.

## TESTING

Driving practice is only allowed within the designated test area and at the designated times.

There will be two test tracks provided for the CV and EV teams.

Only Test Track 1 will be open during Autocross and Endurance Event.

Longitudinal acceleration testing will be only allowed in the direction of track marks painted on the tarmac, allowed only on test track 2.

## HOW TO WHEEL THE CAR

**Whenever a car is moved, please take care of the following:**

- There must be a driver wearing a full safety suit seated in the cockpit.
- The car must be moved with a push bar (which must have a fire extinguisher attached).
- Cars with wings are required to have two team members walking on either side of the vehicle whenever the vehicle is being pushed.
- The detachable key of the primary master switch (IC) or tractive system master switch (EV) must be taken off completely.
- (For EV teams only.) In case the car has not passed all parts of E-Scrutineering, the HVD must be disconnected while the car is moved around on the event site, or while taking part in static events.

## SPECIAL NOTE FOR DRIVERS

All drivers should do a check of critical fasteners and components on their vehicles to assure complete control during the driving events. Fasteners come loose, parts break due to fatigue, and occasionally someone forgets to torque a nut – this may have serious consequences for your safety!

## REMEMBER:

**USE THE KILL SWITCH IN CASE OF AN ENGINE OR BRAKE MALFUNCTION!  
HAVE FUN – DRIVE SAFELY – USE COMMON SENSE!**



## DYNAMIC EVENTS

### GENERAL INFORMATION

The dynamics at FS East are compliant with the Rules 2019 Part D and additional FS East Rules. The following pages describe the additional procedures and key aspects. Other information will be provided at the morning briefings on site.

### TEAM AND DRIVER BRIEFINGS

There are team briefings every morning of the competition at the Catering tent at 8:00, on Wednesday, Thursday, Friday, Saturday and Sunday. All drivers and team captains for that day must attend.

The briefing contains general event information and detailed information about the dynamic events of the day.

Wristbands will be handed out to the participants of the morning briefings. Without these wristbands, attending the dynamic events is NOT POSSIBLE. Missing the briefing (or late arrival) means no entrance to the dynamic events.

### ACCESS TO THE DYNAMIC AREA

Every team will receive four rubber wristbands labeled “Dynamic pass”. With these wristbands at most four team members may enter the dynamic area or the engine test area, including the driver and/or the ESO. Drivers may take them off for driving, but must put them back on afterwards. Cheating on handing out wristbands from the dynamic area is strictly forbidden and will be penalised!

### WEATHER

This is one of the factors which can not be influenced by the event organisation.

So please be aware that the timetable will not be changed due to bad weather conditions.

Under normal conditions, the track is declared dry. If it is necessary to declare damp or wet conditions, there will be signs and announcements at the dynamic area. Please read the rules for more information.

### SEALS

Scrutineers will mark or seal various approved parts (e.g. tires, rims, insulation monitoring device, accumulator containers, data logger...). The car can be disqualified from any dynamic event by using unmarked parts. Parts with broken seals are equivalent to being unmarked. Broken seals can only be replaced by a scrutineer.

### CAR SET-UP ALTERATIONS

Teams do not have to use the same car set-up for all the dynamic events and are encouraged to make adjustments (e.g. tyre pressure and suspension settings) to give the vehicle characteristics best suited to each specific event. However, the car must comply with the rules, and all the seals from technical inspection must be intact.

### TYRES

FS East provides a tyre changing service. For details please look up the event map.

### FUEL AND OIL

Open fuel containers are not permitted at the event. All fuel containers must be DOT approved. Waste oil is to be taken to the fuel station for disposal. Refuelling is only allowed at the fuel station, but not in the pits.

### ENGINE TEST AREA

**Location:** see site plan

This is a designated area for test running the engines or motors.

Entering this area is only allowed with the Dynamic wristbands.

**Your car must have passed scrutineering and you must follow these rules:**

- The car must be in one of the designated engine test area slots.
- The car must be adequately supported, with the wheels at least 10.2 cm (4”) off the ground.
- While the engine is on, a driver must be seated in the cockpit, wearing a full safety suit and with the belts fastened.
- There must be a fire extinguisher immediately available.
- The gearbox must be in neutral or the driven wheels must be demounted.
- No one is allowed under the car while the engine is running.
- Re-fueling is only allowed in the designated fuel area, not in the engine test area.

### FUEL STATION (CV AND C-DV)

**Location:** see site plan

The fuel station will provide standard RON 100 fuel and MOL Racing Fuel DRX (ethanol 85%, with 15% RON 106 maingrade gasoline) for teams. No other fuel or additives are permitted.

Be aware that no participant is allowed to bring fuel to the competition. FS East will provide all fuel for the competition at the fuelling station. No vehicle will be provided with fuel until it has passed scrutineering.

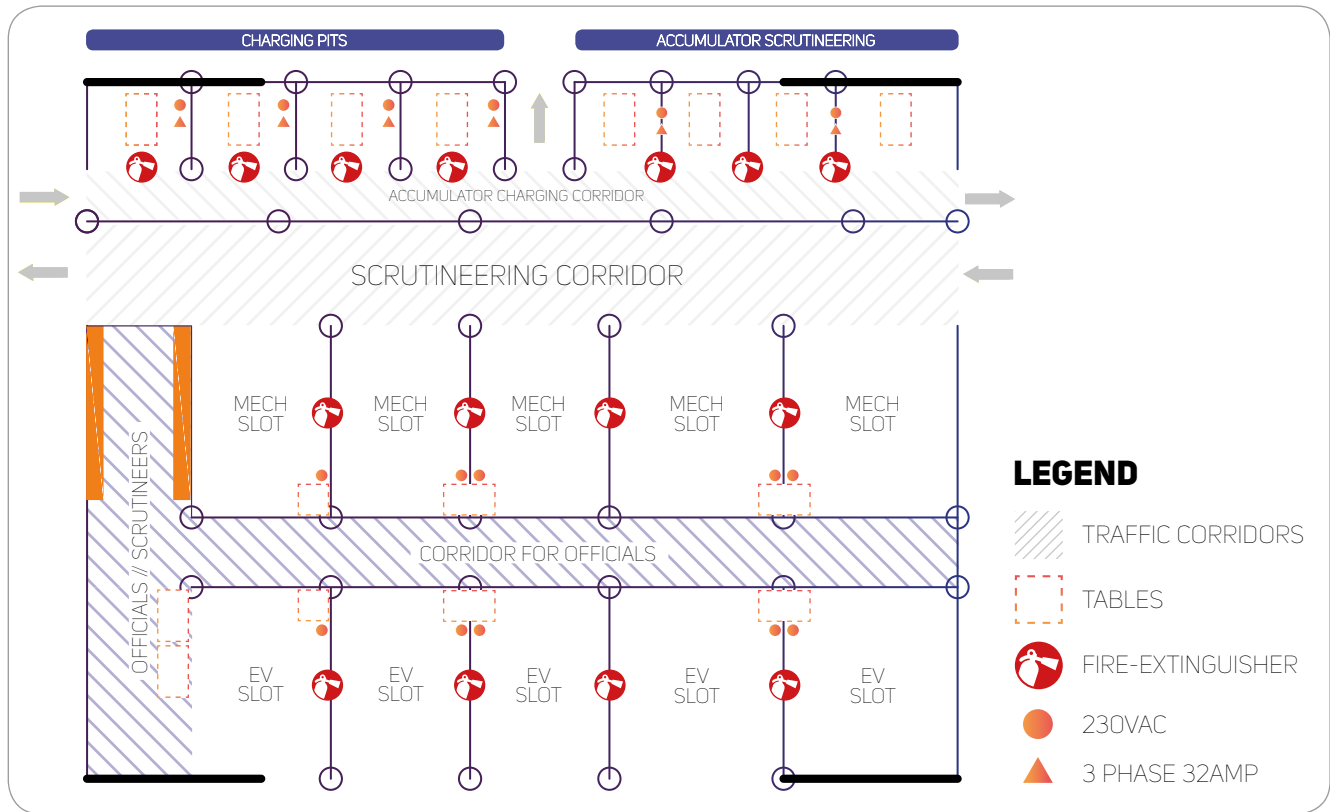
Draining fuel and lubricants from the car is only permitted at the fuel station.

**Follow these safety guidelines while in the fuelling area:**

- All engines must be turned off; cars are to be pushed to and from fuelling.
- The driver must not sit in the car during the fueling process.
- No mobile phones are allowed in the fuelling area.
- The tank is to be filled to the fuel level line before the tilt test and the endurance event.
- Re-fueling must be possible without the removal of any body parts of the car (except the cap of the fuel tank ).
- The first time the vehicle is fueled, the car must proceed (with the engine off) to the tilt table.



TECHNICAL & SAFETY INSPECTION



SCRUTINEERING AND CHARGING AREA

GENERAL INFORMATION

Opening of or working on the accumulator containers, including charging them, is only allowed in the charging and scrutineering area, during the opening hours.

- During charging, accumulators must be removed from the car and placed on the accumulator container hand cart.
- Only chargers marked after successful E-Scrutineering must be used. Three phase 32 A sockets will be available in the charging and scrutineering area.
- An ESO must be present at all times during charging and whenever an accumulator container is open.
- Safety glasses and safety gloves must be used whenever an accumulator container is open and the maintenance plugs not removed. If the accumulator container is opened, it is cannot be leaved unattended without covered with HV blankets and marked with the ESO's name and telephone number.
- No more than four members and only team members of any electric team are allowed in the charging area at the same time.
- The organisers reserve the right to declare the charging area "full".
- The charging and the scrutineering area is located in the same place. When you are in the Scrutineering tent be very careful, do not disturb others and take extra care to keep your tools and things in proper order. If someone's behavior is unacceptable, he or she can be banned from the area, and the team also may be penalized.
- The charging area and the scrutineering are accessible from one way corridors. Do not block or disturb this passages, they are emergency routes as well.
- In case of fire, if someone presses the emergency horn, or if the Officials ask for it, leave the area immediately on the shortest way through the corridors.
- During the Scrutineering, teams may make small repairs on the car, but the time spend in one attempt can't exceed 15 minutes total. If the time expires, the team has to leave the area, and be placed on the end of the scrutineering order.
- The times in the event schedule are strict. We do not start scrutineering after the area closes, but the ongoing inspections will be finished.
- It is the team's responsibility to make sure the acceptance of each test is properly documented.

SCRUTINEERING STEPS

Cars have to pass a technical and safety inspection before being allowed to practice or take part in the dynamic disciplines. The car has to be presented at each step of the inspection in the following order.

EV CARS:	CV CARS:
1. E-scrutineering part 1*	1. Mechanical scrutineering
2. Mechanical scrutineering	2. ETC & BSPD test
3. Accumulator scrutineering*	3. Autonomous Scrutineering (DV only)
4. EV2 Scrutineering	4. Driver Egress and Safety Test
5. Autonomous Scrutineering (DV only)	5. Tilt test
6. Driver Egress and Safety Test	6. Noise test
7. Tilt test	7. Brake test
8. Rain test	8. Autonomous Brake test (DV only)
9. Brake test	
10. Autonomous Brake test (DV only)	

\*EV1 and Accumulator Scrutineering can be exchanged or taken simultaneously. If the team uses the HV battery to generate the LV supply, the team has to start with Accumulator Scrutineering.

Passing any of the above steps is marked with a sticker on the technical inspection sticker. **Cars which have not finished scrutineering by the lunch break on Saturday will not be allowed to compete in the dynamic events.**

SCRUTINEERING ORDER

The Scrutineering Order is not pre-determined, scrutineering spots work on a first come first serve basis. On the first day of the event (17th July) DV and EV teams have priority according to the schedule.

E-SCRUTINEERING PART 1 (EV AND E-DV)

Location: Charging & Scrutineering area

Scrutineers will check that your car fulfills the EV rules without activating the tractive system. Cars are inspected in the order of registration quiz results. When your car is ready for E-scrutineering, let the organisers know at the Event control, and a scrutineering team will come to your pit as soon as they are available.

You must have the following items available:

- The vehicle with operable LV system (either with or without the tractive system battery)
- Documentation (either printed or electronic format)
- Firewall sample
- Every self developed PCB which are interfacing with the tractive system (spare PCBs)
- At least 2 but maximum 4 team members (one of them has to be ESO)

MECHANICAL SCRUTINEERING

Location: Charging & Scrutineering area

Scrutineers will check if your car meets the rules. Cars are inspected in the order of registration quiz results. When your car is ready for mechanical scrutineering, let the organisers know at the Event control, and a scrutineering team will come to your pit as soon as they are available.

You must have the following items available:

- The car in finished condition
- Camera mounts installed on the car, if they are to be used at the event
- Printed copy of the Structural Equivalency Spreadsheet
- Printed copy of the Impact Attenuator Data Report
- A test piece from the impact attenuator
- Teams with monocoque: Laminate test specimen
- All the tyres you plan to use at the event
- 2 fire extinguishers
- Quick jack and push bar
- All driver suits and other safety gear: arm restraints, helmets, suits, gloves, eye protection, balaclavas, socks and shoes



If your car fails scrutineering, you do not lose your scrutineering spot. However, if the scrutineers are on the opinion that the car is not in „finished condition“, the inspection process will be halted.

The inspection form will be retained by the scrutineers. If you have items that need to be rectified, the form will be returned to the team, you will not get your sticker, and you will have to present your car for scrutineering again. The scrutineers reserve the right to spot check any car at any time during the event.

## ETC & BSPD TEST (CV)

**Location:** Engine test area

### The followings will be checked:

- Compliance of the ETC system (if present)
- Compliance of the BSPD system

### You must have the following items with you:

- A pilot
- Anything else you will need to present the working of the ETC & BSPD
- At least 2 but maximum 4 team members

After the successful scrutineering process the ETC & BSPD it will be sealed and the team will be rewarded with the ETC & BSPD scrutineering sticker.

## ACCUMULATOR SCRUTINEERING (EV AND E-DV)

**Location:** Charging & Scrutineering area

During the accumulator scrutineering teams have to bring their batteries in the charging area. You will have to open the accumulator container, and the scrutineers will check the inside of the accumulator.

### The followings will be checked:

- The accumulator is built as in represented in the ESF
- There are no obvious mistakes or inadvertencies
- The AMS connections, the location of the thermal measurements, and the accuracy of the voltage measurements.

### You must have the following items with you:

- The HV Accumulator
- Protective gear and isolated tools to work on the accumulator
- Laptop or something to connect to the AMS
- Anything else you will need to present the working of the AMS
- At least 2 but maximum 4 team members (one of them has to be ESO)

After the successful scrutineering process the accumulator will be sealed and the team will be rewarded with the accumulator scrutineering sticker.

## E-SCRUTINEERING PART 2 (EV AND E-DV)

**Location:** Charging & Scrutineering area

During the second part of electrical scrutineering it will be checked that your car fulfills the EV rules with the tractive system active. Among other aspects, the correct working of the BSPD will be tested, so please have the BSPD test tool ready. The Ready-To-Drive-Sound test will be performed here as well. The data logger will also be tested in the in this step.

After your car passes E-scrutineering, critical parts of the tractive system will be sealed. The scrutineers reserve the right to spot check any car at any time during the event, **even after endurance.**

### The followings will be checked:

- The working of the BSPD
- The working of the Safety Circuit
- Data logger connection

### You must have the following items with you:

- Documentation (either printed or electronic format)
- BPS test device
- The vehicle (in fully assembled, ready-to-race condition including mounted data logger (see DV 1.3))
- At least 2 but maximum 4 team members (one of them has to be ESO)

## AUTONOMOUS SCRUTINEERING (DV ONLY)

**Location:** Charging & Scrutineering area

During the second part of autonomous scrutineering it will be checked that your car fulfills the DV rules with the tractive and the autonomous system active. Scrutineering steps not related to the Autonomous System can proceed without this step.

### You must have the following items with you:

- One ASR
- The vehicle (in fully assembled, ready-to-race condition including mounted data logger (see DV 1.3))
- Documentation (either printed or electronic format)
- Data sheets for all perception sensors (attached to the ESF)
- Documents to proof that all perception sensors meet local legislations (attached to the ESF)
- RES remote control
- Tools needed for the (dis)assembly of parts for DV inspection

## DRIVER EGRESS AND SAFETY TEST

**Location:** Charging & Scrutineering area

During scrutineering maximum four team members can be in the pit.

The driver egress test has to be done for all drivers before they are allowed to use the car in the dynamic area, but it can take place any time during the event. Ask for the egress test assistants at the Event control. Driver egress and checking of safety gears will be held at separated section.

Please begin scrutineering with the tallest driver in the car, belted, and prepared for roll bar height and egress check. Your other drivers might be checked as well upon request of the scrutineers.

### You must have the following items available:

- The car in finished condition
- Camera mounts installed on the car, if they are to be used at the event
- Quick jack and push bar
- All driver suits and other safety gear: arm restraints, helmets, suits, gloves, eye protection, balaclavas, socks and shoes

## TILT TABLE TESTING

**Location:** Dynamic Area

Tilt testing checks if the vehicle complies with the liquid spillage and rollover stability rules. Please present the car in ready-to-race condition, meaning all the liquids of the car should be filled properly, and all components of the car are mounted.

The vehicle will be placed upon the table with the tallest driver aboard. The vehicle should be oriented on the tilt table in the direction that is most likely to create spillage. The table will then be tilted to an angle of 60 degrees, representing a cornering force of 1.7G. There must be no fluid leakage and the upper wheels must remain on the table. (Some vehicles may lift one wheel. The station manager should be consulted if this occurs.) The test is performed again tilting the car to the other side as well. The person in charge at the tilt table will sign the inspection form, which travels with the car. A sticker is applied on the car, to indicate it passed the tilt table test.

Should the vehicle fail, the car must be repaired and re-tested. Vehicles may be asked to return to this station for re-certification at the discretion of the officials.



Safety guidelines for the tilt area:

- All master switches off at all times. They can be removed from the car.
- Push the car on and off the table, taking care to avoid damage to the vehicle.
- Inside wheels are to be placed against the guard of the tilt table.
- Attach a strap to rollover hoop and side of table which is to be elevated. Allow a little slack.
- Use absorbent material to soak up leaks (may be obtained at fuel station). Keep a fire extinguisher at hand.

RAIN TESTING (EV AND E-DV)

Location: Dynamic Area

Teams have to pass a special rain test during scrutineering, according to the rules before and after the rain test an IMD test will be performed. During the rain test, the tractive system has to be active and the driven wheels removed. It is not allowed to have a driver seated in the car during the rain test.

NOISE TESTING (CV AND C-DV)

Location: Dynamic Area

The vehicle will be checked for compliance with the sound level restrictions.  
Teams must bring a laptop to show the engine speed monitored from the ECU on the laptop.  
FS East will apply the rule “CV3.2 Maximum Sound Level” of the FS Rules 2019.  
If the vehicle is unable to pass in two attempts, the car must be repaired and then brought back for retesting.

The noise level can be measured at any time during the dynamic events. Penalties may be given if the sound level exceeds the mandated maximum. Vehicles may be forced to return to this station for re-certification should the officials deem it necessary. Re-certification may be required if work is performed on the vehicle’s exhaust system or if the vehicle is involved in an incident which results in vehicle damage.

BRAKE TESTING

Location: Dynamic area

Brake Testing checks that the vehicle can be brought to a controlled stop.

Each driver must know the proper procedure of the brake test.  
With the car at the start line of the station a green flag (or similar signal) should be used to signal the start of each run.  
The driver must accelerate on a short straight (typically getting into 2nd gear) until reaching the braking area, which is a box defined by pylons.

For electric vehicles, the tractive system has to be switched off by the driver before entering in this box.  
The car fails the test if the TSAL is still blinking 5 seconds after shutting down the tractive system.  
Once inside the box, the driver must apply the brakes with enough force to demonstrate  
**Full lock-up needed for all four wheels at the same time, and engine can not shut down during brake test. While braking, the centerline of the vehicle should be paralel with the centerline of the braking area zone.**  
If the vehicle passes the test, the person in charge signs the approval form and provides the team with the last tech sticker.  
The vehicle is now free to proceed to the practice track or to the dynamic events.

If the vehicle is unable to pass the brake test in two attempts, the car must be repaired and then brought back for retesting.  
Re-certification may be required if work is performed on the vehicle’s brake system or if the vehicle is involved in an incident which results in vehicle damage.

DRIVERLESS BRAKE TESTING

Location: Dynamic area

Autonomous Brake Testing checks that the vehicle can be brought to a controlled stop remotely.  
After the Go Signal, the vehicle have to accelerate to at least 40 km/h in a straight line and stop when the RES button is pressed. Once the RES triggered, the vehicle have to stop within 10 meters, and have to switch off the tractive system.  
(Shut down the engine in the case of CV cars, or switch off the HV in the case of EV cars.)

#	Team name	University name	Country	Fuel type	Car
1	AGH Racing	AGH university of science and technology	Poland	Electric	18
2	AMZ driverless	ETH Zürich	Switzerland	Driverless- E	433
3	Arrabona Racing Team	Széchenyi Istv'an University	Hungary	Combustion	79
4	BME Formula Racing Team	TU BUDAPEST	Hungary	Electric	114
5	BME Motorsport	BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS	Hungary	Combustion	41
6	BRS Motorsport	UAS Sankt Augustin	Germany	Electric	45
7	CAT-Racing	University of applied sciences and arts Coburg	Germany	Combustion	70
8	Cerber Motorsport	Bialystok University of Technology	Poland	Combustion	106
9	Deefholt Dynamics	UAS Diepholz	Germany	Electric	71
10	Dynamis PRC	Politecnico di Milano	Italy	Combustion	90
11	e-gnition Hamburg	TU Hamburg	Germany	Electric	78
12	e-gnition Hamburg e.V.	TU Hamburg	Germany	Driverless- E	478
13	Ecurie Aix Formula Student Team RWTH Aachen e.V.	RWTH Aachen	Germany	Electric	99
14	Ecurie Aix Formula Student Team RWTH Aachen e.V.	RWTH Aachen	Germany	Driverless- E	499
15	Elbflorace	Technische Universität Dresden	Germany	Driverless- E	4
16	eMotorsports Cologne	TH Köln	Germany	Electric	39
17	FaSTTUBe	Technische Universität berlin	Germany	Combustion	313
18	FaSTTUBe	TU Berlin	Germany	Electric	113
19	Formula Student Team Darmstadt	UAS Darmstadt	Germany	Combustion	242
20	Formula Student Team Delft	Delft University of Technology	Netherlands	Electric	85
21	Formula Student Team Weingarten	UAS Ravensburg-Weingarten	Germany	Combustion	60
22	Formula Student Técnico Lisboa	U Lisbon- Instituto Superior Técnico	Portugal	Electric	50
23	FS Team Tallinn	Tallinn University of Technology / Tallinn University of Applied Sciences	Estonia	Electric	124
24	FSB Racing Team	University Of Zagreb	Croatia	Electric	16
25	FSUPV Team	Universitat Polit'ecnica de Val'encia	Spain	Combustion	95
26	GreenTeam Electric	Stuttgart	Germany	Electric	26
27	GreenTeam Driverless	Universität Stuttgart	Germany	Driverless- E	126
28	HAWKS Racing	UAS Hamburg	Germany	Combustion	169
29	High-Octane Motorsports e.V.	FAU Erlangen-Nuremberg	Germany	Combustion	74
30	High-Octane Motorsport e.V.	FAU Erlangen	Germany	Driverless- C	149
31	HTW-Berlin Motorsport Driverless	HTW University of Applied Sciences Berlin	Germany	Driverless- C	538
32	joanneum racing graz	U.A.S. Graz	Austria	Combustion	219
33	KA-Racelng C	Karlsruhe Institute of Technology	Germany	Combustion	919
34	KA-Racelng D	Karlsruhe Institute of Technology (KIT)	Germany	Driverless- E	19
35	KA-Racelng E	Karlsruher Institut of Technology	Germany	Electric	9
36	Kaiserslautern Racing Team e.V.	TU + UAS Kaiserslautern	Germany	Electric	64
37	KEFO Motorsport	John von Neumann University	Hungary	Combustion	29
38	Metropolia Motorsport	Metropolia University of Applied Sciences	Finland	Electric	98
39	MITeamDelft	Delft University of Technology	Netherlands	Driverless- E	404
40	munichMotorsport	UAS Munich	Germany	Combustion	213
41	munichMotorsport e.V. Driverless	Hochschule für Angewandte Wissenschaften München	Germany	Driverless- E	13
42	Os.car Racing Team	UAS Vienna	Austria	Combustion	111
43	Prom Racing	National Technical University of Athens	Greece	Combustion	2
44	PUT Motorsport	Poznań University of Technology	Poland	Combustion	37
45	Racetech Racing Team e.V.	Technische Universität Bergakademie Freiberg	Germany	Electric	76
46	Raceyard E	University of Applied Sciences Kiel	Germany	Electric	53
47	Rennschmiede Pforzheim	Hochschule Pforzheim	Germany	Combustion	179
48	Rennteam Uni Stuttgart e.V.	University of Stuttgart	Germany	Combustion	1
49	Revolve NTNU Driverless	Norwegian University of Science & Technology	Norway	Driverless- E	463
50	Road Arrow	University of Belgrade	Serbia	Combustion	350
51	Sapienza Corse	Universit'a di Roma La Sapienza	Italy	Driverless- C	119
52	Scuderia Mensa HS RheinMain Racing e.V.	HS RheinMain	Germany	Combustion	165
53	Starkstrom Augsburg Driverless	University of Applied Sciences Augsburg	Germany	Driverless- E	469
54	Superior Engineering	University of Ljubljana	Slovenia	Electric	690
55	TAU-RD	Tel Aviv University	Israel	Combustion	44
56	Technikum Mittweida Motorsport	UAS Mittweida	Germany	Electric	150
57	TEIWM Racing	UAS Western Macedonia	Greece	Combustion	998
58	TU Brno Racing	Brno University of Technology	Czech Republic	Combustion	174
59	TUfast e-technology	Technical University Munich	Germany	Electric	30
60	TUfast e.V.- driverless	Technical University Munich	Germany	Driverless- E	31
61	UNI Maribor Grand Prix Engineering	University of Maribor	Slovenia	Combustion	235
62	UNI Maribor Grand Prix Engineering	University of Maribor	Slovenia	Driverless- E	35
63	UPBracing Team e.V.	University of Paderborn	Germany	Combustion	58
64	UPC ecoRacing	Universitat Polit'ecnica de Catalunya	Spain	Electric	28
65	YTU Racing	Yildiz Technical University	Turkey	Combustion	34
66	Zips Racing	The Univeristy of Akron	United States	Combustion	330



TESTING

Location: see the map of the venue

Driving practice is only allowed within the designated test area and at the designated times. There will be two test tracks provided for the CV and EV teams. Only Test Track 1 will be open during Autocross and Endurance Event. Longitudinal acceleration testing will be only permitted in the direction of track marks painted on the tarmac, only allowed on test track 2.

The ground is made of asphalt. Teams may use the test area to set up and test their cars. The testing time per team depends on the waiting queue and will be 3 to 5 minutes per run. For additional testing, teams have to go to the end of the queue.

**NOTE:** If no other team's are waiting for testing, it's allowed to use the test track continuously. Test track 2 can only be accessed if there is no car running on test track 1. Test track 2 will be closed during the Autocross and the Endurance event.

ACTION CAMERAS ON THE CAR

As the rule D 2.2.1. states, "During driving, the mechanical integrity of the vehicle must be maintained." Teams may register they action cameras at the event control. Losing a registered action camera will not lead to disqualification from a specific event, if the team agrees to share all recorded data with the organisers at the Event Control each day until the Event Control's closing time.

DYNAMIC DISCIPLINES

All of the dynamic disciplines are carried out in the dynamic area. For more details, please check the site plan in section.

SKID PAD

There will be a two lane queue for this event. Lane one is for the first driver of the team, lane two for the second driver. The queue closes 15-30 minutes before the end of the event, depending on the number of cars waiting. At the closing time of the Skidpad Event, only that vehicle is allowed to start their run, which is standing at the start line of the Skidpad Event.

Each driver can choose to drive one or two runs in a row. The second run may be performed immediately after the first run without re-entering the queue.

DV SKID PAD

Each team will have two runs. There will be a two lane queue for this event. Lane one is for the first run of the team, lane two for the second run. If the vehicle does not enter "AS Ready" state within 1 min after being staged, the team may be sent back to the end of its initial row by the officials. If this happens five times with the team, they may be sent back to end of the second row.

ACCELERATION

Similar to the Skid Pad event, the waiting queue for the Acceleration event is a two lane queue: lane one is for the first driver of the team, lane two for the second driver. The queue closes 15-30 minutes before the end of the event, depending on the number of cars waiting.

After passing the finish line of the Acceleration, there is a big slow down area before you have to turn right to return to the start for the second run. While passing the spectator area on your way back, please maintain a slow car speed for your safety and that of the spectators.

Each driver can choose to drive one or two runs in a row. The second run may be performed immediately after the first run without stepping back to the end of the queue. There will be 2 acceleration tracks next to each other, teams can deicde, which track they would like to use

DV ACCELERATION

Each team will have two runs. There will be a two lane queue for this event. Lane one is for the first run of the team, lane two for the second run. If the vehicle does not enter "AS Ready" state within 1 min after being staged, the team may be sent back to the end of its initial row by the officials. If this happens five times with the team, they may be sent back to end of the second row.

AUTOCROSS

Coursewalk: non-motorised vehicles are allowed to use in a safe manner.

Cones are used for the track boundary and for the slalom turns. The track direction is clockwise. Each run comprises one lap with a flying start. Each driver can choose to drive one or two runs in a row. The second run may be performed immediately after the first run without re-entering the queue. If the runs are performed separately, the driver must exit the course after the first run and drive through the driver change area slowly back to the start for the second run. The queue closes 15-30 minutes before the end of the event, depending on the number of cars waiting. 3 cars are allowed to run parallel on the AutoX track to fasten the AutoX Event. If a yellow flag interrupts the run of the cars, the run can be re-run.



# BAR ROYALE

IT'S NOT YOUR MOM'S KITCHEN

VISIT US AT THE EVENT SITE OR IN THE CAMPING





## ENDURANCE

**Coursewalk:** non-motorised vehicles are allowed to use in a safe manner.

The endurance track will be set up for Sunday. The track direction is clockwise. The colour of the cones is similar to the Autocross event. The additional overtaking lanes are marked with blue cones.

The starting order for Endurance results from the Autocross event. The starting order will be displayed at the Event Control.

The IC and EV cars race together, with the slowest car starting at the starting time of the Endurance event. The next car starts about 3 minutes later. Maximum three cars will be on the track at the same time. During the driver change, two scrutineers check the car. After successful driver change, the second driver drives to the entrance gate. If a marshal causes the driver change to take longer than 3 minutes, the time caused by the marshal will be subtracted. Timekeeping is watching for these incidents.

**IMPORTANT:** In order to have equal and fair conditions during the Endurance event at least 3 cars have to be on the track during the whole time of the Endurance event. Therefore the Organisers will maintain a waiting queue of 3 teams. It is the team's responsibility to arrive in the waiting queue before the deadline -which will be announced for each team in the loudspeakers 15 minutes before the deadline. **A delay will be penalised with 2 minutes penalty and the team will be able to start only at the end of the endurance event.**

**NOTE:** According to experience of earlier years Formula Student events, it is expected to have sudden need for new teams in the waiting queue in the first section of the endurance event due to early DNFs. Please be prepared to attend the queue on time!

If you get a blue flag while driving, please drive into the next overtaking lane. 3 overtaking zones will be provided. Please start slowing down when you are in the overtaking lane, NOT before. For the faster car, it is important not to follow the car in front too closely, otherwise serious accidents may be caused if the cars touch each other. Wait for the green flag to re-enter the track. Rear-ending a slower car will definitely lead to a disqualification of the faster car!

Vehicles that successfully finish Endurance and those that make it past the driver change **must** report to the Parc Fermé **upon request of scrutineers. They will stay there until passing the post-endurance scrutineering.**

## DV TRACKDRIVE

**Coursewalk:** non-motorised vehicles are allowed to use in a safe manner. During the course walk no equipment (e.g. antennas, sensors, cameras, etc) other than analog measurement devices (i.e. measurement wheel or measurement tape) is allowed.

During the course walk no equipment (e.g. antennas, sensors, cameras, etc) other than analog measurement devices (i.e. measurement wheel or measurement tape) is allowed.

The Trackdrive track will be set up for Saturday. The track direction is clockwise.

The starting order for Trackdrive results from the Skid Pad and Acceleration event. There will be one run consisting of ten laps. The starting order will be displayed at the Event Control. If the vehicle does not enter "AS Ready" state within 1 min after being staged, the team may be sent back to the end of the starting order by the officials.

## STATIC EVENTS

### ENGINEERING DESIGN EVENT

**Location:** Team's pits (Initial judging)  
Dynamic area (Engineering Design Final) - in case of rain: Catering Tent

During the competition, a discussion with the judges will take place, next to the team's vehicle. For DV category the design judging includes the judging of both the "base vehicle" and the autonomous system.

**Here are some tips to help you score higher in the engineering design event:**

- Be on time.
- Make sure your car is in race-ready condition and your team members are well prepared.
- Bring all engineering documentation with you. Read and understand the rules.

The exact time of your team's design judging can be found in the Static Events Schedule.

### JUDGING SEQUENCE

**At Formula Student East, design judging will involve two parts:**

- Initial judging of all teams,
- Final judging, ranking the top teams.

You should start with a 3-5 minute overview presentation of the car. It is up to you how you use this presentation time: introducing the team, the car or the design goals etc. This presentation time will be followed by around 35 minutes discussion with the judges. You are done after 45-50 minutes. The discussion time for the DV category is around 55 minutes, the total time is 60-65 minutes.

To score high in the design event, we would suggest you to bring all necessary papers and sample parts with you, which underline your engineering work. If you have done any tests, bring the results with you. Judges only believe what they see, not what you tell them. Read the Carroll Smith "Everything You Wanted to Know about Design Judging" paper available on the Formula SAE website.

The judges will be around on Friday. Feel free to ask them about your car and your project. They will be more than happy to answer all your questions.

### ENGINEERING DESIGN FINAL

Top teams from each category will qualify to the Engineering Design Final. There is no time limit in the design final. The design final is not public. A briefing for the participating teams will be held about the practical information regarding the design final on Saturday afternoon in the Event Control.

### COST AND MANUFACTURING EVENT

**Location:** Team's pits (Initial judging)  
Dynamic area (Cost and Manufacturing Final) - in case of rain: Catering Tent

During the competition, a discussion with the judges will take place, next to the team's vehicle. The discussion is split into two parts: The Bill of Material (BOM) Discussion and the Cost Understanding.

### THE BILL OF MATERIAL DISCUSSION

Three Cost Report Documents (CRD) were submitted to the competition website by three weeks prior the competition. A printed copy of the report must be submitted in person at the registration, which has to be identical to the uploaded Cost Report Documents. The report will follow the guidelines set forth in the published rules. From this analysis the judges will determine if all parts and processes were included. The Cost Report is judged on the accuracy, quality of the cost report. The judges will add penalties if errors are detected, or if items are omitted.

### THE COST UNDERSTANDING

A discussion to evaluate the general cost and manufacturing knowledge of the team.



GENERAL INFORMATION:

Schedule of the Cost and Manufacturing Event for Judging (max. 55 minutes):

- 5 min for introductory presentation of the car and/or team,
- 20 min for discussion and questions about CRD,
- 20 min for the discussion of the Cost Understanding,
- 5 min for consultation of the judges,
- 5 min for feedback to the teams

The final scores are posted until the next day afternoon for the public. Once posted, the scores may be protested for only one hour, after this time, all scores become final.

BUSINESS PLAN PRESENTATION EVENT

Location: Business Rooms @ ZalaZONE Technical Building (Initial judging),  
Catering (Business Plan Presentation Final)

The key point of the Business Plan Presentation Event is that the teams and judges go into a roleplay. The presenting team members introduce themselves as employees of a company and not formula student teams. The judges are treated as potential executives or managers of a corporation interested in either manufacturing the team's design or investing in the team as a company, and the approach is to obtain a deal from them. Teams have to keep in mind that the executives, managers represent different areas of a corporate organization, including engineering, production, marketing and finance, etc., thus may not all be engineers. The presentation must relate to the car entered into the FS East 2019 Event, although the state of the prototype itself must not be considered (this means even if the car is not working or finished, at this static event it does not matter).

EXECUTIVE SUMMARY

Prior to the Event it is required that a one page Executive Summary has to be submitted until the given deadline. The Executive summary should contain a brief description of the team's business plan and must include one outstanding, innovative business model idea (why is your BP better?) and one outstanding car technical feature with the anticipated production costs of the car. If not compliant with the rules the received penalty points will be deducted from the final BPP score.

THE PRESENTATION

Competing teams have to keep a presentation to potential investors or partners for the presented business model. The presentation should tie together all factors that would influence the marketability and manufacturability of their design and all risks conjuring this business idea. The technical aspects of the vehicle design should be presented to reinforce or support performance claims but should be reduced to the minimum necessary for an investment decision. The competitors should show an understanding of the marketplace and the targeted customer. Furthermore they should show how their design fits into its expected market and how it is completed to a business model. Competitors must convince the Judges that their prototype and the related concept represents a profitable enterprise for the manufacturer/investor and that is simply an attractive investment.

PART OF PRESENTATION: DEEP DIVE TOPIC (DDT)

All teams receive a given task prior to the event, a specific deep dive topic. This task has to be presented in the given presentation time and will be evaluated by the Judges.

JUDGING SEQUENCE

The Business Plan Presentation Event is held in a three step approach. In advance, every team has to submit a Business Executive Summary before the event. The first presentation round (incl. Deep Dive Topic) is relevant for all eligible teams and the Finals is relevant only for the top teams decided by the Judges given by the results of the first round.

INITIAL JUDGING

During the initial judging, each team gets the opportunity to present to the Judges. Therefore, the overall group of Judges is divided into smaller groups, who will listen and judge the team presentations. At the end of each presentation, the judges are requested to ask relevant questions and after a little break of scoring to give feedback.

Schedule for each presentation (max. 35 minutes)

- Max. 5 minutes for set-up & preparation
- 10 min for Business Presentation
- 5 min for Q&A on the presentation
- 5 min Judge time (for debriefing and scoring decision)
- Max. 5 min de-installation
- 5 min for Feedback to the teams

This time schedule needs to be followed strictly to not disrupt the overall time schedule for the whole day.

During the presentations only judges and the presenting team members can participate and special permission to official Press-staff. Special entry permission should be asked and decided by the Business Event Leader.

BUSINESS PLAN PRESENTATION FINAL

Top teams from each category decided by the Judges given by the results of the initial round will qualify to the Business Plan Presentation Final. This Final will be held on Saturday afternoon. The teams will present to the selected Judges and is open to all Visitors (i.e. other teams, guests etc.). The finalist teams will present directly one after the other without any questions/interruptions by the Judges, based on order of drawing of lots prior to starting. Afterwards, the Judges will hold a de-briefing and decide on the ranking of the finalist teams.

Schedule for each Final presentation:

- Max. 5 minutes for set-up & preparation
- 10 min for Business Presentation
- Max. 5 min de-installation

BUSINESS PLAN PRESENTATION SCORING

Non finalist

Presentation Event score =  $(P_{YOUR} / P_{MAX}) \times (75 - n)$

Where:

"P<sub>MAX</sub>" is the highest score awarded to any team not participating in the finals  
"P<sub>YOUR</sub>" is the score awarded to your team  
"n" is the number of finalists

Finalists

"n" th Place 75-(n-1) points

- It is intended that the scores will range from near zero (0) to seventy-five (75) to provide good separation.
- If a team does not attend the Business Finals despite its nomination, it will automatically receive the last place in the Finals. If a team misses their allocated time, the team will receive zero presentation points. The team that makes the best business presentation (regardless of the quality of the car) wins the event.



# STATIC SCHEDULE

P#	Car#	Team	Country	E/C/D	Design Event		Cost Event		Business Plan		9	10	11	12	13	14	15	16
					Time	#	Time	#	Time	#								
1st Group (CV)																		
B3	1	Rennteam Uni Stuttgart e.V. University of Stuttgart	DE	C	9:00	-	10:00	1	11:00	-	12:00	1	14:30	-	15:15	1	D1	
B9	235	UNI Maribor Grand Prix Engineering University of Maribor	SI	C	15:45	-	16:45	1	10:00	-	11:00	1	11:15	-	12:00	1	C1	B1
A7	60	Formula Student Team Wengarten University of Applied Sciences Ravensburg-Wengarten	DE	C	14:00	-	15:00	1	13:00	-	14:00	1	9:00	-	9:45	1	B1	
A17	330	Zips Racing University of Aton	USA	C	11:00	-	12:00	1	14:00	-	15:00	1	9:45	-	10:30	1	D1	
A18	44	TAUARD Tel Aviv University	IL	C	13:00	-	14:00	1	15:45	-	16:45	1	10:30	-	11:15	2	B2	
B8	41	BME Motorsport Budapest University of Technology and Economics	HU	C	10:00	-	11:00	1	9:00	-	10:00	1	13:00	-	13:45	1	C1	
2nd Group (CV)																		
B6	95	FSUPV Team Technical University of Valencia	ES	C	14:15	-	15:15	2	15:45	-	16:45	2	11:15	-	12:00	4	B4	
A1	219	Joanneum racing gmbz FH Joanneum University of Applied Sciences	AT	C	10:00	-	11:00	2	11:00	-	12:00	2	13:00	-	13:45	2	C2	
A5	70	CAT-Racing Coburg University of Applied Sciences	DE	C	11:00	-	12:00	2	10:00	-	11:00	2	13:45	-	14:30	1	C2	D2
A24	350	Road Arrow University of Baghdad	RS	C	13:00	-	14:00	2	9:00	-	10:00	2	14:30	-	15:15	2	C2	
A9	179	Fennecmade Phoenix Poznan University of Applied Sciences	DE	C	15:45	-	16:45	2	13:00	-	14:00	2	9:45	-	10:30	2	B2	
A11	34	YTU Racing Yildiz Technical University	TR	C	9:00	-	10:00	2	14:00	-	15:00	2	10:30	-	11:15	1	D2	B1
3rd Group (CV)																		
A2	79	Arbona Racing Team Szechenyi Istvan University	HU	C	14:00	-	15:00	3	11:00	-	12:00	3	13:00	-	13:45	3	C3	
A3	2	From Racing National Technical University of Athens	GR	C	15:45	-	16:45	3	13:00	-	14:00	3	09:45	-	10:30	3	B3	
A16	58	UPB Racing Team e.V. University of Padernum	DE	C	13:00	-	14:00	3	10:00	-	11:00	3	9:00	-	09:45	3	B3	C3
A12	111	Os-car Racing Team University of Applied Sciences Campus Vienna	AT	C	11:00	-	12:00	3	9:00	-	10:00	3	13:45	-	14:30	2	C3	D3
B17	169	HAWMS Racing Hamburg University of Applied Sciences	DE	C	9:00	-	10:00	3	15:45	-	16:45	3	10:30	-	11:15	3	D3	B3
A6	242	Formula Student Team Demarest Darmstadt University of Applied Sciences	DE	C	10:00	-	11:00	3	14:00	-	15:00	3	15:45	-	16:30	3	D3	
4th Group (CV)																		
A19	90	Dynamis PRC Polytechnic University of Milan	IT	C	11:00	-	12:00	4	13:00	-	14:00	4	9:00	-	9:45	4	B4	
A4	998	TEIWM Racing Western Macedonia University of Applied Sciences	GR	C	10:00	-	11:00	4	16:45	-	16:45	4	13:45	-	14:30	3	D4	
A14	74	High-Octane Motorsports e.V. University of Erlangen-Nuremberg	DE	C	13:00	-	14:00	4	9:00	-	10:00	4	14:30	-	15:15	4	C4	
A22	37	PUR Motorsport Poznan University of Technology	PL	C	14:00	-	15:00	4	10:00	-	11:00	4	11:15	-	12:00	3	C4	B3
A10	165	Scuderia Mensa HS RheinMain Racing e.V. RheinMain University of Applied Sciences	DE	C	15:45	-	16:45	4	11:00	-	12:00	4	14:30	-	15:15	3	C4	
B18	213	munchMotorsport Munich University of Applied Sciences	DE	C	9:00	-	10:00	4	14:00	-	15:00	4	13:00	-	13:45	4	D4	
5th Group (CV)																		
A21	174	TU Bmo Racing Bmo University of Technology	CZ	C	13:00	-	14:00	5	10:00	-	11:00	5	11:15	-	12:00	2	C5	B2
A23	106	Cerber Motorsport Blystadk University of Technology	PL	C	11:00	-	12:00	5	14:00	-	15:00	5	9:45	-	10:30	4	B4	D5
B2	313	FastTUBE Technical University of Berlin	DE	C	9:00	-	10:00	5	11:00	-	12:00	5	13:45	-	14:30	4	D5	C5
B22	919	KA-Racing C Karlsruhe Institute of Technology	DE	C	10:00	-	11:00	5	13:00	-	14:00	5	9:00	-	9:45	2	B2	D5
A13	29	KEFO Motorsport John von Neumann University	HU	C	14:00	-	15:00	5	9:00	-	10:00	5	10:30	-	11:15	4	C5	B4
6th Group (EV)																		
C12	150	Technikum Mittelewida Motorsport Mittelewida University of Applied Sciences	DE	E	13:00	-	14:00	6	10:00	-	11:00	6	9:00	-	9:45	5	B5	C5
C15	64	Kaiserslautern Racing Team e.V. Technical University of Kaiserslautern	DE	E	11:00	-	12:00	6	15:45	-	16:45	6	13:45	-	14:30	7	D6	
B7	68	UPC ecoRacing Polytechnic University of Catalonia	ES	E	10:00	-	11:00	6	13:00	-	14:00	6	11:15	-	12:30	5	D6	B5
C17	16	FSB Racing Team University of Zameb	HR	E	14:00	-	15:00	6	09:00	-	10:00	6	10:30	-	11:15	5	C5	B5
C8	18	AGH Racing AGH University of Science and Technology	PL	E	15:45	-	16:45	6	14:00	-	15:00	6	9:45	-	10:30	5	B5	C5
B5	26	Green Team Electric University of Stuttgart	DE	E	9:00	-	10:00	6	11:00	-	12:00	6	14:30	-	15:15	5	D6	C5
7th Group (EV)																		
B11	690	Superior Engineering University of Lublana	SI	E	14:00	-	15:00	7	9:00	-	10:00	7	10:30	-	11:15	7	C7	B7
C2	124	FS Team Tallinn Tallinn University of Applied Sciences	EE	E	15:45	-	16:45	7	14:00	-	15:00	7	09:45	-	10:30	6	B6	B7
C2	30	TUfast e-technology Technical University Munich	DE	E	9:00	-	10:00	7	13:00	-	14:00	7	10:30	-	11:15	6	D7	B6
C7	53	Raceyard E University of Applied Sciences Kiel	DE	E	11:00	-	12:00	7	15:45	-	16:45	7	13:45	-	14:30	5	D7	
C13	99	Ecurie Aix Formula Student Team RWTH Aachen e.V. RWTH Aachen University	DE	E	13:00	-	14:00	7	10:00	-	11:00	7	15:45	-	16:30	6	C7	
C16	71	Doelhof Dynamics UAS Duiploiz	DE	E	10:00	-	11:00	7	11:00	-	12:00	7	14:30	-	15:15	6	D7	C7
8th Group (EV)																		
C4	76	Racetech Racing Team e.V. Freiburg University of Mining and Technology	DE	E	11:00	-	12:00	8	9:00	-	10:00	8	13:00	-	13:45	6	C5	D8
B25	50	Formula Student Tecnico Lisboa Instituto Superior Tecnico	PT	E	14:00	-	15:00	8	10:00	-	11:00	8	11:15	-	12:00	7	C3	B7
C3	98	Metropolis Motorsport Metropolis University of Applied Sciences	FI	E	13:00	-	14:00	8	15:45	-	16:00	8	11:15	-	12:00	6	D8	B6
B21	9	KA-Racing E Karlsruher Institut of Technology	DE	E	10:00	-	11:00	8	13:00	-	14:00	8	09:00	-	9:45	6	B6	D8
B14	113	FASTTUBE Technical University of Berlin	DE	E	9:00	-	10:00	8	11:00	-	12:00	8	13:45	-	14:30	6	D8	C5
9th Group (EV)																		
C11	39	eMotorsports Cologne TH Köln – University of Applied Sciences	DE	E	11:00	-	12:00	9	15:45	-	16:45	9	9:45	-	10:30	7	B7	D9
B15	78	Le-nation Hamburg Hamburg University of Technology	DE	E	14:00	-	15:00	9	11:00	-	12:00	9	13:00	-	13:45	5	C9	
C9	114	BME Formula Racing Team Budapest University of Technology and Economics	HU	E	10:00	-	11:00	9	09:00	-	10:00	9	13:00	-	13:45	7	C9	D9
C10	45	BRS Motorsport Bonn-Rhein-Sieg University of Applied Sciences	DE	E	9:00	-	10:00	9	10:00	-	11:00	9	14:30	-	15:15	7	D9	C9
B1	85	Formula Student Team Deift Deift University of Technology	NL	E	15:45	-	16:45	9	14:00	-	15:00	9	9:00	-	9:45	7	B7	
10th Group (CV)																		
A15	149	High-Octane Motorsport e.V. University of Erlangen-Nuremberg	DE	D	12:45	-	14:00	10	09:00	-	10:00	10	14:30	-	15:15	9	C10	
A8	538	HTW-Berlin Motorsport Drivers HTW Berlin	DE	D	10:15	-	11:30	10	15:45	-	16:45	10	13:45	-	14:30	8	D10	
A20	119	Sapienza Corse Sapienza University of Rome	IT	D	14:00	-	15:15	10	15:45	-	16:45	5	9:45	-	10:30	9	B8	
B4	126	GreenTeam Drivers University of Stuttgart	DE	D	9:00	-	10:15	10	11:00	-	12:00	10	14:30	-	15:15	8	D10	C10
C1	433	AMZ drivers ETH Zurich	CH	D	15:45	-	17:00	10	13:00	-	14:00	9	10:30	-	11:15	8	B8	
11th Group (CV)																		
B10	35	UNI Maribor Grand Prix Engineering University of Maribor	SI	D	15:45	-	17:00	11	10:00	-	11:00	11	11:15	-	12:00	8	C11	B8
B18	13	munchMotorsport e.V., Drivers Munich University of Applied Sciences	DE	D	9:00	-	10:15	11	14:00	-	15:00	8	13:00	-	13:45	8	D11	
C14	499	Ecurie Aix Formula Student Team RWTH Aachen e.V. RWTH Aachen University																



## RESULTS

The results will be posted on the results board at the Event Control as soon as they are available. Furthermore, they will be published online at the FS East website.

### PROTESTING OF RESULTS

#### REVIEW PERIOD

##### 20th July, Saturday

13:00 - 14:30	Business Event review period at Event Control
14:30 - 16:00	Cost and Manufacturing Design Event review period at Event Control
16:00 - 17:30	Engineering Design Event review period at Event Control

During the review period teams can discuss their static event results with the corresponding static event leader. The static event leaders can offer an insight into the score sheet of the respective team or provide feedback based on the score sheet. During this period objective, administrative mistakes can be protested (i.e. mistake in the summarization), but the subjective decision of the judges about the given points cannot be protested.

#### REQUIRED REVIEW

Any team that intends to protest a rule interpretation, score, judge's decision or any other aspect of the competition, must present the issue to the FS East rules committee, represented by Gergely Lágler for discussion and possible resolution before the protest is filed. For locating him, please contact event control.

#### CAUSE FOR PROTEST

A team may protest any rule interpretation, score or official action (unless specifically excluded from protest) which they feel has caused some actual, non-trivial harm to their team, or has had a significant effect on their score. Teams may not protest rule interpretations or actions that have not caused them any significant 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 a written form and submitted by the team captain to FS East rules committee.

#### 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.

## FS EAST CAMP RULES

Those teams who booked their accommodation and intend to stay at the FS East Camp have to accept the following guidelines and rules. We created this list of rules to ensure all the necessary safety and comfort elements for the campers. In emergency cases the event site emergency scenarios are the normatives (see page 2-3). In any urgent cases you can call the emergency numbers.

### CHECKING-IN TO THE CAMPSITE

Checking-in to the campsite is handled at the Ticket Center of the event site. After a successful registration campers get their wristbands and may proceed to the FS East Camp. Campsite registration is available between 8.00 AM and 8 PM on Tuesday (July 16th), and Wednesday (July 17th), and the rest of the event days during the opening hours of the Ticket Center.

#### In case you arrive after the opening hours of campsite registration, call us in advance!

All team members who booked their accommodation at the campsite must show up, sign the check-in form, and agree the FS East Camp Rules in order to receive their wristbands that provides entrance to the campsite. We're only able to give out wristbands to the members of the teams who've already transferred the accommodation fee. Additional team members are able to pay by cash at check-in.

In case your wristband is lost or damaged you're able to request a new one both at the FS East Camp entrance and the Ticket Center of the event site by showing up your damaged one and/or event pass or giving us your full name.

### RESERVABLE AREA

Based on the number of team members we provide a camping area of approx. 225 square meters for each team. Larger constructions (e.g. kitchen tents, pools, football field, etc.) should be mentioned in advance in the Accommodation Booking form. Constructions higher than 6 meters are not allowed to be built up on the premises of the campsite.

### PARKING IN THE CAMPSITE

The campsite has a separated parking area. Please make sure to get a Car Pass in the Ticket Center of the event site, which assures that we're able to reach you on your cell if anything happens. There's a designated area for caravans and cars that are used for sleeping, these should be marked with a Camper Car Pass, that you can also claim at the Ticket Center or from the members of the Logistics Team onsite.

Please note, that you can't park your vehicles neither in the Social area of the FS East Camp nor between the tents.

**ATTENTION:** Make sure that your caravan or car is not dropping or flowing. Prevent it!

### COOKING, FIRES AND SMOKING

Using open fire (e.g. charcoal, gas stove, firewood) for cooking is restricted to the premises of the Fun & Grill area. Electric cooking devices can be operated at your own tents as well considering the limited power supply (1x16 A / team). If you need more, you can connect to the power supply of the Fun&Grill area - the additional power requirement has to be reported in advance.

**NOTE:** If you have any cultural or religious objections regarding these rules, please contact us in advance.

**Smoking is strictly prohibited in the sleeping area, in all tents, in the parking slots, and in the toilet or shower containers.**

### FOOD & DRINKS

The catering tent provides food and drinks on student-friendly prices all day at the event site, and we also prepare with dinner and a bar in the FS East Camp. You can pay with Hungarian Forint, Euro or credit card.

**NOTE:** Alcoholic drinks are forbidden at the event site - so just drink as much as you can "sleep out", to be perfectly fit for the next day.

### BATHROOMS

We provide separate bathroom containers for male and female participants at the campsite with showers.

### POWER SUPPLY

The electric network at the campsite provides 1x16 A for each team to consume. If you might need more power to supply your devices, please let us know prior to the event. You can also bring your own power supply - in that case you must prepare with one fire extinguisher for each of them.

### SHUTTLE BUS

The FS East Camp is located approx. 3.5 km from the Zala ZONE Automotive Proving Ground. We're providing transportation between these venues for teams who don't have enough vehicles or arrive by public transport. Please note that the shuttle bus operates according to a timetable and carries only a limited number of team members at once. The timetable will be placed at the entrance of the Camp, as well as the Ticket Center and the Event Control of the event site.

**ATTENTION:** Pedestrian traffic is strictly forbidden between the two locations as walking roadside is extremely dangerous!



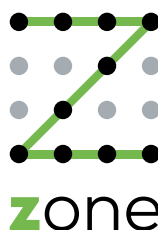
# TOP GUNS

## OF FORMULA STUDENT EAST!

[top-gun] noun one who is at the top as in  
ability, rank, or prestige



MAGYARORSZÁG KORMÁNYA  
INNOVÁCIÓS ÉS TECHNOLÓGIAI MINISZTERIUM



Audi  
Hungaria



### CHANGELOG

Version	Date	Modification	Page
1.0	8th July 2019	Initial beta release	-



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