

FORMULA STUDENT GERMANY

INTERNATIONAL DESIGN COMPETITION

August 2nd - 7th 2011
Hockenheim



Formula Student Electric
Event Handbook 2011

presented by



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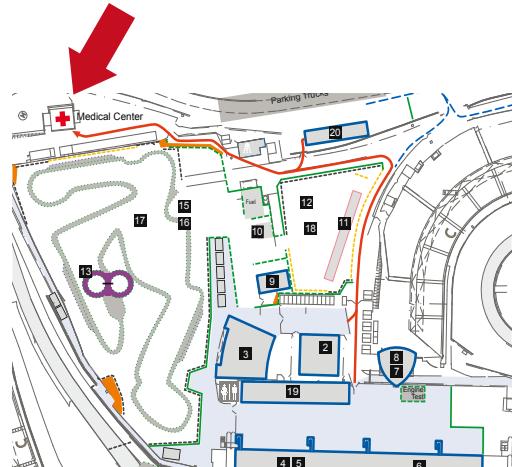
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1 EMERGENCY INFORMATION

Minor Injury:

Medical Center:

Please accompany the injured person to the medical center. Emergency aid is provided there. The medical center is occupied each day round-the-clock.



Severe Injury:

Contact someone with a two-way radio:

Every official and security has a two-way radio. Ask them to call the medical center or an ambulance on channel 11.

Call an ambulance yourself:

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

During Dynamics:

During the dynamic events (Friday, Saturday, Sunday), an ambulance is on site. To contact it, ask someone with a two-way radio (official, security).

Hospital:

Main Hospital: Kreiskrankenhaus (Schwetzingen), Bodelschwinghstrasse 10, 68723 Schwetzingen
phone: +49 (0) 6202 / 84-30 (Also see directions in Chapter 1.1)

Emergency Numbers:

In case of an emergency outside of the competition times, call 112. This number works with every phone, also with mobile phones or coin-operated telephones as international GSM-standard. It is always free of charge.

Officials:

Pit Marshal Konrad Paule: +49 (170) 3043619
Pit Marshal Sebastian Seewaldt: +49 (175) 5249739
Event Control Daniel Ahrens: +49 (172) 5328399
Event Control Tim Schmidt: +49 (176) 24316857

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

112

Emergency Call Dictionary:

The emergency control center will ask you some questions to ensure proper help. To support you at your call, here are some standard questions and some hints for your answers in English and German.

Who is calling? (*Wer ruft an?*)

Say your name and your telephone number for callbacks. Digits in German: 1 (eins), 2 (zwei), 3 (drei), 4 (vier), 5 (fünf), 6 (sechs), 7 (sieben), 8 (acht), 9 (neun), 10 (zehn)

Where did it happen? (*Wo ist es passiert/geschehen?*)

Address event site: Hockenheimring, Sachshaus, Am Motodrom
Make it more precise: pit lane (Boxengasse), dynamic area (Fahrerlager);
Address campsite C2: Hockenheimring, Zeltplatz C2 beim Motodrom Hotel
Address campsite C3: Hockenheimring, Zeltplatz C3 an der Continental Straße

What happened? (*Was ist passiert? / Was ist geschehen?*)

Accident (Unfall), traffic accident (Verkehrsunfall), fire (Feuer), fall (Sturz), explosion (Explosion)

How many people are injured? (*Wie viele Personen sind verletzt?*)

1 (eins), 2 (zwei), 3 (drei), 4 (vier), 5 (fünf), 6 (sechs), 7 (sieben), 8 (acht), 9 (neun), 10 (zehn)

What injury do they have? (*Welche Verletzung haben sie?*)

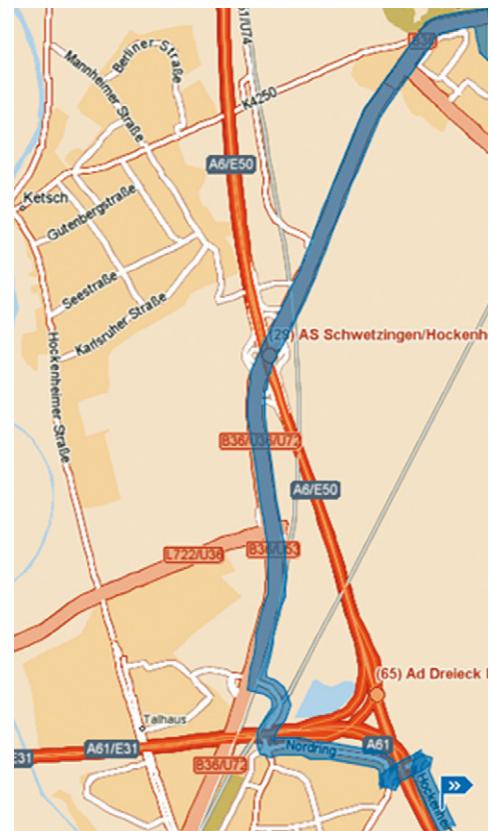
Fracture (Knochenbruch), bleeding (Blutung), unconsciousness (Bewusstlosigkeit), burn (Verbrennung), electric shock (Stromschlag), suffocation (Ersticken), heart attack (Herzinfarkt), shock (Schock)

Don't hang up after answering these questions! Wait to see if the control center has any further questions!

1.1 DIRECTIONS TO THE HOSPITAL

Start at the Hockenheimring. After 32 m, turn left into the Ernst-Wilhelm-Sachs-Straße. Go straight ahead for 216 m. Then enter Hockenheim and continue following the Ernst-Wilhelm-Sachs-Straße for another 129 m. Turn right to the Nordring and follow it for 1.02 km. Enter the roundabout and leave it at the first exit in direction of the Schwetzinger Straße. Leave Hockenheim. Follow the Schwetzinger Straße for 54 m. Then turn right and get on the federal road B36 which you stay on for 5.13 km until you enter Schwetzingen. Continue following the B36: the first 577m after entering Schwetzingen the street is called Hockenheimer Landstraße, after turning half right, the next 363 m are called Zähringer Straße. Turn right into the Bodelschwinghstraße. After 123 m you have reached the hospital.

= 7.82 km in 10 minutes

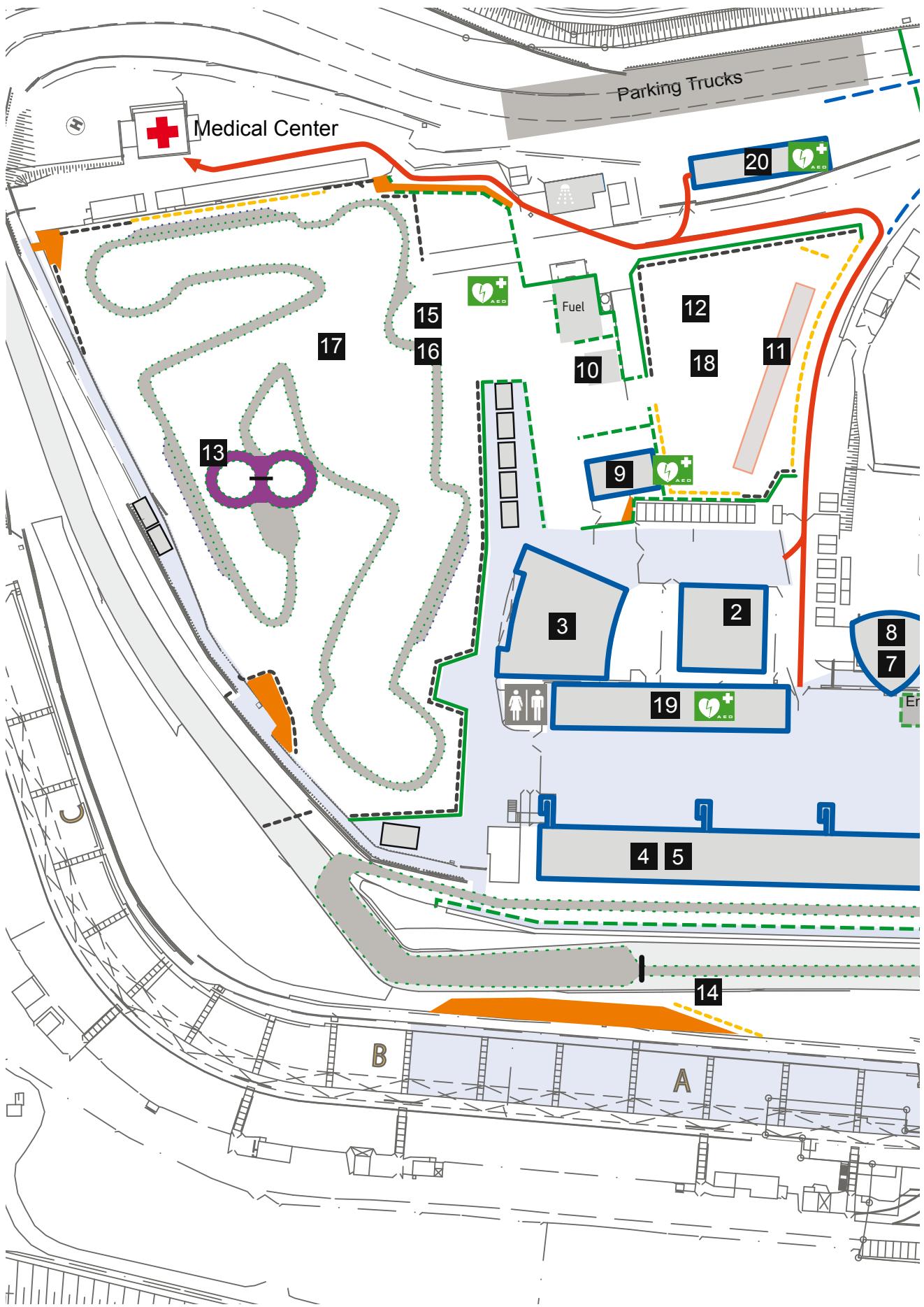


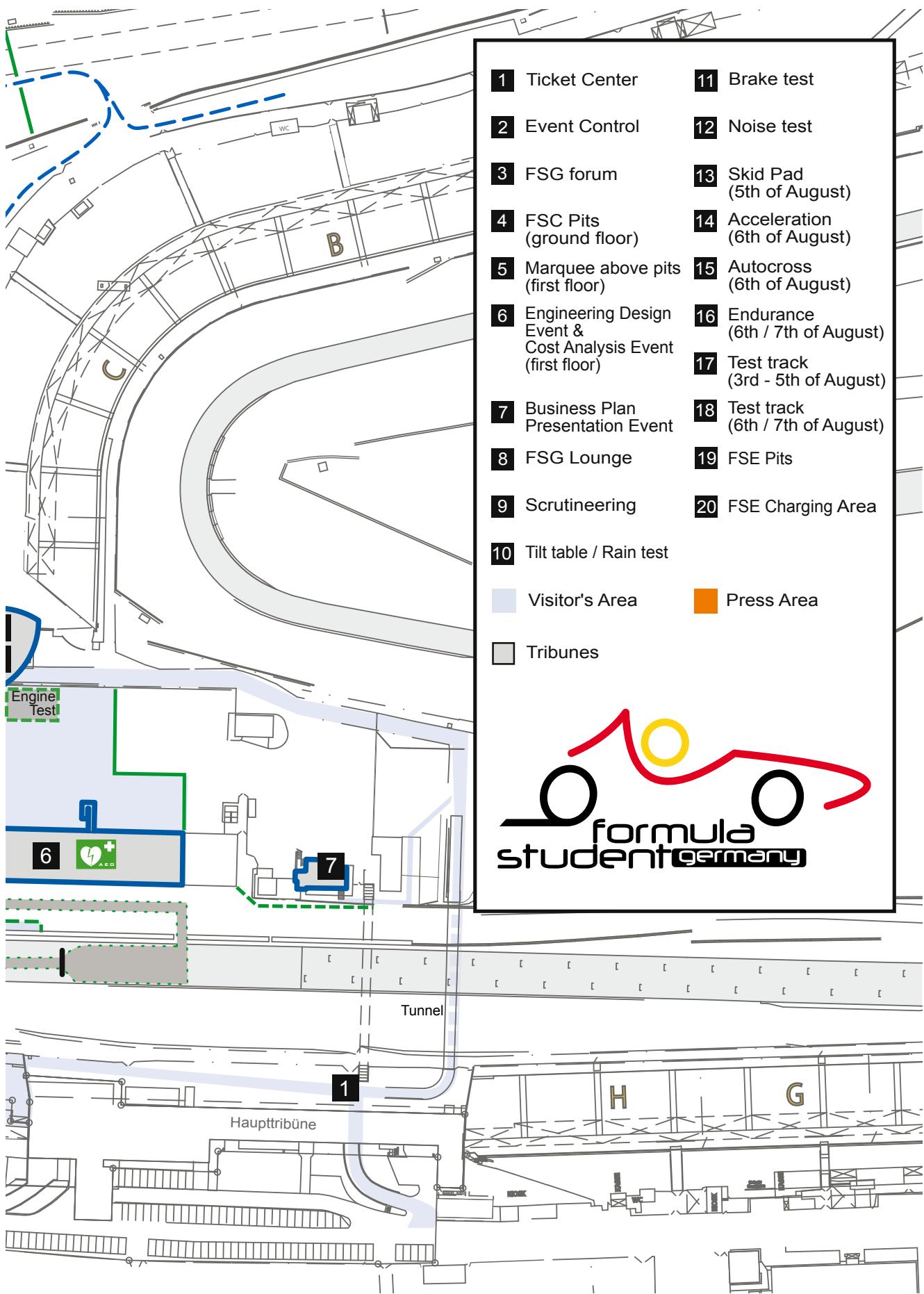
1.2 WHAT SHOULD I DO IN CASE OF ELECTRIC SHOCK?

- Call for medical help.
- Push one of the emergency shut down buttons and wait until the TSAL is switched off
- 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 cloth and cover potential contact paths with the car with the HV isolation blanket. Ensure your footing and that you will 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 (from a fall, for example) unless it is absolutely necessary.
- Give artificial respiration if the victim is not breathing.
- Give CPR if the injured person's heart has stopped (only if you are trained in CPR) or use an Automated External Defibrillator (AED)
- 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 breathing.

2 EVENT DETAILS

2.1 SITE PLAN





2.3 CONTACT INFORMATION

2.3.1 TICKET CENTER

Schedule:	Wed	3 August	07:30 – 19:00
	Thu	4 August	07:30 – 19:00
	Fri	5 August	07:30 – 19:00
	Sat	6 August	07:30 – 22:00
	Sun	7 August	07:00 – 19:00

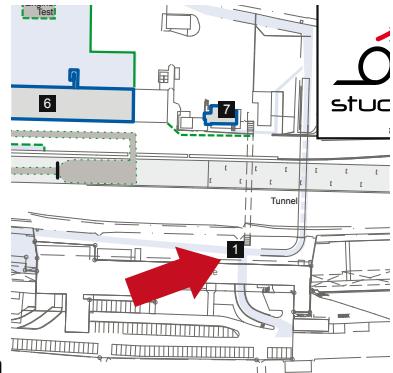
Location: Entrance

Both, teams and spectators, receive their passes for entering the venue at the ticket center.

ONLY the event team captain is allowed to pick up all the passes for distribution to the rest of the team members. No single passes will be handed out to team members. For the detailed procedure see chapter 2.4.1.

Non-team members may purchase tickets for themselves or any guests at the ticket centre.

Prices: 10,- EUR for a one-day ticket
25,- EUR for a five-day ticket (Wednesday to Sunday)

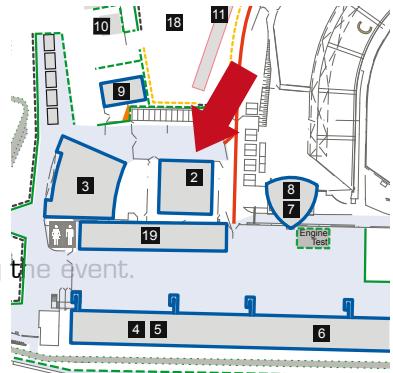


2.3.2 EVENT CONTROL

Schedule:	Wed	3 August	07:30 – 19:00
	Thu	4 August	07:30 – 19:00
	Fri	5 August	07:30 – 19:00
	Sat	6 August	07:30 – 22:00
	Sun	7 August	07:00 – 19:00

Location: Back of the Sachs House

Event control is the central contact point for teams and all requests concerning the event.



Tasks of event control:

- Information point for all competitors (concerning schedule, general questions etc.)
- Contact interface to the Officials
- Registration of the drivers
- Handing out packages with programmes and t-shirts to the teams
- Lost and found
- Feedback

2.3.3 FSG TEAM



Tim Hannig
Board (Chairmen)
Linde (China)



Rainer Kötke
Board (Finance)
EC (Dynamics)
Volkswagen AG



Ludwig Vollrath
Board (FS Academy & VDI)
VDI Society for Automotive and
Traffic Systems Technology

Board

The Board is responsible for the Formula Student Germany and its cooperations as well as for sponsoring, finances and strategy.

Das Board trägt Verantwortung für die Formula Student Germany und ihre Kooperationen sowie für Sponsoring, Finanzen und Strategie.



Lukas Folie
EC (FS-Electric)
Audi AG



Peter Jakowski
EC (Scoring, Timekeeping)
Bosch Engineering GmbH



Barbara Decker-Schlögl
EC (Statics)
Mubea Carbo Tech GmbH



Ulf Steinfurth
EC (Technical Inspection)
University of Applied Sciences Stralsund



Ann-Christin Bartölke
Communications / Guided Tours
Braunschweig Institute of Technology



Matthias Brutschin
Event Support
brutschin engineering



Leona Ehrenreich
Registration, Visa, Ticket Center
Primary and Secondary Modern
School Freiherr-vom-Stein, Gifhorn



Robert Fromholz
Cost Event
H&D International Group



Wolf-Bastian Pöttner
Timekeeping
Braunschweig Institute of Technology



Günther Riedl
Dynamics
Roding Automobile GmbH



André Schmidt
Scrutineering
Caterpillar Inc.



Jochen Schmidt
Timekeeping
German Aerospace Center (DLR)



Karsten Stammen
Dynamics
KLK Motorsport GmbH



Lena Töppich
Communications (Press)
VDI Verein Deutscher Ingenieure e.V.



Christopher Zinke
Design Event
Elektronische Fahrwerkssysteme
GmbH

Operative Team

The Operative Team completes the management team by bearing responsibility for preparations and smooth processes at the event and during the year.

Das Operative Team komplettiert das Management Team, indem es beim Event und übers Jahr Verantwortung für Vorbereitung und reibungslosen Ablauf übernimmt.



Daniel Mazur
Board (Event Manager)
mazur | events + media



Frank Röske
Board (Rules)
EC (Rules IC)
Porsche Leipzig GmbH



Julien van Campen
EC (Communication)
OT (Webmaster)



Matthäus Decker
EC (Personnel Support)
Siemens AG Österreich



Tobias Michaels
EC (FS-Electric)
Braunschweig Institute of Technology



Konrad Paule
EC (FS-Academy)
OT (Pit Marshal)
Volkswagen Motorsport GmbH

Executive Committee (EC)

The Executive Committee stands for the design of the competition and the rules. Each member is responsible for a field, its preparation and realisation.

Das Executive Committee verantwortet Ausgestaltung von Wettbewerb und Reglement. Jedes Mitglied ist für Vorbereitung und Durchführung eines Bereiches verantwortlich.



Daniel Deussen
Dynamics, Scrutineering
Weber Motor GmbH



Cas Droogendijk
Design Event
DAF Trucks N.V.



Henning Nissen
Communications / Guided Tours
Beuth Hochschule für Technik



Alia Pierce
Communications / Event Speaker



Sarah Roloff
Communications / Marquee
Eurocopter Deutschland GmbH



Johanna Scheider
Communications (FSG Forum / Editor)
Wickeder Westfalenstahl GmbH



Tim Schmidt
Event Control (Back Office)



Sebastian Seewaldt
Pit Marshal
University of Stuttgart



Karl Weinreich
Scrutineering
Bosch Engineering GmbH



Stefan Windt
Timekeeping
Volkswagen AG

At venue, the FSG team will answer further questions directly. For further contact, especially after the event, FSG Team can be contacted via e-mail.

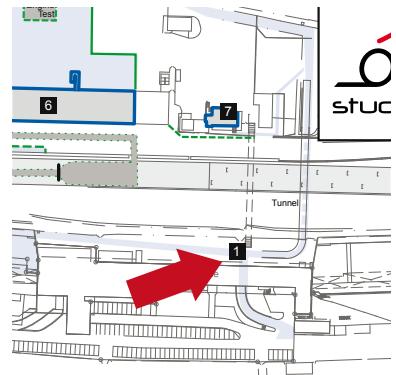
2.4 ORGANISATIONAL ASPECTS

2.4.1 REGISTRATION

Tuesday, 2 August

14:00	Scrutineering, registration & entrance order available (Ticket Center)
16:00 – 18:00	Team registration (Ticket Center)
18:00 – Sun 20:00	Pits available
18:00 – 20:00	Driver & safety responsible registration (Event Control)
18:00 – 23:00	Entrance for team vehicles (pits still accessible by foot)

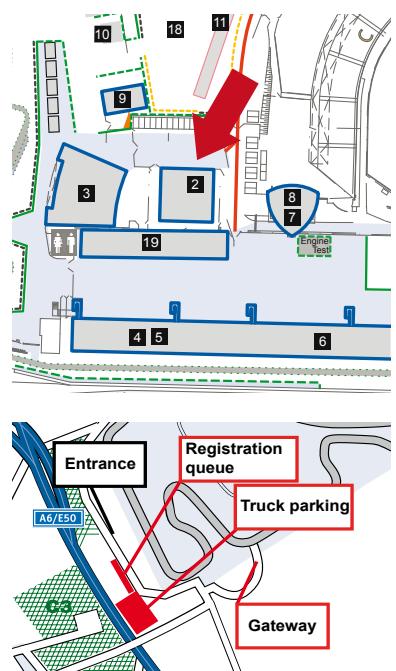
All team captains received a registration document with standard terms and personal information of all registered members. This document needs to be printed out, signed by ALL team members and brought to registration. Only the team captain has to sign this paper at registration and confirm with his/her signature the correctness and validity of all other signatures. With their signature, the team captains also guarantee that only team members work on the car and that the following safety guidelines are followed.



Truck Parking:

The truck driver of each team waits at the truck stop for his/her team captain to hand over the green vehicle entrance pass with the entering number. Whilst waiting, complimentary coffee will be available.

- Pay attention to not blocking emergency exits!
- Follow the instructions of the marshals!
- Do not move trucks to FSG gateway entrance until instructed by marshals



Ticket Center:

ONLY event team captains are allowed to register their team. They can be accompanied by only ONE other team member! The ticket center consists of 3 containers: one for "guests & press" and two for "teams & visitors". Please check the registration/scrutineering order before getting in line. One of the "teams & visitors" containers deals with the odd and the other one with the even numbers of the registration/scrutineering order. Please try to get the right order in the queues. The event team captain has to sign the document with all signatures and will then receive all passes for his registered team members, an event guideline poster and a green vehicle entrance pass. The team may then enter FSG in the given order.

Event Control:

At the event control, the event team captain will then receive the package of shirts, programmes, etc. Large teams may bring 1 or 2 extra members to help with carrying.

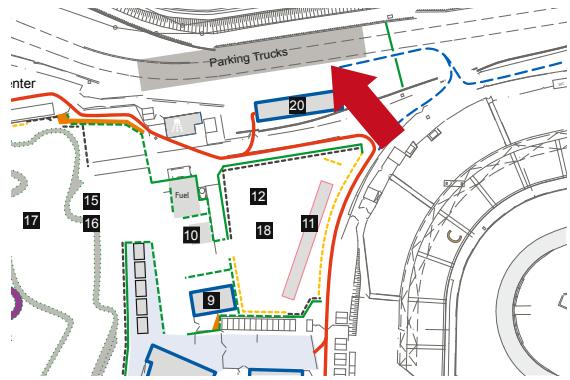
Driver Registration:

Each team must register at least 4 drivers. The drivers register themselves at Event Control where their valid driver's licenses must be presented along with their student ID. They will then receive wristbands marking them as drivers.

2.4.2 PARKING / VEHICLE ENTRANCE PASS

Only vehicles with a vehicle entrance pass may enter the venue. At registration, a green vehicle entrance pass will be handed over which allows for 1 vehicle to be parked permanently during the event. On request, an additional yellow vehicle pass is available allowing for entrance of 1 additional vehicle for a period of 1 hour for loading/unloading. No yellow passes will be given out after Sunday, 16:00. The vehicle entrance pass must be filled out with the license plate number, the team name, the driver's name and the mobile phone number of the driver. It must be displayed in the windscreen. When entering the site, please queue up on the right hand side along the barrier and wait for further instruction. As all teams would like to enter the site fast, please unload quickly and follow instructions from the officials. Do not stay on site with a yellow pass for longer than necessary!

The parking area is on the "Querspange", on the other side of the fence behind the dynamic area. There is one parking lot with approximately 25 m² per team. When entering the Hockenheim Ring, 30 minutes is given for each team to unload the truck in front of their pit. Afterwards, the truck has to be parked on the "Querspange". Please note, that it is not possible to drive to the pits again. This means that during and after the event, each team will have to transport all equipment between the pits and truck by foot. At the "Querspange" the trucks will be accessible at all times. If arriving with a container or trailer which requires more than 30m², this must be left in a parking area outside of venue. The parking area must be vacated by Monday, August 8th at 10:00. Walking speed is the speed limit on the entire event site. Pavilions are not allowed.



2.4.3 ANNOUNCEMENTS

The event will proceed according to the official time schedule as far as possible. Listen to announcements and be aware of signs at the Event Control for changes in the schedule. All announcements will be posted on the website too:

<http://www.formulastudentelectric.de/events/event-2011/announcements-on-site/>

2.4.4 PIT AND INFIELD TIMES

The pits are open from Tuesday, 2nd of August 18:00 to Sunday, 7th of August 20:00 24h per day. Thus, all teams are able to work in their pits day and night. For visitors, the infield closes at 00:00 except for the party on Sunday, which is open to visitors until 01:00.

2.4.5 PIT EQUIPMENT

In every pit group there is power supply and light. At night the pits are guarded from 18:00 to 08:00 by security. Pit allocation can be found in the team list.

2.4.6 SURVEILLANCE

After 18:00, 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.

PIT E1 5m x 5m	PIT E2 5m x 5m
PIT E3 5m x 5m	PIT E4 5m x 5m
PIT E5 5m x 5m	PIT E6 5m x 5m
PIT E7 5m x 5m	PIT E8 5m x 5m
PIT E9 5m x 5m	PIT E10 5m x 5m
PIT E11 5m x 5m	PIT E12 5m x 5m
PIT E13 5m x 5m	PIT E14 5m x 5m
PIT E15 5m x 5m	PIT E16 5m x 5m

2.4.7 TRANSPONDERS / TIME-KEEPING

Two RFID-Tags will be mounted on car during scrutineering. The size of each tag is 80mm x 30mm and will be mounted with an adhesive double-sided tape to bodywork.

The tags will be positioned on the left side of your vehicle: one tag in the area of the car's nose and one tag in the area of the sidepod / side impact structure.

These tags must not be removed until the competition ends, since they are vital for the timekeeping system. If a tag comes loose or falls off, please contact a member of the timekeeping team via event control.

The tags do not have to be returned to the FSG organizers after the event.

It is planned to provide live-timing via internet at <http://tk.formulastudent.de>. Further information regarding live-timing may be published on the FSG website as well.

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

2.5 RULES AND GUIDELINES

Everyone (participants, volunteers, & spectators) at Formula Student Germany 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.

2.5.1 ALCOHOL

PLEASE NOTE: Alcohol on 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 consuming alcohol will cause the entire team to be disqualified immediately.

The prohibition ends with the beginning of the party on Sunday evening.

2.5.2 WORKING ON THE CAR

Activities on the tractive system have to take place in the FSE pit. A safety responsible (SR) and at least one more team member, who can interfere in case of emergency, have to attend every activity on the tractive system. 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!
For activities on the inactive tractive system please keep to the following procedure:

1. Separate the car with a black-yellow barrier tape, provided by FSG.
2. Switch off the voltage of the tractive system.
3. Assure the tractive system against restart.
4. Check for zero-potential.
5. Open HV disconnect.
6. Install a sign, provided by FSG that declares the car as electrically secured. Note the name of the safety responsible (SR) supervising the activities on the sign. This safety responsible (SR) is the only person who may remove the sign and the barrier.

In case of measurements on the active tractive system or an activation of the tractive system in the pit for testing purposes please keep to the following procedure:

1. Separate the car with a black-yellow barrier tape, provided by FSG.
2. The car has to be jacked up and the driven wheels have to be demounted.
3. One team member has to be prepared to push an emergency button at any time.
4. Team members who take part in the measurement activities have to wear compliant safety gloves and use appropriate measurement devices and tools.
5. The tractive system shall be activated for an as short as possible period of time.
6. Activities on the internal matters of the accumulator containers are exclusively permitted at the declared spots near the charging area and require the attendance of a safety responsible (SR). All team members who take part in the activities have to wear compliant safety gloves and use appropriate measurement devices and tools.

If any of the above mentioned instructions is not obeyed, it may result in deduction of points or disqualification.

2.5.3 JACKING

When supporting car up off the ground, a safe, stable, load bearing support device must be used. The use of crates, piles of wood, or four strong team members, is NOT ALLOWED.

2.5.4 SETTING THE TRACTIVE SYSTEM ACTIVE

Any time the tractive system shall be activated a safety responsible (SR) has to be involved. The activation of the tractive system in the dynamic area requires the explicit approval of an FSG official. The activation of the tractive system or the spinning of motors in the pit is only permitted if the car is jacked up and the driven wheels are demounted. Please also see the guidelines in chapter 2.5.2.

2.5.5 FIRES AND SMOKING

No open fires are allowed in the pit area and in the engine test area. This includes BBQs, oxy-acetylene torches, heaters, cigarettes, etc. Smoking is strictly prohibited in the dynamic area, in all buildings, and in the pit area. Smoking is allowed in the area around the grandstands and in between event control and the BW Tower.

2.5.6 WELDING

FSG provides an approved welder. Welding is allowed in the designated welding area only. Welding is provided:

Wed	3 August	14:00 – 18:00
Thu	4 August	09:00 – 18:00
Fri	5 August	09:00 – 18:00
Sat	6 August	09:00 – 18:00
Sun	7 August	09:00 – 18:00

2.5.7 TYRES

FSG provides a tyre changing service. The Continental truck is open:

Thu	4 August	08:00 – 19:00
Fri	5 August	08:00 – 19:00
Sat	6 August	08:00 – 24:00
Sun	7 August	08:00 – 19:00

2.5.8 FUEL AND OIL

No open fuel containers are allowed 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.

2.5.9 FIRE EXTINGUISHERS

Fire extinguishers must 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.

2.5.10 VEHICLE MODIFICATIONS

If any major modifications are made to car besides FSAE Rule B1.2.2, car must return to scrutineering for re-approval.

2.5.11 FLAGGING

All drivers must know the competition-flagging signals.

2.5.12 BEHAVIOUR

Alcohol and drugs have no place at this event. Alcohol is only allowed on the camp site and on Sunday at the Mahle-Party. Rollerblades, scooters, bicycles and self propelled vehicles are not allowed on site.

2.5.13 DRIVING PRACTICE

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

2.5.14 HOW TO WHEEL THE CAR

Whenever a car is moved around, there must be:

- A driver wearing a full safety suit seated in the cockpit
- A fire extinguisher accompanying the car at all times
- Someone pushing the car with a pushbar
- The detachable handle or respectively key of the tractive system master switch taken-off and kept by a safety responsible (SR).

2.5.15 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 – you will be intimately involved if this happens.

REMEMBER: USE THE KILL SWITCH in case of an engine or brake malfunction!
HAVE FUN – DRIVE SAFELY – USE COMMON SENSE!

3 DYNAMIC EVENTS

3.1 GENERAL INFORMATION

The dynamics at FSG are compliant with the FSAE rules Part D and additional FSG Rules. Additional procedures and key aspects will be given in the following pages as well as during the morning briefings on site.

3.1.1 TEAM / DRIVER-BRIEFINGS

There are team briefings every morning of the competition at the Marquee (On Thursday, Friday, and Saturday at 08:00, on Sunday at 07:30). All team captains and drivers for the day must attend. The briefing contains general event information and detailed information about the dynamic events of the day. A different wristband will be handed out to briefed drivers each day. Without the latest wristband, participation at the dynamic events of the day is not possible. These wristbands must be worn in addition to the numbered wristband. Missing the briefing means missing the dynamic events.

3.1.2 ACCESS TO THE DYNAMIC AREA

Every team receives four armlets. With these armlets, four team members including the driver may enter the dynamic area. Please notice that the armlets are not fireproof. Drivers may take them off for driving, but have to put them back on afterwards.

3.1.3 ALCOHOL

PLEASE NOTE: Alcohol on the event site is strictly forbidden!

Along with the fun of this competition, we want a safe competition. There will be alcohol testing (breathalyzers) during the event. 0.0 % is the allowable alcohol content during this event.

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 tested with a alcohol level of more than 0.0 % will cause the entire team to be immediately disqualified.

3.1.4 WEATHER

This is one of the factors which can not be influenced by the event organisation. Please be aware that the timetable will not be changed if there are 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.

An exception is this years skid pad event. The track will be intentionally kept wet and hence declared wet all day.

3.1.5 CAR SET-UP ALTERATIONS (FSAE RULE B1.2.2)

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 (e.g. ground clearance etc.).

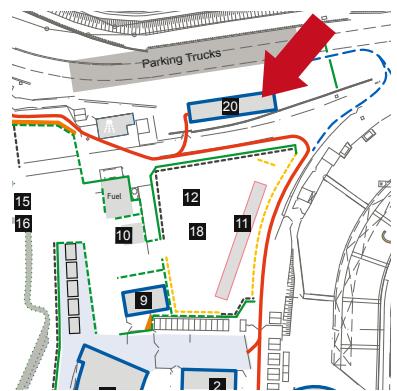
Teams that remove their car from the event site automatically lose all their stickers from technical inspection (E-Scrutineering, Scutineering, Tilt Table, Rain, Brake)

3.1.6 CHARGING AREA

Schedule:	Tue	2 August	from 18:00
	Wed	3 August	round the clock
	Thu	4 August	round the clock
	Fri	5 August	round the clock
	Sat	6 August	round the clock
	Sun	7 August	round the clock

Location: Charging Area

The charging of tractive system accumulators is exclusively allowed in the charging area.



No more than four team members of an individual FSE team are allowed to be in the charging area at the same time. Only charging devices marked during E-Scrutineering may be used. If the accumulators are to be charged inside the car, the team has to make sure that the car cannot enter a ready-to-drive state during charging under any circumstances. Furthermore, all driven wheels have to be off the ground by jacking the vehicle up. A team member has to always stay with the car / accumulators during charging. The accumulator containers or the car itself, depending on whether the accumulators are charged externally or internally, must have a label with the following data:

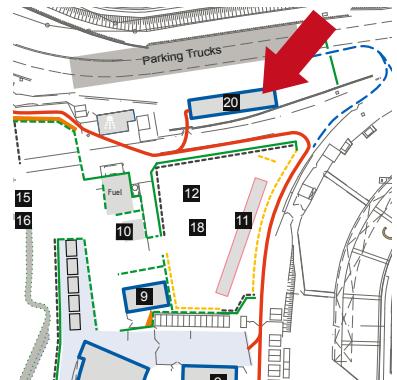
- Team name
- Safety responsible (SR)
- Approximate time at which the charging period ends (date and time).

3.1.7 ACCUMULATOR WORKPLACES

Schedule:	Tue	2 August	from 18:00
	Wed	3 August	round the clock
	Thu	4 August	round the clock
	Fri	5 August	round the clock
	Sat	6 August	round the clock
	Sun	7 August	round the clock

Location: Charging Area

Activities on accumulators are permitted exclusively at the accumulator workplaces. Only FSE team members and FSG officials have access to it. A security guard is present at all times. Please also refer to the guidelines in chapter 2.5.2. No more than four team members of an individual FSE team are allowed to be in the charging area at the same time. Work on the accumulators must always be supervised by a safety responsible.



3.2 TECHNICAL & SAFETY INSPECTION

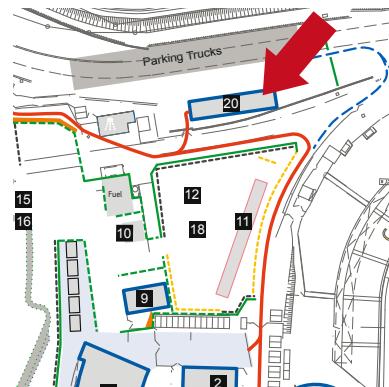
Cars have to pass a technical and safety inspection before being allowed to practice or take part in the dynamic disciplines. The car/team gets the first inspection sticker when E-scrutineering is passed and the second sticker if mechanical scrutineering is passed. The third sticker will be given at the tilt table test, the fourth at the rain test, and the fifth at the brake test (incl. Ready-To-Drive-Sound-Test). Then, and only then, a car/team is allowed to compete in the dynamic events and to practise at the test tracks.

3.2.1 E-SCRUTINEERING

Schedule:	Wed 3 August	09:00 – 12:00, 13:00 – 19:00
	Thu 4 August	08:30 – 12:00, 13:00 – 19:00
	Fri 5 August	08:30 – 12:00, 13:00 – 19:00
	Sat 6 August	on request

Location: Charging Area

Before passing E-scrutineering the car may only be moved around on the event site with all master switches and shutdown buttons in off-position. Therefore, the CS-master switch, the TS-master switch, the right, the left and the cockpit shutdown button have to be turned off! Furthermore, the detachable handle or key of the tractive system master switch has to be removed and kept safe by a safety responsible.



Scrutineers will mark or seal various different approved parts (i.e. insulation monitoring device, accumulator containers, energy meter, tires, rims etc.). The car can be disqualified from any dynamic event by using unmarked parts or substituting marked parts. Parts with broken seals are equivalent to being unmarked.

Broken seals can only be replaced by a scrutineer.

To Scrutineering please bring:

- Accumulator charger to be used during the event
- All accumulator containers to be used during the event
- Data sheets for all used parts in the tractive system
- Copy of the ESF
- Copy of the FMEA
- Accumulator Container Hand Cart, if needed
- Tools and protection equipment as defined in the FSE rules
- Print-out of rule questions (if needed)
- NOTE: Four team members maximum in the inspection box

Insulation Monitoring Device Test (IMDT):

The insulation monitoring device will be tested during E-scrutineering. This is done by connecting a resistor between several parts of the tractive system and electrically conductive vehicle parts while the tractive system is active. The size of the resistor is defined as 500 Ohm/V related to the maximum tractive system operation voltage. The test is passed if the insulation monitoring device shuts down the tractive system whenever the resistor connects the tractive system to grounded parts.

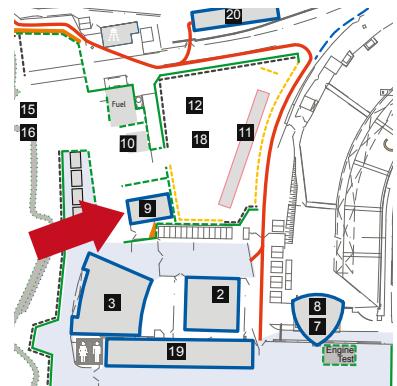
The IMDT may be repeated at any time during the event. After the car passes the test for the first time, critical parts of the tractive system will be sealed. The vehicle is not allowed to take part in any dynamic event if any of the seals are broken until the IMDT is successfully passed again.

3.2.2 MECHANICAL SCRUTINEERING

Schedule:	Wed	3 August	09:00 – 19:00
	Thu	4 August	08:30 – 12:00, 13:00 – 19:00
	Fri	5 August	08:30 – 12:00, 13:00 – 19:00
	Sat	6 August	on request

Location: Dynamic Area – DEKRA House

Before taking part in any of the dynamic events, the car must be taken to scrutineering. This can be done at any time during the specified hours, appointments are not required. The order for the scrutineering is obtained by ranking the teams on the basis of the time they needed to complete the scrutineering quiz correctly.



To get all the teams through scrutineering as fast as possible, there will be up to eight teams of scrutineers. The scrutineering takes place at the Dekra house, which is within the dynamics area. All team members who want to participate in scrutineering need a dynamics gate ID. The waiting queue for scrutineering will start directly at the dynamic's gate so every team member can guide the car up to the queue.

To Scrutineering please bring:

- The car (in finished condition obviously)
- Copies of any Safety Structure Equivalency Forms
- Copies of any Impact Attenuator Data Requirement
- A test piece from the impact attenuator
- All helmets drivers plan to use at event
- All driver suits and other safety gear
- The tallest driver of the team
- All tyres planned to be used at event
- 2 fire extinguishers
- Quick jack + push bar
- Some tools
- **NOTE: Four team members maximum (incl. the tallest registered driver) in the inspection box.**

Please be well prepared as there is only 1 hour of scrutineering time per team:

- If scrutineering is not passed within the given timeframe, team must leave dynamic area, fix issues and rejoin the end of the queue.
- Enter scrutineering with the tallest driver in the car, belted, and prepared for roll bar height and egress check.
- Other drivers may be checked upon request of the scrutineer.
- Check driver equipment before entering dynamic area.
- If the scrutineers feel that the car is NOT in „finished condition“ (per Rule C2.6) the inspection process will be stopped and the team has to leave the dynamic area.

The technical form will be retained by the scrutineers and you should proceed to the tilt table. If there are items that need to be rectified, the form will be returned to team and sticker will not be received. The car will have to be presented to scrutineering again. Scrutineering reserves the right to spot check any car at any time during the event.

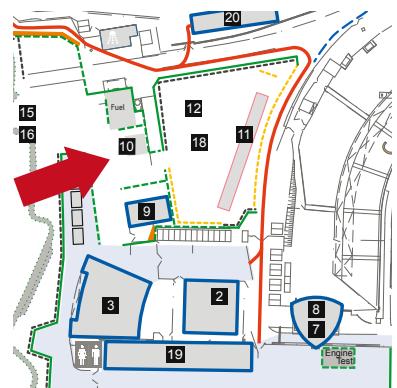
3.2.3 TILT TABLE TESTING

Schedule:	Wed 3 August	09:00 – 12:00, 13:00 – 19:00
	Thu 4 August	08:30 – 12:00, 13:00 – 19:00
	Fri 5 August	08:30 – 12:00, 13:00 – 19:00

Location: Dynamic Area

Tilt testing checks if the vehicle complies with the liquid spillage and rollover stability rules. No vehicle is permitted at this station until it has passed E-Scrutineering and mechanical Scrutineering. The stickers that must be applied to the car will serve as proof of this.

At this point we want to remind the teams to bring the car in 'ready to race' condition. That means that all the liquids of the car should be filled properly, 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 45 degrees. There must be no fluid leakage at this angle. If the vehicle passes this test, the angle is increased to 60 degrees. This angle is used to represent a cornering force of 1.7 Gs. If the upper wheels remain on the table the vehicle passes. (Some vehicles may lift one wheel. The station manager(s) should be consulted if this occurs). The person in charge at the tilt table must sign an inspection form, which travels with the car. A third sticker is applied (on the car), to indicate passing the tilt table test.

The vehicle is now free to proceed to the rain test. Should the vehicle fail at either of the two angles, 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:

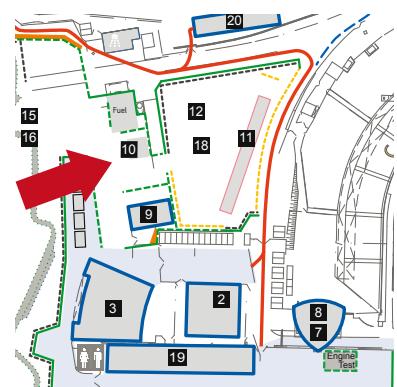
- Four team members maximum (incl. the tallest registered driver) in the tilt table area
- All engines and master switches off, push car on and off table. Care must be taken to avoid damage to the vehicle when pushed on and off the tilt table.
- Inside wheels are to be placed against the guard of the tilt table.
- Attach a strap to rollover hoop and side of table which is to be elevated. Allow a little slack. (Team members may be asked to hold the car, if a strap is not available).
- Be sure table is clear before raising and especially when lowering. Inform people in area when raising or lowering (e.g. "Coming Down").
- Use absorbent material to soak up leaks (may be obtained at fuel station). Keep a fire extinguisher at hand.

3.2.4 RAIN TESTING

Schedule:	Wed 3 August	09:00 – 12:00, 13:00 – 19:00
	Thu 4 August	08:30 – 12:00, 13:00 – 19:00
	Fri 5 August	08:30 – 12:00, 13:00 – 19:00

Location: Dynamic Area

Teams have to pass a special rain test during scrutineering. The car has to pass E-scrutineering, Scrutineering, and Tilt Table before the rain test can be conducted.



During the rain test, the tractive system has to be active and none of the driven wheels can touch the ground. A driver may not be seated in the car during rain test.

3.2.5 READY-TO-DRIVE-SOUND-TEST

Schedule:	Wed 3 August	09:00 – 12:00, 13:00 – 19:00
	Thu 4 August	08:30 – 12:00, 13:00 – 19:00
	Fri 5 August	08:30 – 12:00, 13:00 – 19:00

Location: Dynamic Area

The Ready-To-Drive-Sound-Test checks the Ready-To-Drive-Sound for fulfillment of the rules. No vehicle is permitted at this station until it has passed E-Scrutineering, mechanical Scrutineering, tilt table and the rain test. Proof are the respective "tech" stickers, which must be applied to the car.

The car will be positioned in the testing area with a driver sitting in it with none of the driven wheels touching the ground. The driver will then activate the tractive system and set the car to Ready-To-Drive-Mode being defined as the motors responding to input of the torque encoder.

The car has to make a characteristic sound, once not continuous, when it is ready to drive. The sound level has to be a minimum of 70dBA, fast weighing, for at least 1 second in a radius of 2m around the car. The used sound has to be easily recognizable. No animal voices, song parts or sounds that can be interpreted as offensive will be accepted.

The test may be repeated to conduct several measurements around the car.

3.2.6 BRAKE TESTING

Schedule:	Wed 3 August	09:00 – 12:00, 13:00 – 19:00
	Thu 4 August	08:30 – 12:00, 13:00 – 19:00
	Fri 5 August	08:30 – 12:00, 13:00 – 19:00

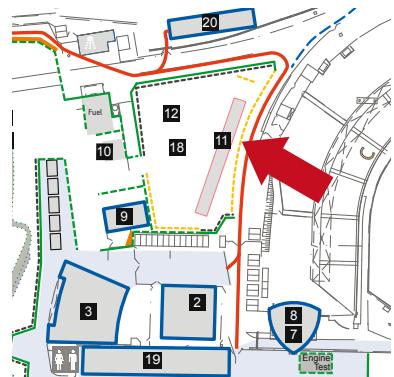
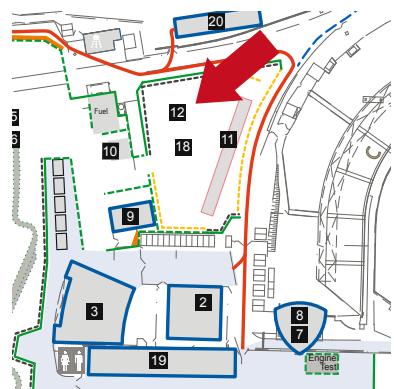
Location: Dynamic area, behind the DEKRA house

Brake Testing checks that the vehicle can be brought to a controlled stop. No vehicle is permitted at this station until it has passed E-scrutineering, mechanical scrutineering, tilt table testing. Proofs of this are the respective stickers which must be applied to the car.

Each driver must be instructed as to the proper procedure for 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 until reaching the braking area, which is a box defined by pylons. Before entering in this box, the tractive system has to be switched off by the driver and the brake pedal must be actuated as far as possible. The brake test is successful if all four wheels lock.

Note: It may take up to 5secs until the Tractive System Active Light goes off after shutting down the tractive system.

If the vehicle is unable to pass the test in three attempts, the car must be repaired and then brought back for retesting. The vehicle will not be allowed to compete without passing this test. 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.



3.2.7 ENERGY METER INSTALLATION

The energy meter will be installed prior to E-scrutineering. The energy meter responsible will approach the teams in order of the scrutineering quiz, hand out the energy meter and needed connectors. He will also help with installation, if needed, and answer upcoming questions.

The proper function of the energy meter will be evaluated by the energy meter responsible after the team has passed E-scrutineering.

The energy meter responsible will read out data from time to time via a wireless connection to determine, if the 100kW limit was obeyed during the dynamic events.

The energy meter data used to calculate the efficiency scoring will be read out in the parc ferme.

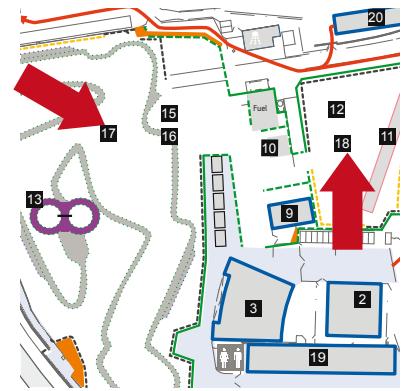
After the data was read out the energy meter has to be removed from the car and returned to the energy meter responsible.

We encourage all teams to record own efficiency data for the unlikely event of an energy meter failure during the endurance event. Any attempt to manipulate the intended function of the energy meter may lead to a disqualification from the entire event. If you have any questions with respect to the energy meter, please ask for the energy meter responsible at event control.

3.3 TESTING

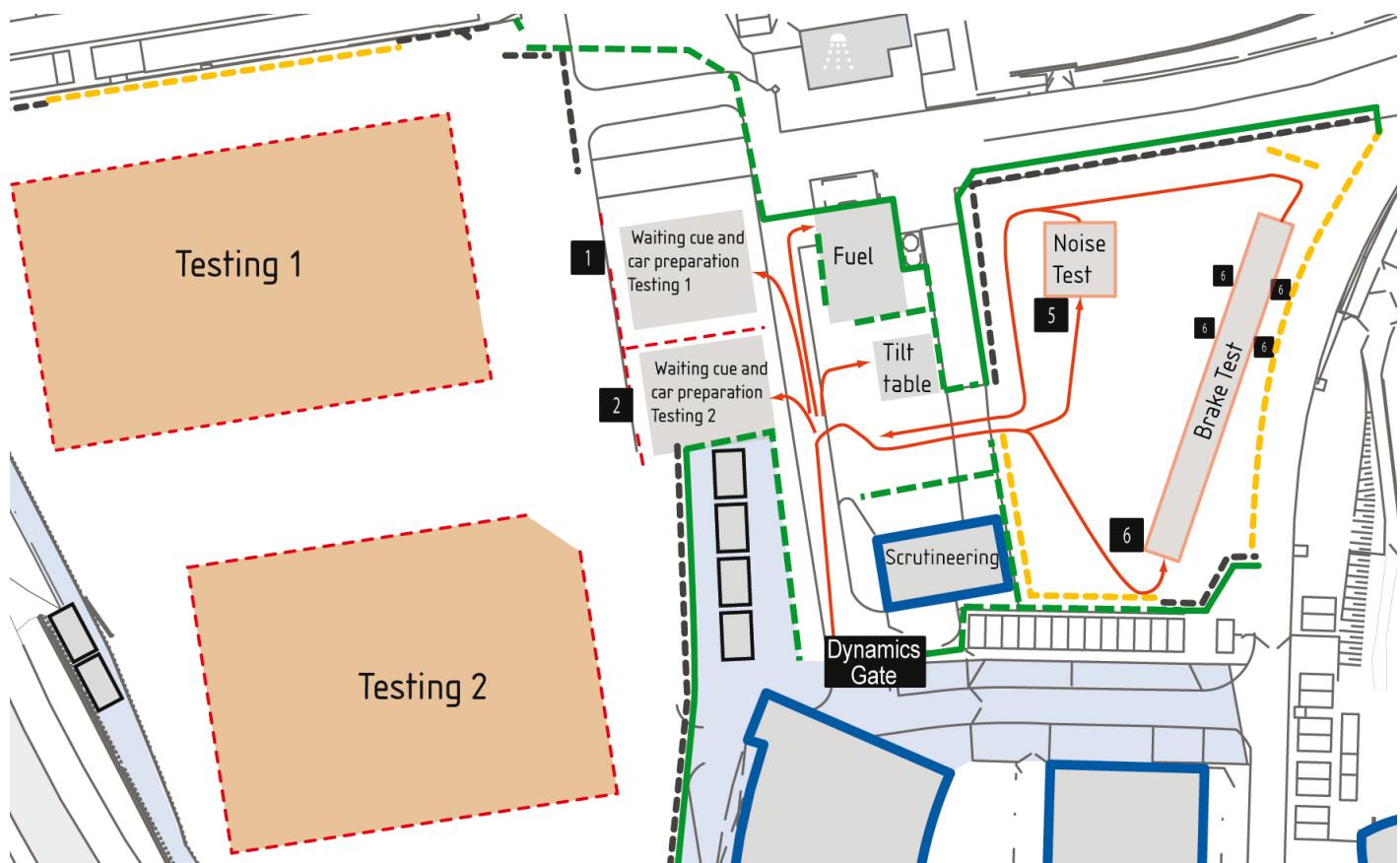
Schedule:	Wed	3 August	14:00 – 19:00
	Thu	4 August	09:00 – 19:00
	Fri	5 August	09:00 – 19:00
	Sat	6 August	08:30 – 18:30
	Sun	7 August	08:30 – 18:30

Location:	Wed	3 August	Big dynamic area
	Thu	4 August	Big dynamic area
	Fri	5 August	Big dynamic area
	Sat	6 August	Small dynamic area
	Sun	7 August	Small dynamic area



On Wednesday, Thursday, and Friday, the big dynamic area is available for testing (up to two tracks on Wednesday and Thursday, one track on Friday). The ground is made of asphalt. Teams may use the test areas 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 get back in line.

On Saturday and Sunday, the small dynamics area is available for testing. Unfortunately, the ground of this area differs a lot from the one at the big dynamics area. It is made of concrete, partially painted and shows small bumps. Hence, it provides less grip. Please keep the ground condition in mind when setting up car for the different events.



Dynamics Area on Friday – Testing / Technical checks

3.4 DYNAMIC DISCIPLINES

3.4.1 SKID PAD

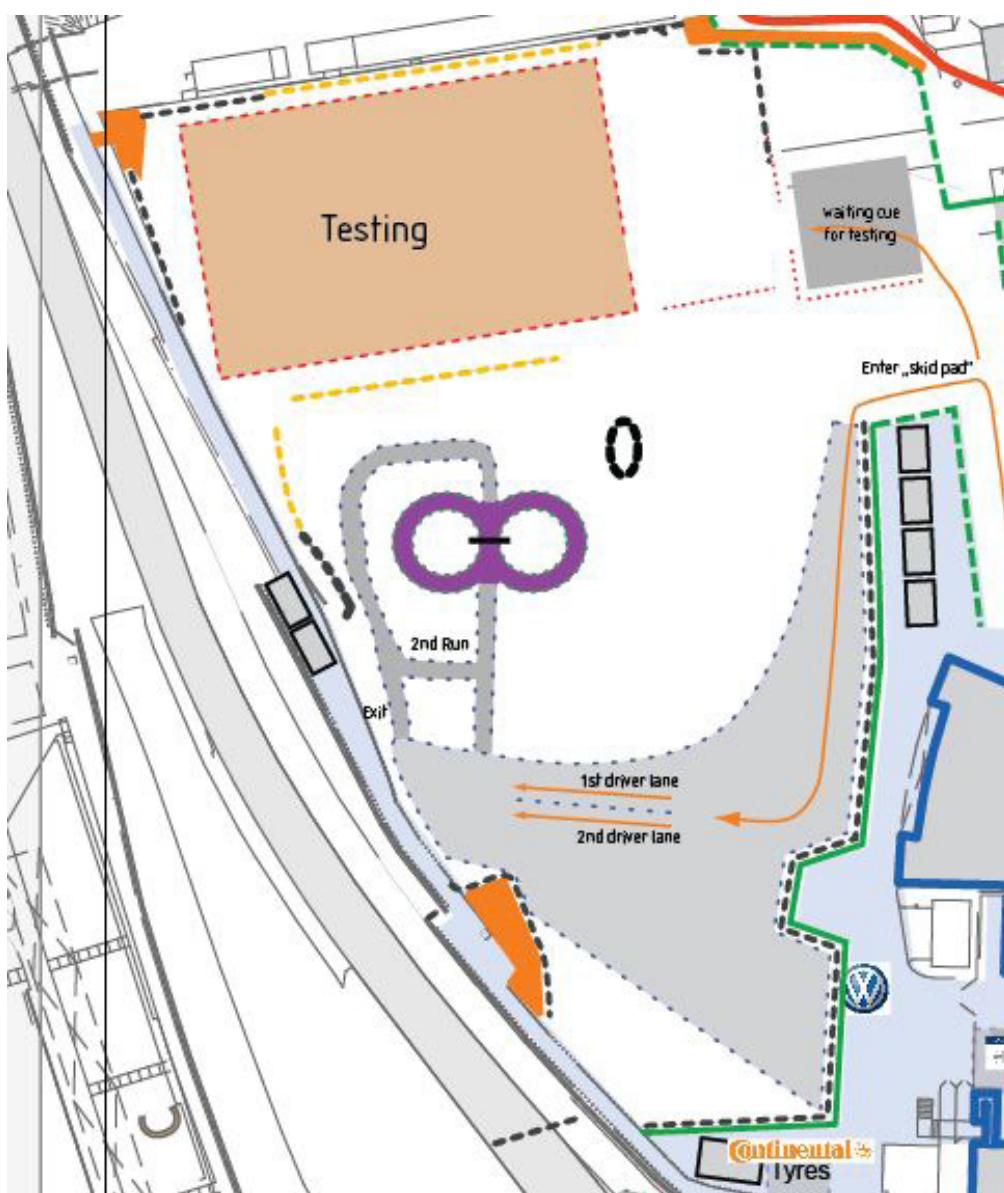
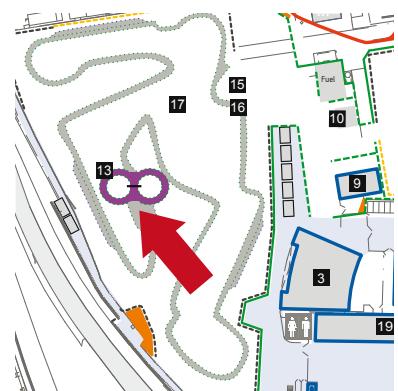
Schedule: Fri 5 August 11:00 – 18:30

Location: Dynamic area

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.

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.

Skid Pad will be carried out on a very very wet track as a suspension challenge to judge how teams cope in such conditions.



Dynamics Area on Saturday morning – Skid Pad / Testing

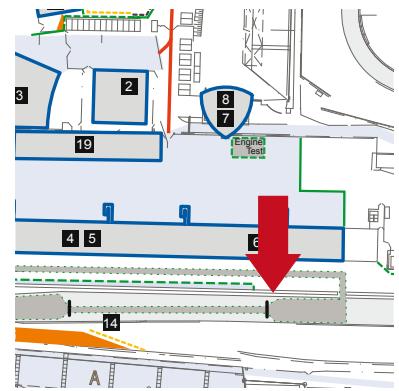
3.4.2 ACCELERATION

Schedule: Sat 6 August 09:00 – 14:00

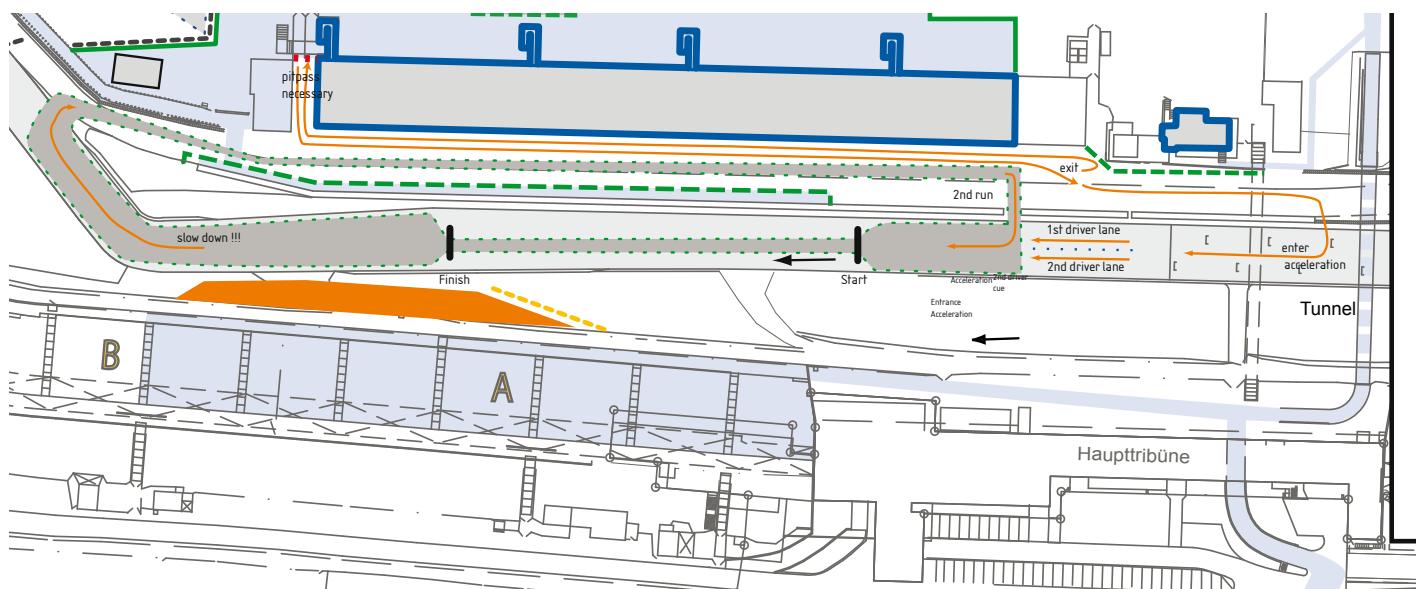
Location: Start/Finish Line of the Hockenheimring

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.

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.



This year's acceleration event is located at the start/finish line of the F1 circuit. Waiting queue and warm up area is situated on the track. After passing the finish line of the acceleration, a big braking area is reached (Nordkurve) before driver must turn into the "F1 pit lane" to return to start for second run. In case of passing the spectator area while driving through the pit lane, a slow car speed is recommended and enforced by the officials.



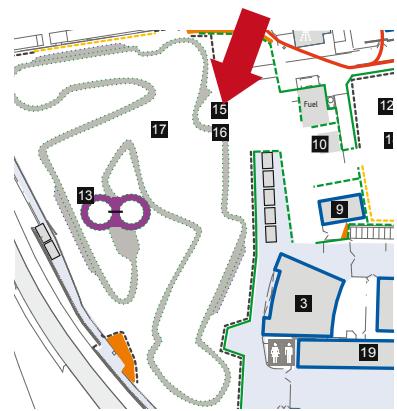
Dynamics Area on Saturday morning – Acceleration

3.4.3 AUTOCROSS

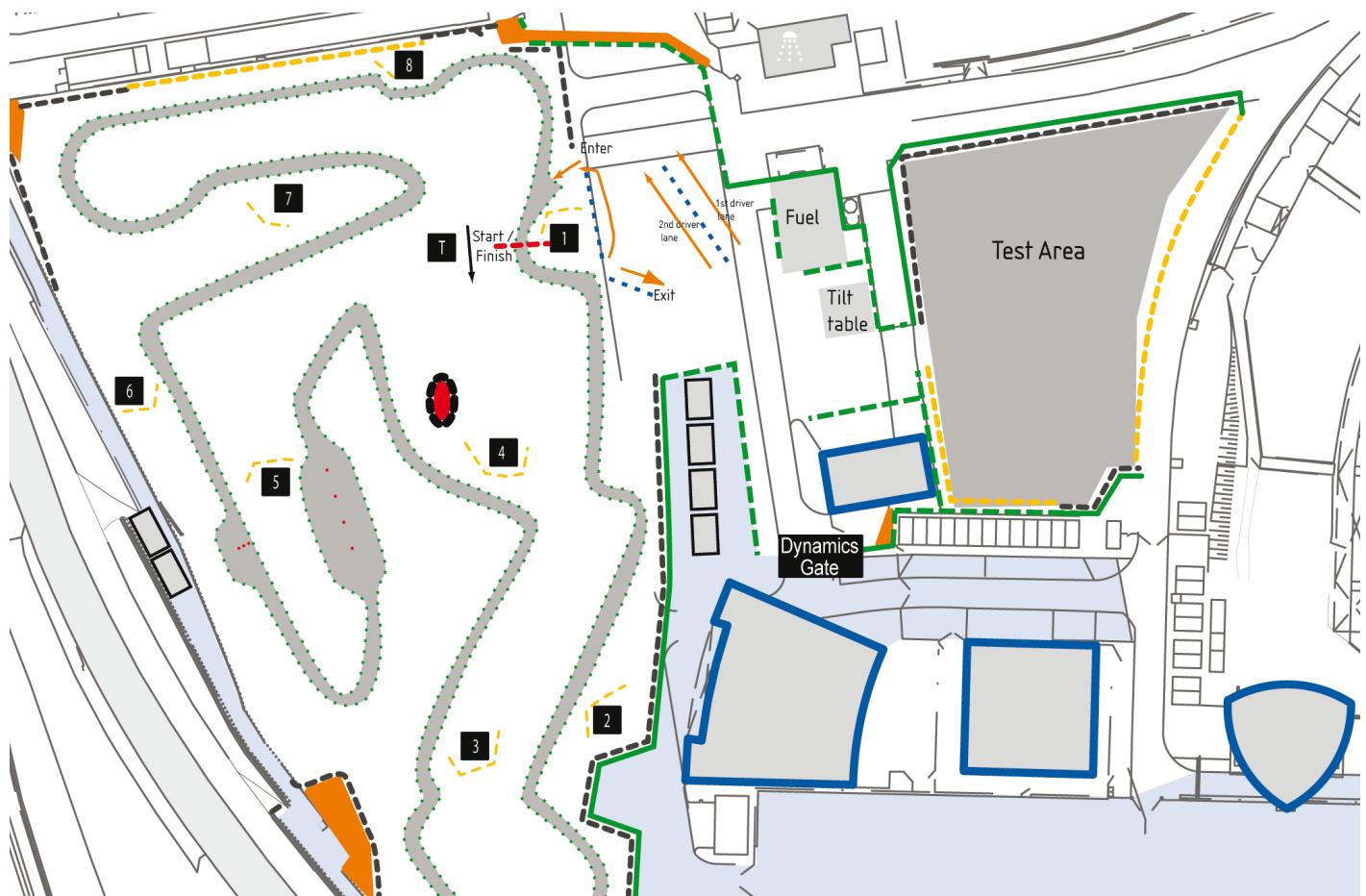
Schedule: Sat 6 August 08:30 – 09:00 Course walk
 Sat 6 August 10:00 – 17:00 Autocross

Location: Dynamic area

Autocross is installed at the paddock of the Hockenheim GP racetrack. Therefore, the track is lined with cones. Green cones are used for the track boundary, orange cones are used for slalom and blue cones are used for entrance and exit of the course. The track direction is clockwise. Each run comprises one lap with a flying start. Two cars are on the track at the same time with an offset of half a lap. 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.



Due to the fact that two cars are on the track simultaneously, a stalled car can influence the lap time of the other car. In this case, the run for the stalled car is lost. For the other car, a rerun of the lap is allowed.



Dynamics Area on Saturday afternoon – Autocross / Testing

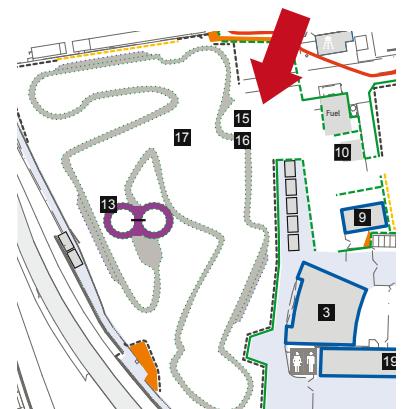
3.4.4 ENDURANCE

Schedule: Sat 6 August 21:30 – 22:00 Course walk
 Sat 6 August 22:00 – 01:00 Endurance

Location: Dynamic area

The endurance track will be set up Saturday evening. Everybody can visit the track before the endurance starts. The colouring of the cones is similar to the Autocross event. The three additional overtaking lanes are marked with blue cones.

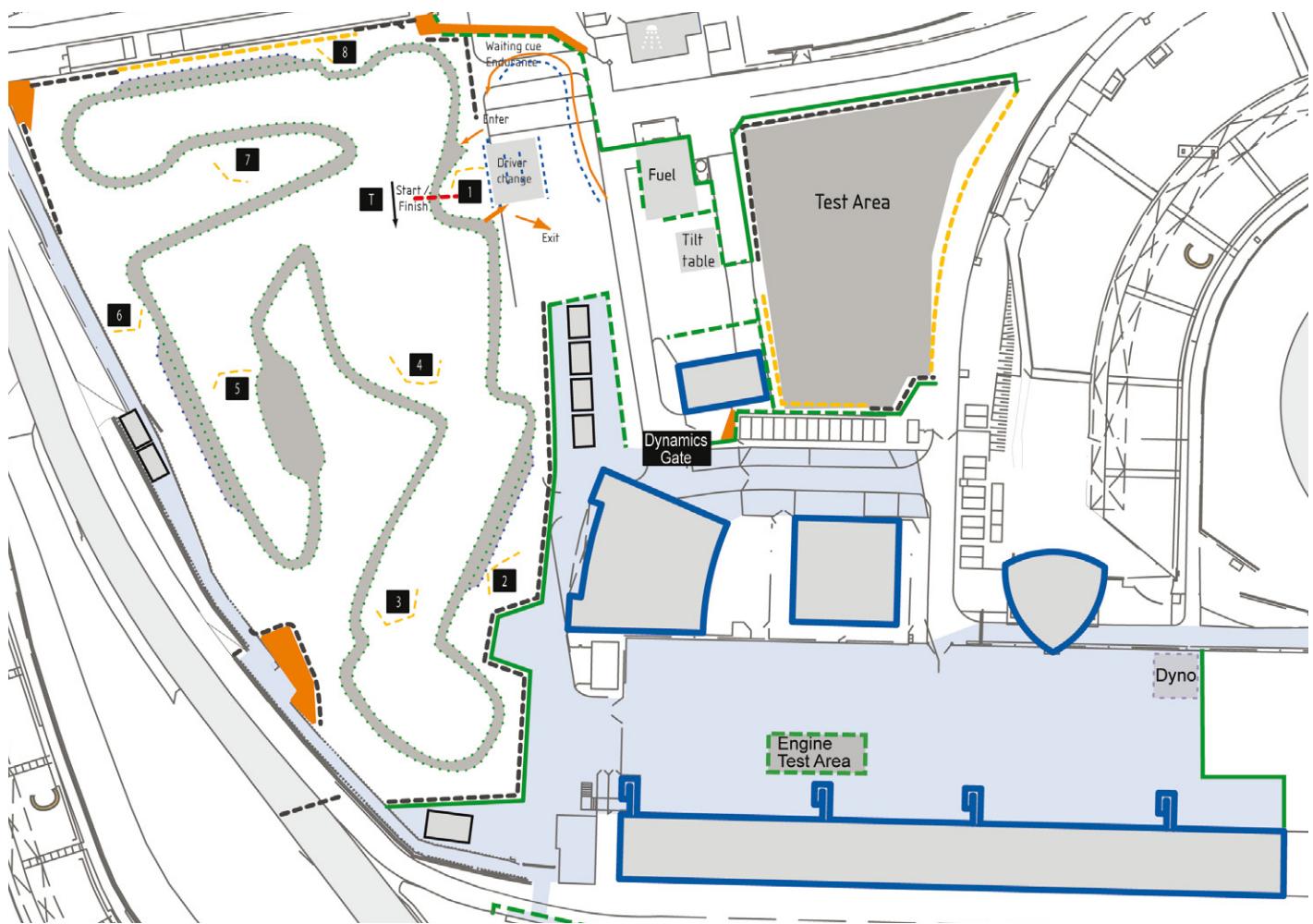
The starting order for Endurance results from the Autocross event. The slowest car starts at 22:00. The following car starts 3 minutes later. The maximum number of cars to be on the track at the same time is three. Due to weather conditions, the starting order may change. The valid order will be announced at 21:30 on Saturday and it will be displayed at the FSG forum.



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 the allowed 3 minutes, the time caused by the marshal will be subtracted. Timekeeping is watching for these incidents.

Cars that get a blue flag please drive into the next overtaking lane. Cars are not required to slow down before the overtaking lanes. Please only slow down in the overtaking lane and NOT before. The faster car must not tail the slower car in front too closely. Serious damage may be caused if the cars touch on track. Rear-ending a slower car will definitely lead to a disqualification of the faster car!

All vehicles that successfully finish Endurance must report to the Parc Fermé. They will stay there until 30 minutes after the time limit for appeal. Make sure that driver helmets are not equipped with dark visors. This will be checked by scrutineers before the endurance.



Dynamics Area on Saturday - Endurance/Testing

4 STATIC EVENTS

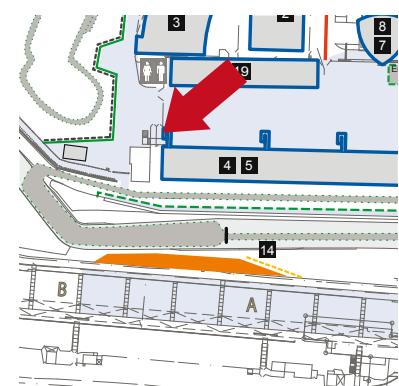
4.1 STATIC EVENTS SCHEDULE

Car	City / University	Design Event	Bay	Cost Event	Bay	Business Plan	Room
E1	Stuttgart U	14:40 - 15:40	8	13:30 - 14:30	8	16:00 - 17:45	4
E11	Bayreuth U	13:30 - 14:30	7	14:40 - 15:40	7	17:10 - 17:55	4
E12	Köln UAS	16:00 - 17:00	11	17:10 - 18:10	11	14:40 - 15:25	6
E13	Karlsruhe UAS	13:30 - 14:30	5	14:40 - 15:40	5	17:10 - 17:55	3
E14	Deggendorf UAS	13:30 - 14:30	15	14:40 - 15:40	15	17:10 - 17:55	8
E20	Madrid PT	14:40 - 15:40	6	13:30 - 14:30	6	16:00 - 17:45	3
E21	München TU	16:00 - 17:00	13	17:10 - 18:10	13	14:40 - 15:25	7
E22	Karlsruhe KIT	16:00 - 17:00	9	17:10 - 18:10	9	14:40 - 15:25	5
E23	Clausthal TU	17:10 - 18:10	16	16:00 - 17:00	16	13:30 - 14:15	8
E26	Hannover U	17:10 - 18:10	10	16:00 - 17:00	10	13:30 - 14:15	5
E31	Ilmenau TU	16:00 - 17:00	7	17:10 - 18:10	7	14:40 - 15:25	4
E33	Zürich ETH	14:40 - 15:40	16	13:30 - 14:30	16	16:00 - 17:45	8
E34	Prague CTU	17:10 - 18:10	8	16:00 - 17:00	8	13:30 - 14:15	4
E35	Wolfenbüttel UAS Ostfalia	14:40 - 15:40	10	13:30 - 14:30	10	16:00 - 17:45	5
E40	Eindhoven TU	13:30 - 14:30	1	14:40 - 15:40	1	17:10 - 17:55	1
E42	Aachen RWTH	13:30 - 14:30	13	14:40 - 15:40	13	17:10 - 17:55	7
E44	Dresden TU	13:30 - 14:30	3	14:40 - 15:40	3	17:10 - 17:55	2
E50	Lisboa IST	14:40 - 15:40	14	13:30 - 14:30	14	16:00 - 17:45	7
E53	Graz TU	16:00 - 17:00	1	17:10 - 18:10	1	14:40 - 15:25	1
E62	Regensburg UAS	13:30 - 14:30	9	14:40 - 15:40	9	17:10 - 17:55	5
E65	Wiesbaden UAS	17:10 - 18:10	4	16:00 - 17:00	4	13:30 - 14:15	2
E66	Diepholz UAS	13:30 - 14:30	11	14:40 - 15:40	11	17:10 - 17:55	6
E67	Osnabrück UAS	17:10 - 18:10	2	16:00 - 17:00	2	13:30 - 14:15	1
E71	Stockholm KTH	16:00 - 17:00	3	17:10 - 18:10	3	14:40 - 15:25	2
E77	München UAS	16:00 - 17:00	15	17:10 - 18:10	15	14:40 - 15:25	8
E85	Delft TU	14:40 - 15:40	4	13:30 - 14:30	4	16:00 - 17:45	2
E96	Zwickau UAS	16:00 - 17:00	5	17:10 - 18:10	5	14:40 - 15:25	3
E97	Landshut UAS	17:10 - 18:10	12	16:00 - 17:00	12	13:30 - 14:15	6
E101	Bratislava TU	17:10 - 18:10	6	16:00 - 17:00	6	13:30 - 14:15	3
E107	Siegen U	14:40 - 15:40	2	13:30 - 14:30	2	16:00 - 17:45	1
E110	Ravensburg DHBW	14:40 - 15:40	12	13:30 - 14:30	12	16:00 - 17:45	6

4.2 ENGINEERING DESIGN AND COST ANALYSIS EVENT - PROCEDURE

The judging area will be located on the 2nd floor of the pits. The cars will be lifted with the FSG car lift (see figure). The cars needs to be at the lift 1 hour before the judging will start.

The engineering design event and cost analysis will be back to back. Each team will have 10 minutes to setup the car and all presentation props (charts, boards, etc.) once the judging bay has been assigned. Team will stay in this judging bay for both events. After finishing the first event, there will be a 10 minute break before the second static event begins. The judges come to the judging bay. After the second event, the car may return to the lift to be let down to ground level. Please check the schedule to find out judging bay and judging times.



Team & Car photo:

After the two static events, a photo will be taken of team and car whilst in line for lift. Please ensure that any team members that did not participate in the static events are available for the picture.

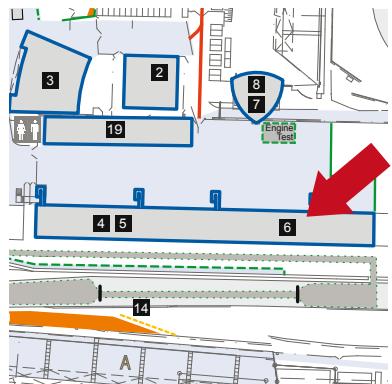
4.3 ENGINEERING DESIGN EVENT

Schedule: Thu 4 August 13:30 – 18:10 Design Event
Fri 5 August 19:00 – 20:30 Design Finals

Location: Marquee above pits (Design Event)
FSG Forum (Design Finals)

Chief Judges: Pat Clarke
Steve Fox
Rudolf Dittrich

Formula Student Germany is an international design competition. This means, the design event is the most important static event. The winner of the design event will get 150 points.



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.

Judging Sequence

At Formula Student Germany, design judging will involve two parts:

1. Initial judging of all vehicles
2. Final judging ranking the top vehicles.

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 a 40 minute discussion with the judges. You are done after 45 minutes.

The design finals take place on Friday evening. The top teams from Thursday will participate in the finals. In this round, only 2 team members are allowed to stand by the car. They are the moderators for the team and will forward the questions to the responsible team members, which will then go to the car to explain the design and answer the question. There is no time limit in the design finals. The design finals are not public. Only 10 team members of the design finalists have access to the FSG Forum.

To score high in the design event, we would suggest you to bring all necessary papers 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 Carol Smith "Everything You Wanted to Know about Design Judging" paper available on the Formula SAE website.

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

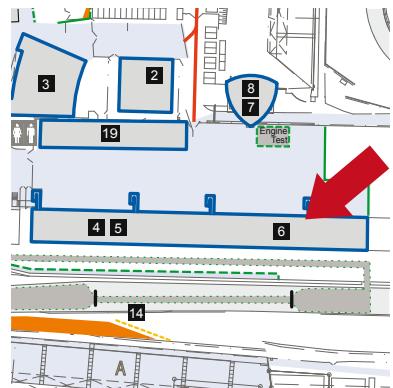
4.4 COST ANALYSIS EVENT

Schedule: Thu 4 August 13:30 – 18:10 Cost Event

Location: Marquee above pits

The Cost Report

The actual cost report is due approximately six to seven weeks prior to the event at the venue. A printed copy of the report must be presented to the judges during the cost event. The cost report is judged on the basis of the cost of the car and quality of the cost report. The cost of the car is determined by the cost of the parts and fabrication using established manufacturing practices. The report will follow the guidelines set forth in the published rules. From this analysis, the judges (in 8 distinct areas of expertise) will determine if all parts and processes were included. The judges will add penalties if costs are unreasonably low (by experience of the judges), if errors are detected, or if items are omitted.



The Real Case Situation

Like any other situation in real life, nobody knows what's coming next. Teams will be given a specific task after the submission of their cost reports. This task is developed by the judges and steering committee members of Formula Student Germany. The teams have to present their solutions in a 10 minute presentation during the cost event.

Addenda to the report can be taken into consideration to cover any necessary changes made to the car. These addenda will only be accepted at the time of registration at the event and must be in the format proscribed by the rules.

The final scores are tabulated and presented at the end of the judging day to the statisticians and are posted on the evening for the students viewing. Once posted, the scores may be protested against for one hour. After that, all scores become final.

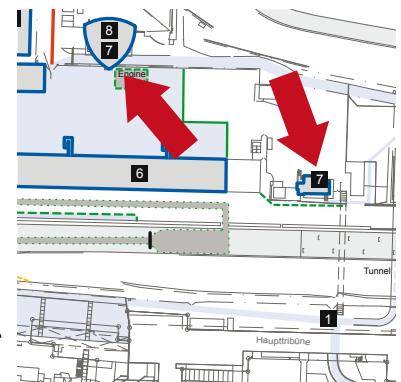
4.5 BUSINESS PLAN PRESENTATION EVENT

Schedule: Thu 4 August 13:30 – 18:10 Presentation Finals
Thu 4 August 18:30 – 20:00

Location: BW Tower, Mobil-Tower (Presentation)
Marquee above pits (Finals)

The Presentation

Competitors are to make a presentation to upper level executives of an imaginary manufacturer/investor. The presentation should tie together all factors that would influence the marketability and manufacturability of their design. The technical aspects of the vehicle design should be presented to reinforce or support performance claims but should be reduced to the maximum 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.



Judging Process

The business plan presentation event will be held in a three step approach. In advance, every team has to submit an executive summary. The first presentation round (incl. deep dive topic) will be relevant for all teams and the finals will be relevant only for the top 3 - 5 teams.

Executive Summary

Prior to the business plan presentation event the teams have to hand in an executive summary. This summary must not exceed one page. The executive summary should contain a brief description of the team's business plan, the two most outstanding technical features of the car, and the production costs of prototype and series.

First Presentation Round

During the first round, each team gets the opportunity to present to the judges. Therefore, the overall group of judges is divided into 10 small groups (of 3 judges each), who will together visit the team presentations. The judge groups will change during the day. At the end of each presentation, the judges are requested to ask questions.

Part of presentation: Deep Dive Topic (DDT)

After the submission of the executive summary, the teams will receive a specific deep dive topic from the presentation judges prior the competition. Each team has to present this special deep dive topic in a detailed way as a part of the team's business plan presentation to the judges.

Schedule for each presentation:

- Maximum 10 minutes for set-up & preparation
 - 10 min for presentation
 - 5 min for questions
 - 5 min for De-briefing and scoring decision of the judges
 - 10 min for instant feedback to the teams
 - 5 min de-installation
- 45 minutes maximum for each presentation

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 participate. Guests may be allowed to attend at the discretion of any steering committee member or the team.

Finals

The best 3 to 5 teams will reach the presentation finals. These finals will be held in the evening in the marquee above the pits. The teams will present to the complete group of judges and to all others interested (i.e. other team etc.).

The 3 to 5 teams will present directly one after the other without any questions/interruptions by the judges. Afterwards, the judges will hold a short de-briefing and decide on a ranking.

The scores of the finalists are:

- Top 1: 75
- Top 2: 74
- Top 3: 73
- Top 4: 72
- Top 5: 71

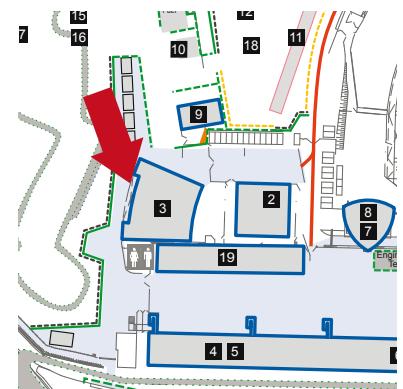
If a team does not attend the finals despite its nomination, it will automatically receive 71 points. If a team misses their allocated period, the team will receive zero presentation points. The team that makes the best business presentation (regardless of the quality of the car) wins the event.

5 RESULTS

The results will be posted on the results board in the FSG Forum as soon as they are available. Furthermore, they will be published online at the FSG website.

Endurance Scores are posted in 2 steps. Before publishing the times, the penalties are posted, because those are finished before the data of the 2 timing systems are cross checked. In the second step, the endurance times are published.

The time slot for the protests is printed on the results page. Please note that the protest time for the overall results could be on Monday morning from 9:00 – 10:00.

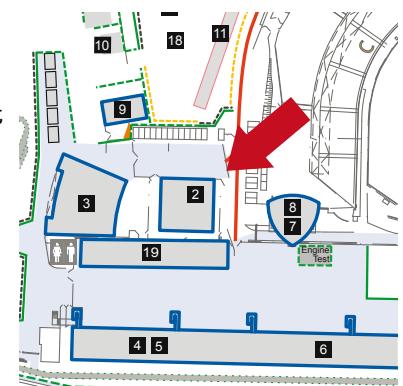


Please visit the Result board at the FSG Forum regularly and listen to the announcements.

6 PROTEST

(A) Required Review - Any team that intends to protest a rule, score, judge's decision or any other aspect of the competition, must present the issue to the FSG rules organizers, represented by Frank Röske for discussion, and possible resolution before the protest is filed. If Frank Roske cannot be located, contact Event Control.

(B) 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 substantive effect on their score. Teams may not protest rule interpretations or actions that have not caused them any substantive damage.



(C) 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.

(D) Protest Format - Protests must be handed in in a written form and submitted by the team captain to Peter Jakowski. If Peter Jakowski cannot be located, contact Event Control.

(E) Protest Bond - The protesting team must post a 25 points bond to be deducted from their score if the protest is denied.

(F) Decision - The decision of the officials regarding any protest is final.

7 PARTICIPATING TEAMS 2011

Car	City / University	Country	Pit
E1	Stuttgart U	Germany	E29
E11	Bayreuth U	Germany	E9
E12	Köln UAS	Germany	E24
E13	Karlsruhe UAS	Germany	E28
E14	Deggendorf UAS	Germany	E8
E20	Madrid PT	Spain	E19
E21	München TU	Germany	E21
E22	Karlsruhe KIT	Germany	E3
E23	Clausthal TU	Germany	E14
E26	Hannover U	Germany	E25
E31	Ilmenau TU	Germany	E13
E33	Zürich ETH	Switzerland	E10
E34	Prague CTU	Czech Republic	E26
E35	Wolfenbüttel UAS Ostfalia	Germany	E4
E40	Eindhoven TU	Netherlands	E23
E42	Aachen RWTH	Germany	E7

Car	City / University	Country	Pit
E44	Dresden TU	Germany	E6
E50	Lisboa IST	Portugal	E5
E53	Graz TU	Austria	E30
E62	Regensburg UAS	Germany	E12
E65	Wiesbaden UAS	Germany	E17
E66	Diepholz UAS	Germany	E16
E67	Osnabrück UAS	Germany	E20
E71	Stockholm KTH	Sweden	E27
E77	München UAS	Germany	E18
E85	Delft TU	Netherlands	E1
E96	Zwickau UAS	Germany	E2
E97	Landshut UAS	Germany	E15
E101	Bratislava TU	Slovakia	E22
E107	Siegen U	Germany	E11
E110	Ravensburg DHBW	Germany	E31

8 AWARDS 2011

Formula Student Germany

Best Use of Adhesives Award

powered by Henkel

Best Lightweight Concept Award

powered by AUDI AG

Best Prepared Car for Scrutineering

powered by DEKRA Automobile GmbH

Formula Student Combustion

Formula Student Combustion Champion

Formula Student Combustion – 2nd

Formula Student Combustion – 3rd

FSC Engineering Design Award – 1st

FSC Engineering Design Award – 2nd

FSC Engineering Design Award – 3rd

FSC Cost Analysis Award – 1st

FSC Cost Analysis Award – 2nd

FSC Cost Analysis Award – 3rd

FSC Business Plan Presentation Award – 1st

FSC Business Plan Presentation Award – 2nd

FSC Business Plan Presentation Award – 3rd

FSC Endurance Winner

FSC Acceleration Winner

FSC Skid Pad Winner

FSC Autocross Winner

FSC 1st Place Overall Dynamic Events

powered by VDI e.V.

Most Fuel Efficient Car

powered by Kautex

Most Effective Use of Electronics Award

powered by Bosch Engineering GmbH

Most Innovative Powertrain Award

powered by Tognum AG

FSG Sportsmanship Award

presented by FSG Executive Committee

FSG Media Award

powered by FSG Communication Team

Formula Student Electric

Formula Student Electric Champion

Formula Student Electric – 2nd

Formula Student Electric – 3rd

FSE Engineering Design Award – 1st

FSE Engineering Design Award – 2nd

FSE Engineering Design Award – 3rd

FSE Cost Analysis Award – 1st

FSE Cost Analysis Award – 2nd

FSE Cost Analysis Award – 3rd

FSE Business Plan Presentation Award – 1st

FSE Business Plan Presentation Award – 2nd

FSE Business Plan Presentation Award – 3rd

FSE Endurance Winner

FSE Acceleration Winner

FSE Skid Pad Winner

FSE Autocross Winner

FSE 1st place Overall Dynamic Events

powered by VDI e.V.

Most Energy Efficient Car

powered by HARTING

Best E-Drive Packaging Award

powered by Daimler AG

Best Energy Management Award

powered by Bosch Engineering GmbH

Best Project Planning

presented by Formula Student Academy

9 ADDITIONAL INFORMATION

9.1 INTERNET

Free Internet Access

In the FSG Forum there is free WLAN internet access for all teams. The FSG forum will be closed at 20:00 every day.

9.2 PHARMACIES

Alte Apotheke (Hockenheim)
Untere Hauptstr. 5, 68766 Hockenheim, Tel.: 06205/18472

Central-Apotheke (Hockenheim)
Karlsruher Str. 11, 68766 Hockenheim, Tel.: 06205/7238

Engel-Apotheke (Hockenheim)
Heidelberger Str. 3, 68766 Hockenheim, Tel.: 06205/7173

Linden-Apotheke Gabriele Schotter e.K. (Hockenheim)
Schwetzinger Str. 18, 68766 Hockenheim, Tel.: 06205/15544

Löwen-Apotheke (Hockenheim)
Reilinger Str. 2, 68766 Hockenheim, Tel.: 06205/288928

Stadtapotheke Gabriele Müller e.K. (Hockenheim)
Heidelberger Str. 11, 68766 Hockenheim, Tel.: 06205/4277

Wasserturm-Apotheke (Hockenheim)
Karlsruher Str. 25, 68766 Hockenheim, Tel.: 06205/4542

9.3 SUPERMARKETS

Aldi Süd (Hockenheim)
Lußheimer Str. 10, 68766 Hockenheim

Lidl Filiale (Hockenheim)
Lußheimer Str. 6, 68766 Hockenheim

Lidl-Märkte (Hockenheim)
Duttweiler Str. 2, 68766 Hockenheim, Tel.: 06205/18274

Mini Mal-Markt (Hockenheim)
Lußheimer Str. 2, 68766 Hockenheim, Tel.: 06205/283539

PENNY-MARKT Filiale (Hockenheim)
Hirschstr. 1, 68766 Hockenheim, Tel.: 06205/923207

PENNY-MARKT Filiale (Hockenheim)
Ernst-Brauch-Str. 64-66, 68766 Hockenheim, Tel.: 06205/923218

PENNY-MARKT Filiale (Hockenheim)
Auweg 3, 68766 Hockenheim, Tel.: 06205/923227

real,- SB Warenhaus Hockenheim (Hockenheim)
Speyerer Str. 1, 68766 Hockenheim, Tel.: 06205/2070

9.4 RESTAURANTS / TAKE AWAYS

Italian

Holzofen-Pizzeria Pinocchio (Hockenheim)
Schwetzinger Str. 11, 68766 Hockenheim, Tel.: 06205/14766

Pizzeria Cortina (Hockenheim)
Untere Hauptstr. 20, 68766 Hockenheim, Tel.: 06205/101747

Greek

Delphi (Hockenheim)
Schwetzinger Str. 1, 68766 Hockenheim, Tel.: 06205/6780

Gaststätte Symposium im Güldenen Engel (Hockenheim)
Heidelberger Str. 1, 68766 Hockenheim, Tel.: 06205/104680

Chinese

Chinarestaurant Kanton (Hockenheim)
Untere Hauptstr. 8, 68766 Hockenheim, Tel.: 06205/13361

Local Food

Bistro Karibik (Hockenheim)
Hirschstr. 5, 68766 Hockenheim, Tel.: 06205/17709

Café Bistro Monokel (Hockenheim)
Karlsruher Str. 27, 68766 Hockenheim, Tel.: 06205/286363

Coffee & Ice-cream

Eis-Cafe Cortina (Hockenheim)
Untere Hauptstr. 20, 68766 Hockenheim

Eiscafe La Perla (Hockenheim)
Ottostr. 2, 68766 Hockenheim, Tel.: 06205/16441

Fast-Food

McDonalds Restaurant (Hockenheim)
Gleisstr. 8, 68766 Hockenheim, Tel.: 06205/189344

BURGER KING (Karlsruhe), distance: 50.3 km
Kaiserstr. 64, 76133 Karlsruhe

BURGER KING (Heilbronn), distance: 63.5 km
Neckarsulmer Str. 36-38, 74076 Heilbronn, Tel.: 07131/950220

9.5 MOTORCYCLE DEALERS / PARTS

Kawadrom GmbH (Hockenheim)
Speyerer Str. 12, 68766 Hockenheim, Tel.: 06205/15054

Walz Motorräder (Hockenheim)
Pfälzer Ring 15, 68766 Hockenheim, Tel.: 06205/7101

Zweirad Zieger (Hockenheim)
Kollmerstr. 1, 68766 Hockenheim, Tel.: 06205/9467-0

9.6 AUTOMOTIVE PARTS SUPPLIERS

Autodrom Gekeler & Hahn Kraftfahrzeughandels- GmbH (Hockenheim)
Ernst-Brauch-Str. 68, 68766 Hockenheim, Tel.: 06205/18145

Autohaus Arno Ziegler GmbH (Hockenheim)
Dresdener Str. 22 , 68766 Hockenheim, Tel.: 06205/7678

Autohaus Gehl GmbH & Co. KG (Hockenheim)
Gleisstr. 2, 68766 Hockenheim, Tel.: 06205/2023-0

Pit-Stop Auto Service GmbH (Hockenheim)
Speyerer Str. 1, 68766 Hockenheim, Tel.: 06205/17550

Autohaus Ibikli Meisterbetrieb e.K. (Hockenheim)
Duttweiler Str. 14, 68766 Hockenheim, Tel.: 06205/922486

Autohaus Krauth GmbH & Co. KG (Hockenheim)
Mannheimer Str. 2, 68766 Hockenheim, Tel.: 06205/9788-0

Autohaus Ruder GmbH (Hockenheim)
Gleisstr. 8, 68766 Hockenheim, Tel.: 06205/2926-0

Ahmad El Dor (Hockenheim)
Pfälzer Ring 7, 68766 Hockenheim, Tel.: 06205/286960

Arvelus Gümüşköyü-Cambuldu (Hockenheim)
Schulstr. 22, 68766 Hockenheim, Tel.: 06205/8840

ASG Kraftfahrzeuge Stefan Grafenhorst GmbH (Hockenheim)
Gleisstr. 16, 68766 Hockenheim, Tel.: 06205/4779

Auto Friesen GmbH (Hockenheim)
Mannheimer Str. 9, 68766 Hockenheim, Tel.: 06205/2929-0

Auto Gauch GmbH (Hockenheim)
Mannheimer Str. 8, 68766 Hockenheim, Tel.: 06205/2927-0

9.7 BUILDING CENTERS

Haas-Baumarkt (Reilingen)
Hauptstr. 79, 68799 Reilingen, Tel.: 06205/283246

toom BauMarkt GmbH (Schwetzingen)
Rudolf-Diesel-Str. 3-7, 68723 Schwetzingen, Tel.: 06202/57494-0

Hornbach-Baumarkt Aktiengesellschaft (Leimen)
Riedwiesenweg 9, 69181 Leimen, Tel.: 06224/52493

Der Praktiker Bau-und Heimwerkermärkte AG (Heidelberg)
Englerstr. 10, 69126 Heidelberg, Tel.: 06221/36325-0

9.8 TIPS FOR WEBSEARCH IN GERMANY

Bi-directional translation English-German: <http://dict.leo.org/>
Yellow Pages: www.gelbeseiten.de
Map: www.map24.de
 <http://maps.google.de/>

EMERGENCY INFORMATION

Minor Injury

Medical Center:

Please accompany the injured person to the Medical Center.

Emergency aid is provided there.

The Medical Center is occupied each day round-the-clock.

Severe Injury

Contact someone with a two-way radio:

Every Official and Security has two-way radio. Ask them to call the Medical Center or an ambulance on channel 11.

Call an ambulance:

Call an ambulance yourself if someone is severely injured and needs urgent help. The Emergency Number for every phone and mobile phone is **112**.

During dynamics:

On Saturday and Sunday an ambulance is on site during the dynamic events. To contact them ask someone with a two-way radio (Official, Security) to call them.

Hospital:

Main Hospital, Kreiskrankenhaus (Schwetzingen), Bodelschwinghstrasse 10, 68723 Schwetzingen

phone: +49 (0) 6202 / 84-30

(See also directions in the Event Handbook in chapter 1.1)

Emergency Numbers

In case of an emergency beyond competition times call 112. This number works with each phone, also with mobile phone or coin-operated telephone as international GSM-standard. It is always free of charge.

Officials

Pit Marshal Konrad Paule: +49 (170) 3043619

Pit Marshal Sebastian Seewaldt: +49 (175) 5249739

Event Control Daniel Ahrens: +49 (172) 5328399

Event Control Tim Schmidt: +49 (176) 24316857

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

112

Emergency Call Contents

The emergency control center will ask you some questions to ensure proper help for you. To support you at your call, here are some standard questions and some hints for your answers in English and German.

Who is calling? (*Wer ruft an?*)

Say your name and your telephone number for callbacks. Digits in German: 1 (*eins*), 2 (*zwei*), 3 (*drei*), 4 (*vier*), 5 (*fünf*), 6 (*sechs*), 7 (*sieben*), 8 (*acht*), 9 (*neun*), 10 (*zehn*)

Where did it happen? (*Wo ist es passiert? / Wo ist es geschehen?*)

the event site has the address "Hockenheimring, Sachshaus, Am Motodrom", make it more precise!: pit lane (*Boxengasse*), dynamic area (*Fahrerlager*);

the address for campsite C2 near the Motodrom Hotel " Hockenheimring, Zeltplatz C2 beim Motodrom Hotel" and for campsite C3 on the other side of the highway "Hockenheimring, Zeltplatz C3 an der Continental Straße"

What happened? (*Was ist passiert? / Was ist geschehen?*)

accident (*Unfall*), traffic accident (*Verkehrsunfall*), fire (*Feuer*), fall (*Sturz*), explosion (*Explosion*)

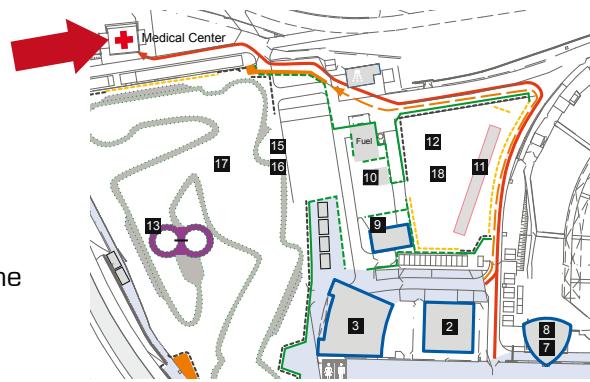
How many people are affected? (*Wie viele Personen sind betroffen?*)

1 (*eins*), 2 (*zwei*), 3 (*drei*), 4 (*vier*), 5 (*fünf*), 6 (*sechs*), 7 (*sieben*), 8 (*acht*), 9 (*neun*), 10 (*zehn*)

What kind of injury has happened? (*Welche Verletzung liegt vor?*)

fracture (*Knochenbruch*), bleeding (*Blutung*), unconsciousness (*Bewusstlosigkeit*), burn (*Verbrennung*), electric shock (*Stromschlag*), suffocation (*Ersticken*), heart attack (*Herzinfarkt*), shock (*Schock*)

Don't hang up after answering these questions! Wait if the control center has further questions!





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Kautex Textron GmbH & Co.KG | Linde Material Handling | SLV Mannheim GmbH