



## COMPETITION HANDBOOK 2019



# FORMULA STUDENT **NETHERLANDS** INTERNATIONAL DESIGN COMPETITION

08 - 11 JULY 2019  
TT CIRCUIT ASSEN

# Competition Handbook 2019

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## NL1 General Information

### NL1.1 Competition Format

Formula Student Netherlands 2019 (FSN2019) will consist of two classes: Internal Combustion Vehicle (CV) Class and Electric Vehicle (EV) Class. Both classes can be identified as separate competitions with separated classifications.

The competition will be open to 40 CV Class teams and 28 EV Class teams.

### NL1.2 Competition Dates and Place

FSN2019 will be held from 6<sup>th</sup> until 11<sup>th</sup> of July 2019, at the TT Circuit in Assen, The Netherlands

Venue address:

TT Circuit

De Haar 9

9405 TE

Assen

The Netherlands

### NL1.3 Vehicle Shipping

All teams using an (external) shipping company or freight forwarder must coordinate the transport with the FSN Organization. Vehicles must arrive between July 5<sup>th</sup> and 7<sup>th</sup> and must be removed from the event site on July 12<sup>th</sup> before 17:00 CEST. The FSN Organization can not provide a place to store the vehicle during the arrival and departure days.

### NL1.4 Registration Fee

The registration fee for FSN2019 is €1750,- including 9% VAT. The FSN organization is legally required to invoice VAT to all teams, regardless of the origin of the team. Teams with a valid EU VAT number may reclaim their VAT at the Dutch IRS [via this link](#). The entry fee includes an unlimited amount of team members.

The registration fee is not refundable for any reason

### NL1.5 Team Members

Every team must fill out a Team Member Registration Form (TMRF) prior to the competition. A format will be available on the competition website.

All individuals are responsible for their own Health Insurance, the FSN organization will not perform a check on these documents.

If your team or team members require an invitational letter to obtain a VISA, please send an e-mail to [info@formula-student.nl](mailto:info@formula-student.nl)

### NL1.6 Vehicle Numbers

All confirmed teams will be invited to choose a car number for the competition via their MyTeam account.

EV Class: 01-99, with an E added in front of the number.  
CV Class: 101-999

Numbers E01, E02, E03, 101, 102 and 103 are reserved for the top-3 teams from FSN2018.

## NL2 Documents & Deadlines

### NL2.1 Deadlines

Date	Deadline	Class
2019-03-15 13:00 CET	Electronic Throttle Control (ETC)	CV
2019-03-15 13:00 CET	Impact Attenuator Data (IAD)	ALL
2019-03-15 13:00 CET	Structural Equivalency 3D Model (SE3D)	ALL
2019-03-15 13:00 CET	Structural Equivalency Spreadsheet (SES)	ALL
2019-04-12 13:00 CEST	Electrical System Form (ESF)	EV
2019-04-12 13:00 CEST	SES Approval (SESA)	ALL
2019-05-31 13:00 CEST	Business Plan Executive Summary (BPES)	ALL
2019-05-31 13:00 CEST	Design Spec Sheet (DSS)	ALL
2019-05-31 13:00 CEST	Engineering Design Report (EDR)	ALL
2019-05-31 13:00 CEST	Magazine Uploads (MU)	ALL
2019-06-14 13:00 CEST	Electrical System Officer Qualification (ESOQ)	EV
2019-06-14 13:00 CEST	Fuel Type Order (FTO)	CV
2019-06-14 13:00 CEST*	Team Member Registration Form (TMRF)	ALL
2019-06-21 13:00 CEST*	Vehicle Status Video (VSV)	ALL
2019-06-21 13:00 CEST*	Cost Report Documents (CRD)	ALL

*\*different from FSG*

### NL2.2 Documents

All teams must submit the documents mentioned in NL2.1 before the mentioned deadlines. A specific instruction on each document and how to submit is given in the following articles of the FSN2019 Competition Handbook. All documents and deadlines are subject to section A5 of the 2019 Rules.

#### NL2.2.1 Electronic Throttle Control (ETC)

ETC is allowed under section CV1.6 of the 2019 Rules.

Format: See FSG website

Method of submission: Upload file in MyTeam

- NL2.2.2 Impact Attenuator Data (IAD)**  
IAD must be submitted in accordance to section T3.18 and T3.19 of the 2019 Rules  
Format: See FSG website  
Method of submission: Upload file in MyTeam
- NL2.2.3 Structural Equivalency 3D Model (SE3D)**  
SE3D must be submitted in accordance to section T3.6 of the 2019 Rules  
Format: IGES File (may be zipped)  
Method of submission: Upload file in MyTeam
- NL2.2.4 Structural Equivalency Spreadsheet (SES)**  
SES must be submitted in accordance to section T3.6 of the 2019 Rules  
Format: See FSG Website (The new FSAE-style SES is not allowed)  
Method of submission: Upload file in MyTeam
- NL2.2.5 Electrical System Form (ESF)**  
ESF must be submitted in accordance to section EV9 of the 2019 Rules. All EV Class teams must have a valid FSG account and use the FSG online form to submit the ESF. It is not required to be registered for FSG2019.  
Format: Online FSG Form  
Method of submission: Fill out form on FSG Website
- NL2.2.6 SES Approval (SESA)**  
Teams using a monocoque structure must submit a SESA in accordance to section A5.7 of the 2019 Rules  
Format: PDF, see FSG website for template  
Method of submission: Upload file in MyTeam
- NL2.2.7 Business Plan Executive Summary (BPES)**  
BPES must be submitted in accordance to section S1.3 of the 2019 Rules  
Format: PDF  
Method of submission: Upload file in MyTeam
- NL2.2.8 Design Spec Sheet (DSS)**  
DSS must be submitted in accordance to section S3.3 of the 2019 Rules. For FSN, an online template will be available on the competition website  
Format: Online form

Method of submission: Online FSN Form via MyTeam

**NL2.2.9 Engineering Design Report (EDR)**

EDR must be submitted in accordance to section S3.2 of the 2019 Rules

Format: PDF

Method of submission: Upload file in MyTeam

**NL2.2.10 Magazine Uploads**

FSN2019 will feature a magazine for the first time. All teams are invited to write a description of their team (max 100 words). An isometric render or image of their 2019 vehicle must be added to the file.

All DSS data may be used to publish in the magazine.

Format: DOC(X)

Method of submission: Upload file in MyTeam

**NL2.2.11 Electrical System Officer Qualification (ESOQ)**

ESOQ must be submitted in accordance to section A4.8 of the 2019 Rules. An example of appropriate training is NEN 9140

Format: PDF(s)

Method of submission: Upload file(s) in MyTeam

**NL2.2.12 Fuel Type Order**

CV Class teams will be invited to select a Fuel: RON98 or E85.

Format: Online form

Method of submission: Online FSN Form via MyTeam

**NL2.2.13 Team Member Registration Form (TMRF)**

A TMRF must be submitted, including all participating team members. Faculty Advisors are not considered team members.

A format will be provided on the competition website.

Format: XLSX

Method of submission: Upload file in MyTeam

**NL2.2.14 Vehicle Status Video (VSV)**

VSV must be submitted in accordance to section A5.6 of the 2019 Rules. The scrutineering order for FSN2019 will be based upon the order of approved VSVs.

Format: Any video format

Method of submission: Upload file in MyTeam, or send a link to [info@formula-student.nl](mailto:info@formula-student.nl)

#### NL2.2.15 **Cost Report Documents**

CRD must be submitted in accordance to section S2.3 of the 2019 Rules.

Teams must use the FSG online form to fill out the BOM, DBOM and CBOM and use the export function. The exported file must be uploaded via MyTeam to FSN.

For FSN2019 a DBOM (see S2.5) for the “Brake System” and “Steering System” must be submitted.

For FSN2019 a CBOM (see S2.6) for the “Engine and Drivetrain” must be submitted.

Format: Exported FSG Online Form

Method of submission: Upload file in MyTeam

### NL3 **Competition Site Organization**

NL3.1 The competition site includes the entire venue, including the campsite area and parking lots. Misbehavior anywhere on the competition site may lead to penalties in the competition

#### NL3.2 **Team Arrival**

Teams may arrive from July 6<sup>th</sup> 2019 10:00 CEST. Teams must not arrive after July 7<sup>th</sup> 17:00 CEST. All teams must first go to the ‘Arrival Point’ (AP) which will be marked on the map. From the AP you will be guided towards the campsite by an FSN official. Please make sure your campsite gear is easily accessible from your team vehicle first so logistics are as smooth as possible.

#### NL3.3 **Team Registration**

After arriving, the team manager must report to the registration office to register the team. An appointment may be scheduled to do so, so the team manager does not have to wait in line. Additionally, all team members must sign a liability form after arriving on the competition site. The liability form will be available on the competition website so teams can print the forms at home and hand them in at the registration office, forms will also be available at the registration office.

#### NL3.4 **Pit Garages**

All teams will be allocated in the pit garages. Each garage will be split into two units, so every team has a square space of approximately 6m x 6m. Each garage will have one unit on the ‘Pit Lane’ side and one on the ‘Paddock’ side. Please check the pit garage allocation to see where your team is allocated.

Construction will commence from July 7<sup>th</sup> 20:00 CEST, after the opening ceremony. Teams are allowed to use their team vehicles to offload their equipment. There is no limitation to the size of the team vehicle. The team vehicle must be equipped with the ‘Team Vehicle Card’ that will be handed to teams at the team registration. Two lines, representing the ‘Pit Lane’ and ‘Paddock’ sides will be formed and offloading

may proceed in groups. If your team is located at the 'Pit Lane' side you may access to pit lane via the track, but you must keep the 'Fast Lane' of the 'Pit Lane' clear at all times. FSN officials will be there to guide you. Construction must be finished at 22:00 CEST, you must park your vehicles in the 'Vehicle Area' in the Paddock, or in the parking lots.

Deconstruction will commence from July 11<sup>th</sup> 15:00 CEST and must be finished before 19:00 CEST. Pit garages must be left clean, or penalties may be applied.

#### NL3.5 **Team Departure**

Teams are advised to leave the campsite area on July 12<sup>th</sup>. All teams must have left the campsite area on July 12<sup>th</sup> by 14:00 CEST. Campsite areas must be left clean and without any holes or ditches. Penalties may apply if a team fails to comply.

#### NL3.6 **General Competition Site Rules & Regulations**

The use of motorcycles, quads, bicycles, scooters, skateboards or other similar mobility devices as well as self-propelled devices in general by team members and spectators is prohibited.

Teams are allowed to build (small) tents in front of their pit garage, as long as the garage can be exited safely in case of an emergency. The FSN Organization may ask to remove certain objects that infringe this rule.

Confiscated goods and Lost&Found items may be retrieved from the Paddock Office.

There will be 24h security on the competition site.

No music speakers, devices or system with a total power of over 20 W are allowed on the entire competition site. A team risks deregistration if it fails to comply.

No dishwashers are allowed on the competition site.

It is not allowed to dig anywhere on the competition site.

Welding and grinding may not be performed in the team garage, but only in the 'Workshop' tent in the scrutineering area. FSN does not provide equipment, team members are required to use appropriate safety gear.

Engines or Tractive systems may not be activated in the team garages, but only in the designated areas in the scrutineering area.

#### NL3.7 **Tyres**

There will be no tyre service at FSN2019.

#### NL3.8 **Driver Registration**

All drivers must register at the registration office prior to the driver briefing. A valid driving license must be shown.

All drivers must attend the driver briefing



## NL4 Technical Inspection

### NL4.1 Technical Inspection (TI) Events

TI consists of several events:

- Accumulator (A) Inspection (EV Only)
- Electrical (E) Inspection (EV Only)
- Pre-Inspection
- Mechanical (M) Inspection
- Tilt Test
- Rain Test (EV Only)
- Noise Test (CV Only)
- Brake Test

### NL4.2 Technical Inspection Schedule

TI will commence via a schedule. All teams will be assigned time slots for A-, E-, Pre-inspection and M-inspection if applicable. The order is based on the date of approval of the VSV from the team. The order will be published on the competition website.

A team is responsible for being on time for the assigned time slot. If a team is more than 15 minutes late, their slot will be forfeited and the team will be placed at the end of the inspection schedule.

There will be time in the schedule for re-scrutineering at scrutineering if a team fails to pass scrutineering in the first attempt. There will be a separate queuing area for re-scrutineering.

### NL4.3 Technical Inspection Sheet

All TI sheets will be published in advance of the competition on the competition website. Teams are advised to perform a 'dry-run'.

## NL5 Static Events

### NL5.1 Static Event Schedule

A schedule containing all static event times and locations will be published on the competition website. Teams are responsible for showing up at their designated time and location. To optimize the time schedule, the time slots for the Engineering Design and Cost & Manufacturing event will be allocated after each other. Teams will be able to stay in the same judging area for these events. There will be time allocated to switch team members and prepare the judging area for the next event.

### NL5.2 Business Plan Presentation (BPP) Rooms

All BPP Rooms will be equipped with a screen, more information on the connection and audio availability will be published on the competition website.

## NL6 Dynamic Events

- NL6.1 Dynamic Areas may only be entered by team members wearing dynamic passes.
- NL6.2 Each team may register two media crew that are allowed to enter dedicated media areas at dynamic event locations. A map will be available on the competition website.
- NL6.3 Track maps for the autocross and endurance event will be published on the competition website.
- NL6.4 (EV Only) All vehicles must be equipped with a FSN Energy Meter. A datasheet and CAD model will be available on the competition website. The Energy Meter must be returned after the competition. FSN Officials may evaluate energy meter data at all times during the competition.