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Formula SAE Italy 2022

AD ADMINISTRATIVE REGULATIONS

AD.1 THE FORMULA SAE SERIES

The 17th edition of the Formula SAE Italy 2022 will take place at the "Riccardo Paletti" Circuit in Varano de' Melegari (PR) on July 13-17, 2022.

Formula SAE Italy will follow the "[2022 FSAE Rules](#)", with the exceptions and additions listed below and use the FSAE scoring methods.

AD.1.2 Official Announcements and Competition Information

Formula SAE Italy news will be provided to students in following forms of media:

- Emails to registered team leaders
- Press releases published on-line on Formula-ATA website

AD.3 INDIVIDUAL PARTICIPATION REQUIREMENTS

AD.3.4 Society Membership

Team members must be members of at least one of the following societies: (1) SAE International, (2) SAE Australasia, (3) SAE Brazil, (4) IMechE, (5) VDI, or (6) JSAE.

Furthermore, in case of teams coming from nations which have FISITA member Association they can choose to subscribe to their national association.

Proof of membership, such as membership card, is required at the competition.

AD.5 TEAM ADVISORS AND OFFICERS

AD.5.1 Faculty Advisor

AD.5.1.4 Faculty Advisor must be present at the event for all the time. In case the Faculty Advisor will be not able to attend, the organizers will accept only a staff representative of the University.

AD.5.1.5 The Faculty Advisor will have to communicate his/her absence and/or any other changes by sending official letter with University head paper by **June 17, 2022**.

AD.5.2 Electrical System Officer (EV only)

AD.5.2.1 Every participating team must appoint one to four ESO for the event

AD.5.2.4 ESO is not required for Class 3. In case no ESO is appointed, then team is not allowed having any accumulator container at the event site.



AD.5.3 Electric System Advisor (EV only)

AD.5.3.8 ESA is not required for Class 3.

GR.7 VEHICLE ELIGIBILITY

GR.7.2.1 Competition Year

The period beginning at the event of the Formula SAE series where the vehicle first competes and continuing until the start of the corresponding event held approximately 12 months later.

The vehicle first competes as soon as it begins the technical inspection process or participates at any static event valid for class 1.

GR.7.2.5 First Year Vehicles: Class Driverless

Vehicles which will attend the 2022 edition built after 2012 are classified as "first year vehicle". Also U.K. platforms are allowed.

GR.7.2.6 Design review category: Class 3

GR.7.2.6.1 Teams that participate in the "Design review category" will be admitted to the Design, Presentation and Cost events.

GR.7.2.6.2 A static presentation of the car, or part of it, can be conducted in order to better explain the project.

GR.7.2.6.3 A separate classification will be reserved for this category.

GR.7.2.3.4 Design, Presentation and Cost events follow the rules as per Class 1. In particular the Cost Report must contain an estimation of the cost of the actual car.

GR.7.2.3.5 Class 3 electric vehicles are not allowed to activate tractive system at the event site.



AD.6 COMPETITION REGISTRATION

AD.6.2 Registration Details

AD.6.2.1 Registration for Formula SAE Italy 2022 is made into two phases: early registration for reserved slots and main registration for all teams.

Reserved early registration slots

The first 3 Class 1C, the first 3 Class 1E, the first 3 Class 1D and the first 2 Class 3 classified teams at the Formula SAE Italy 2021 will have a granted *early registration* slot in 2022 event:

Class 1C

- Joanneum Racing Graz - U.A.S. Graz
- MoRe Modena Racing - Università di Modena e Reggio Emilia
- Race UP Combustion - Università di Padova

Class 1D

- StarkStrom Augsburg Driverless - UAS Augsburg
- Ecurie Aix Formula Student Team - RWTH Aachen
- Sapienza Corse - Università di Roma La Sapienza

Class 1E

- Formula Student Team Tallinn - Tallinn University of Technology
- TUfast e-technology - TU München
- KA-Racelng E - Karlsruhe Institute of Technology

Class 3

- UniBo Motorsport Electric - Università di Bologna
- AAM Driverless Racing Team - Arab Academy for Science, Technology & Maritime Transport

Further **two** *early registration* slots will be granted for North and South America, Australia and rest of the world (non-European EFTA) teams.

The early registration will open on **February 7, 2022 at 10:00 AM CET (GMT + 1)** and will close on **February 8, 2022 at 1:00 PM CET (GMT + 1)**.

After *early registration* closure, no slot will be granted for these teams.

Slots that are not allocated for *early registration* will become available for all teams during *main registration* period.

Registration must be completed on-line via the electronic form that will be available on the event website in each registration period. The registration will be confirmed only when the due amount will be credited on the ANFIA bank account.



Formula SAE Italy 2022 will grant 3 registration slots to 2023 event to the first 3 Class 1C, 1D & 1E winner teams of this year event and 2 slots to the first 2 Class 3 winner teams.

Entries per University - FSAE-I Competition - Registering IC, EV and DV teams

For the purposes of registering and competing, a school IC, EV and DV teams are considered separate and independent entities. A university may register both an IC, EV and DV team in the same competition.

The Formula SAE Italy 2022 will admit 75 teams in Class 1 and 5 teams in Class 3 with following criteria:

- Class 1C - IC Engine 30
- Class 1D – Driverless 10
- Class 1E - Electric Propulsion System 35
- Class 3 both IC, Electric and Driverless 5

Registration Dates

Early registration for the Formula SAE Italy 2022 will open on **February 7, 2022 at 10 AM CET (GMT+1)** and will close on **February 8, 2022 at 1:00 PM CET (GMT+1)**.

Main registration for the Formula SAE Italy competition will open on **February 9, 2022 at 10:00 AM CET (GMT+1)** and will close on **March 9, 2022 at 1:00 PM CET (GMT+1)**.

Main registration is based on first come, first serve basis. The list of admitted teams will be published on the website as soon as all the eventual double registrations will be cleaned up. All the updates will be available immediately after this action.

AD.6.3 Registration Fees

AD.6.3.1 Teams will have 48 hours, starting from registration time, to send us the proof of the bank transfer, certifying the payment date and time:

Class 1C, 1D, 1E: € 1.515,00 + 22% VAT = **€ 1.848,30**

Class 3: € 1.100,00+ 22% VAT = **€ 1.342,00**

AD.6.3.2 Registration fees are not refundable and are not transferred to a subsequent year's competition, unless for COVID-19 reasons. In case the statics events will be rescheduled in digital format, part of the paid fee will be refunded.

AD.6.3.3 The registration fee includes 20 team members. Additional team member/guest can be registered by paying an extra fee of € 40,00 + 22% VAT = € 48,80 by **May 16, 2022** with bank transfer (See Appendix A-2 for further information).

AD.6.3.4 ATM/Guest form is available [here](#)



AD.6.4 Waitlist

AD.6.4.1 Waiting list will not be published on the website, teams will be informed by e-mail about their possible admission to the main registration list.

New deadlines will be set for each team when it will be included in the official list.

AD.6.4.3 The team will then have 48 hours to accept or reject its slot and to make the payment and send the proof of it.

AD.6.5 Withdrawals

Registered teams that won't be able to attend the competition are requested to officially withdraw not later than **June 7, 2022**, by notifying the following e-mail:

- **formula.sae@ata.it** for 1C teams
- **formula.ei@ata.it** for 1D, 1E & Class 3

AD.6.6 Italy Visas

Teams requiring visas to enter Italy are advised to complete the **list of team members** with their passports numbers, the arrival and departure dates and send it to the above mentioned email addresses by **June 1, 2022**.

Late requests will be not considered.

ANFIA will provide your team an official invitation letter, which can be used for your VISA application.

Teams that need VISA are advised to apply for it as soon as possible and to refer to the Italian VISA rules to determine the VISA requirements and applications.

ANFIA will not send personal letters or contact directly the Italian Embassies or Consulates for your team participation in the event. VISA information about required documentation can be found on the Italian Ministry of Foreign Affairs and International Cooperation's website at <http://vistoperitalia.esteri.it/home/en>.

AD.6.7 Vehicle Shipping

Vehicle shipments by commercial carrier must comply with the laws and regulations of nations from which, and to which, the car is being sent. Teams are advised to consult with their shipping company or freight forwarder to be sure their shipment fully complies with all relevant customs import/export and aviation shipping requirements.

Shipments must be sent with the sending team or university listed as the receiving party. Neither the competition organizers nor the competition site (Riccardo Paletti Circuit) can be listed as the receiving party.

Stick labels on crates/containers which must have the below receiving address permanently and clearly marked:



Receiving address

University and/or team name

Car number: 000

c/o Formula SAE Italy 2022

Autodromo Riccardo Paletti

Strada per Fosio 1

43040 Varano de' Melegari (PR) – Italy

Shipping documents All shipping documents and custom clearances must be completed and supplied by the University and/or Team.

Damage Damage to the shipment is the sole responsibility of the University/Team. Be aware that the crates/containers will be stored outdoor without any shelter.

Team contact Please communicate to organization names and mobile numbers of at least two persons, who likely are the Team Leader and the Faculty Advisor, to be contacted in case of problems.

Delivery and collections dates

- Delivery: Monday 11 or Tuesday 12, 2022 from 9:00 AM to max 6:00 PM;
- Collection: **the maximum date to pick up your car will be:** Monday 18, or Tuesday 19, 2022 from 9:00 AM to max 6:00 PM.

Forklift service for loading and unloading cars will be only available on these dates. Out of these days, its availability and use are not guaranteed and, in case, team should bear the cost.

Crates/containers must have a low access for fork lift maneuver. Crating and uncrating is the sole responsibility of the team.

AD.6.8 Car Number

When choosing your car number, please consider the numbering listed here below:

Combustion cars

- From 1 to 59
- From 70 to 99

Driverless cars

- From 700 to 759
- From 770 to 799

Electric cars

- From 100 to 159
- From 170 to 199

Class 3 teams



- From 300 to 399

Take note that it could be already taken by another team. The acceptance order will follow the registered team list published in the Formula ATA web site.

In that case, you will receive an e-mail message asking for a new choice.

If a team asks to change the participation class from Class 1 to Class 3, the change will be subject to the Organization approval. The car number may change depending on availability.

AD.6.9 Fuel Supply

AD.6.9.1 The fuels provided at Formula SAE Italy 2022 are expected to be 98 octane gasoline and E-85. No other fuel will be supplied.

AD.6.9.2 Fuel specifications will follow the standard specification for fuel for automotive spark-ignition engines.

AD.6.9.3 Fuel choice must be communicated per Fuel System Data form available on <http://formula-ata.it/docs> by **March 8, 2022**

AD.6.10 Electric Supply

AD.6.10.1 Electric vehicle teams must communicate per Electric System Data form available on <http://formula-ata.it/docs> by **March 8, 2022** main information about their electrical system and charger.

AD.6.11 Lists of team members

Preliminary & Final Lists: Once a team have been registered for the competition, every team member has to upload within **March 8, 2022** its own personal data. All changes, cancellations, additions can be made to the preliminary list till **May 16, 2022** when the final list will be due. After **May 20, 2022** no modifications will be accepted.

Payment for **Additional Team Members/guests** (more than 20 persons) can be made by bank transfer (See Appendix 1 for further information).

AD.7.5 Onsite Working Safety

AD7.5.1 Everyone in the dynamic area and everybody working on the vehicle must wear appropriate, closed-toed shoes.

AD7.5.2 Appropriate personal protective equipment must be used.

AD7.5.3 Any operation producing litter or debris, e.g. cutting of carbon fiber, should not be performed in the pits.

AD7.5.4 When jacking up the vehicle a safe and stable support device rated for the load must be used.



DR DOCUMENT REQUIREMENTS

DR.1 DOCUMENTATION

DR.1.1 Requirements

DR.1.1.1 The documents supporting each vehicle must be submitted by the deadlines posted on the Event Website or otherwise published by the organizers.

DR.1.1.3 Following document templates are located at <https://fsaeonline.com>

- Design Spec Sheet (DSS)
- Design Report (DR)

DR.1.1.4 Cost files are located at FSG Website Tool (<https://www.formulastudent.de/>).

DR.1.1.5 Please refer to the templates and forms which can be found on the FSAE Italy documentation website: <http://formula-ata.it/docs>:

- Structural Equivalency Spreadsheet (SES)
- Structural Equivalency Spreadsheet Approval (SESA)
- Structural Equivalency 3D Model (SE3D)
- Impact Attenuator Data (IAD)
- Electrical System Form (ESF)
- Fuel System Data (FSD)
- Electric System Data (ESD)
- Electrical Systems Officer Form (ESO/ASR)
- Electrical Systems Advisor Form (ESA)
- Business Plan Pitch Video (BPPV) must be submitted online on the Event Website

In 2022 the Organizing Committee decided to update the current platform where teams upload their documents. It will be possible register on the new platform approximately in the half of February.

DR.1.2 Definitions

DR.1.2.1 Submission Date

- The date and time of upload to the website. Uploading time will be considered till 11:59 p.m. of the deadline date

DR.1.2.2 Submission Deadline /Mandatory first submission date

- The date and time by which the document must be uploaded or submitted

DR.1.2.3 No Submissions Accepted After / Update allowed (with penalties) date

- The last date and time that documents may be uploaded or submitted



DR.1.2.4 Late Submission

- Uploaded after the Submission Deadline and prior to No Submissions Accepted After
- Submitted largely incomplete prior to or after the Submission Deadline

DR.1.2.5 Not Submitted

- Not uploaded prior to No Submissions Accepted After
- Not in the specified form or format

DR.1.2.6 Amount Late

The number of days between the Submission Deadline and the Submission Date.
Any partial day is rounded up to a full day. Examples: submitting a few minutes late would be one day penalty; submitting 25 hours late would be two days penalty

DR.1.2.7 Reviewer

A designated event official who is assigned to review and accept a Submission

DR.1.2.8 *PART IC – IC.4.3.1 ETC – Notice of Intent and IC.4.3.2 ETC – Failure Modes and Effects Analysis (FMEA)* are not required.

DR.1.2.9 *PART EV – EV11.2 Failure Modes and Effects Analysis* is not required for Class 1E vehicle.

DR.2 SUBMISSION DETAILS

DR.2.1 Submission Location

All documents shall be uploaded and filled in event documentation website (<http://formula-ata.it/docs>)

DR.2.1.1 Allowed formats are pdf, txt zip xls, doc, xlsx, docx, jpeg. It is allowed to upload a zip-archive containing files in mentioned formats. Submitting files in other formats will be considered as “Not submitted”. Maximum file size is indicated on website.

Notice: Teams is not notified if a document is submitted incorrectly. Therefore, teams are advised to verify after upload that their documents can be downloaded and can be read for entire and that deadlines have been met.

DR.2.2.5 Submission Deadlines

Deadline / Mandatory First submission date	No submission* accepted after/ Updates allowed with penalties	
February 07, 2022	February 08, 2022	Early Registration opens on February 7 at 10.00 AM CET (GMT +1). It closes on February 8, 2022 at 1.00 PM CET (GMT +1)
February 09, 2022	March 09, 2022	Registration opens on February 9 at 10.00 AM CET (GMT +1). It closes on March 9, 2022 at 1.00 PM CET (GMT +1)
February 28, 2022	March 07, 2022	ALL CLASSES – Camping booking form
	June 27, 2022	CLASS 1E/1D – Electrical Systems Officer and Electrical Systems Advisor Form
March 08, 2022	March 14, 2022	CLASS 1C – Fuel system data
	March 15, 2022	ALL CLASSES – Preliminary team member list
	July 04, 2022	CLASS 1E/1D – Electric System Data
March 24, 2022	March 24, 2022	ALL CLASSES – Acceptance of camping requests
	April 25, 2022	ALL CLASSES – Structural Equivalency Spreadsheet (SES) or Structural Equivalency Spreadsheet Approval (SESA) and Structural Equivalency 3D Model (SE3D). Teams using a monocoque chassis must submit the SES Autocertification, in addition to the SES deadline
April 07, 2022	April 18, 2022	ALL CLASSES – Camping confirmation and payment
April 08, 2022	July 04, 2022	CLASS 1E/1D/3 – Electrical System Form
May 24, 2022	June 03, 2022	CLASS 1C/1E/1D – Impact Attenuator Data
May 16, 2022	May 16, 2022	ALL CLASSES – Racing Elevator Pitch Video
	May 20, 2022	ALL CLASSES – Final team member list & payment for Additional Team Members
May 27, 2022	June 10, 2022	ALL CLASSES – Design Report & Design Spec Sheet
May 31, 2022	May 31, 2022	ALL CLASSES – BPP outcome of Stage 1 and acceptance to Stage 2
June 01, 2022	June 08, 2022	ALL CLASSES – Invitation letters for VISA
June 07, 2022	June 07, 2022	ALL CLASSES – Team & camping withdrawal
June 10, 2022	June 10, 2022	ALL CLASSES – e-Cost Report, e-BOM
June 15, 2022	June 15, 2022	ALL CLASSES – BPP Stage 2 Business Pitch performance
June 22, 2022	June 22, 2022	ALL CLASSES – BPP Stage 2 Business Pitch result and team acceptance to Stage 3
June 29, 2022	June 29, 2022	ALL CLASSES – BPP publish of Deep Dive Topics
June 17, 2022	June 17, 2022	ALL CLASSES – Change of Faculty Advisor

* First column indicates the mandatory date for the submission of the first version of documents. Second column indicates the date within the update of documents is allowed (**WITH PENALTIES**, following FSAE Italy DR 3 rule). Please, check the rules.



DR.2.3 Web Based Submission

Teams entering Formula SAE Italy 2022 must submit the documents online through <http://formula-ata.it/docs>.

The upload date and time on the website constitute the official record for deadline compliance.

Documents may be uploaded on the website from the time your account has been created until the “**Mandatory First Submission Date**” deadline. Submissions may be replaced with new uploads at any point during that period without penalty.

Unless for changes specifically requested by the reviewers, documents uploaded after the “**Mandatory First Submission Date**” and the “**Updates allowed (with penalties) date**” deadline are classified as late submissions and the appropriate penalties will be applied.

No submissions will be allowed after the “**Updates allowed (with penalties) date**” deadline, even if the document is required to access technical inspection (IAD, SES, ESF, FMEA and ESO/ESA). In this case, team may not be allowed to attend dynamic events.

DR.2.4 Account Signup for Online Submission – FSAEI Event Only

After confirmation of team registration, teams must register on the documents website and they will receive directly the login details. The documents website will send website user credential to each team leader.

DR.2.5 SES Submission

DR.2.5.1 Teams using a monocoque chassis must submit a SES Autocertification as one document, in addition to the SES deadline.

DR.2.5.2 The Structural Equivalency Spreadsheet (SES) must be checked and approved by:

- Validation/inspection organization (e.g. DEKRA, ...)
- Engineering firm for lightweight structures
- Engineering consultancy company
- Any other official competition

DR.2.5.3 If any changes to the original SES become necessary due to the approval process, the updated final SES must be uploaded again on the competition website.



DR.3 SUBMISSION PENALTIES

DR.3.2.1 Late Submissions will receive a point penalty as shown in following table, subject to official discretion.

Penalty Group	Penalty Points per day	Maximum penalty points	Not Submitted
Tech (SES, IAD, ESO/ESA, ESF)	-10	-50	Removal of Team Entry – see FSAE rule DR.3.3
Business Plan Pitch Video (BPPV)	-10	-50	Removed from Presentation Event; Score -100 points in Presentation Event
Cost (Ebom, Report)	-10	-80	Removed from Cost Event Score -100 points in Cost Event
Design (DR, DSS)	-10	-100	Removed from Design Event Score -100 points in Design Event



APPENDIX 1: PAYMENT DETAILS AND INVOICE

PAYMENT DETAILS

- Team registration: teams will have 48 hours, from the shift to awaiting for payment status, to send us the proof of the bank transfer, certifying the payment date and time. Registrations to the Formula SAE Italy 2022 will be confirmed only when the due amount is credited on the ANFIA Service Srl bank account.
- Camping confirmation: teams will have to send the camping confirmation form and the evidence of payment within **April 7, 2022** to the respective email address.
- Additional team member/guest: teams will have to send the ATM/Guest form with the evidence of payment within **May 16, 2022** to the respective email address.
-

When making the payments, please consider these administrative regulations:

- 22% Italian VAT is **ONLY** required from European and non-European natural persons, who make the payment, i.e.: registration fee = **1.515,00 € + 22% VAT = 1.848,30 € total amount to be paid.**
- 22% Italian VAT is **NOT** required from European companies owing a VAT code, the Italian Public Administrations and from non-European companies, who make the payment, i.e.: registration fee = **1.515,00 € total amount to be paid.**
- 22% Italian VAT is **ALWAYS** required from all Italian participants (natural persons/companies), i.e.: registration fee = **1.515,00 € + 22% VAT = 1.848,30 € total amount to be paid.**

Payments method

- Bank transfer to: ANFIA Service Srl – **Bank name**: BPER Banca – Turin Branch – Corso Vittorio Emanuele II, 48/F – Torino – Italy - **IBAN n.:** IT07T0538701002000038545602 – **Swift code**: BPMOIT22.

Please indicate on the bank transfer the following payment descriptions:

- **Team name**
- **University name/company name**

Payment must be received in full. ALL bank transfer charges must be covered by the payer.

INVOICE

It is mandatory to fill in all the fields for the invoice. Be sure to put the right heading:

- University name/company name, or natural person's surname and name
- Department (if needed),
- Address, post code, town, country,
- VAT number,
- "Codice Fiscale" field is **ONLY FOR** Italian Universities, companies and natural persons
- "Codice identificativo" field is **ONLY FOR ITALY**,
- Administration email address.

Particularly, in the field of "VAT number" please check to have a correct VAT NUMBER. Please do not insert any other data: i.e. tax identification number.

If you do not have got one, please write "Not in possession" in the field.

For Italian teams only



Following the rule on the electronic invoicing for all Italian bodies owing a VAT code, please note that we need to receive the “codice identificativo” of your company, which is an alphanumerical 7 digits code.

Public Administration invoicing will remain unchanged.

For natural persons or associations with only a “codice fiscale” we need to receive an email address to send the invoice.



APPENDIX 2: CAMPING

A camping site will be available for the event **from July 12, at 3.00 PM to July 18, 2022 at 2:00 PM.** It will be located next to the circuit in Varano de' Melegari.

The camping check-in is foreseen on **July 12, 2022 from 3.00 PM to 7:00 PM.** It is **MANDATORY** for all teams to comply with the timetable. In order to avoid a huge crowd gathered at the campsite entrance, the Team Leader only will be allowed to register the team.

Interested teams have to send to ANFIA (s.migliaccio@anfia.it) the [Camping Booking Form](#) within **February 28, 2022.**

Camping requests will be accepted in the order they will be received. The camping availability will be communicated to teams within **March 24, 2022.**

The fee for 6 days is 70,00 € + 22% VAT = **85,40 €/person**

Within **April 7, 2022** teams must send the evidence of payment, together with the [list of members](#) and their passport/IC numbers.

We will accept only single payment for each team.

The **payment** can be made with bank transfer to:

ANFIA Service Srl

Bank name: BPER Banca – Turin Branch - Corso Vittorio Emanuele II, 48/F - Torino – Italy - **IBAN**
n.: IT07T0538701002000038545602 – **Swift code:** BPMOIT22.

Please indicate on the bank transfer the following payment descriptions:

- **Team name**
- **University name**

Payment must be received in full. ALL bank transfer charges must be covered by the payer.

A refund of 50% of the overall amount of camping fee will be granted in case of team withdrawal, only if the communication is sent within **June 7, 2022.**

T GENERAL TECHNICAL REQUIREMENTS

On this chapter Formula SAE Italy 2022 will follow the “FS-Rules 2022 v1.0” with the exceptions and additions listed below.

T 5.2.1 The vehicle must use a 6 or 7 point restraint harness meeting the following specifications:

- c. FIA specification currently in use (recommended 8853-2016, allowed 8853/98); please check in advance the validity of the belts set and the presence of readable labels.

T 5.2.4 Use of HANS / FHR systems

The use of HANS \ FHR spec. FIA is highly recommended.
Please check compatibility of HANS/FHR homologation with the helmet standard

Table for helmet and Hans/FHR compatibility

	FHR 8858-2010	Tether (with end fitting) 8858-2010	Helmet anchorage 8858-2010	Helmet 8858-2010, 8859-2015, 8860- 2010 and 8860-2018
HANS 8858-2002	X	YES	YES	YES
Tether (w/ end fitting) 8858-2002	NO	X	If mecha- nically compatible	YES
Helmet anchorage 8858-2002	YES	If mecha- nically compatible	X	NO
Helmet 8858-2002 and 8860-2004	YES	YES	NO	X

T 13.3.13 Driver Equipment – Helmet

Acceptable helmet standards are: full-face helmets with the following specifications:

- FIA 8860-2018
- FIA 8860-2010
- FIA 8860-2004
- FIA 8859-2015
- Snell SA 2010 + FIA 8858-2002;
- Snell SA 2010 + FIA 8858-2010;



- Snell SAH 2010 + FIA 8858-2010;
- Snell SA 2010
- Snell SAH 2010
- Snell SA 2015

T 14 AUTONOMOUS SYSTEM

Does not apply



CV INTERNAL COMBUSTION ENGINE VEHICLES

On this chapter Formula SAE Italy 2022 will follow the “[FS-Rules 2022 v1.0](#)” with the exceptions and additions listed below.

CV 3.1.1 The exhaust outlet must be routed to the side or rear of the vehicle and so that the driver is not subjected to fumes at any speed considering the draft of the vehicle. It is recommended to rotate the gases exit to the ground.



EV ELECTRICAL VEHICLES

On this chapter Formula SAE Italy 2022 will follow the “[FS-Rules 2022 v1.0](#)” with the exceptions and additions listed below.

EV 4.6 Energy Meter

EV 4.6.1 All electric vehicles must run with the Energy Meter provided by the organizer. Energy Meter measures TS voltage and TS current.

EV 4.6.7 Power and voltage limits will be checked by evaluating the Energy Meter data. Energy is calculated as the time integrated value of the measured voltage multiplied by the measured current logged by the Energy Meter.

EV 4.6.8 A violation is defined as using more than the specified maximum power OR exceeding the maximum voltage EITHER:

- a. Continuously for 100 ms or more
- b. After a moving average over 500 ms is applied

EV 4.6.9 Non availability of Energy Meter data due to the team’s fault, tampering, or attempting to tamper with the Energy Meter will be treated as a violation.

EV 4.6.10 Violations during the Acceleration, Skidpad, Autocross Events:

- a. Each violation will Disqualify (DQ) the best run of the team
- b. Multiple violations will DQ multiple runs, ex two violations DQ the two best runs

EV 4.6.11 Violations during the Endurance event:

- a. Each violation will receive a 60 second penalty

EV 4.6.12 Repeated violations may void Inspection Approval or receive additional penalties up to and including Disqualification.

EV 4.6.13 The respective data of each run in which a team has a violation and the resulting decision may be made public.

EV 6.3 Insulation Monitoring Device (IMD)

EV 6.3.8 The indicator for “IMD” fault shall be mounted on non-removable bodywork.



DV Driverless

On this chapter Formula SAE Italy 2022 will follow the rules of the [“FS-Rules 2022 v1.0”](#) that are listed below and all the rules that are mentioned in the listed ones

T 14 AUTONOMOUS SYSTEM

with the exceptions and additions listed below:

T14.1.1 Doesn't apply

T14.9.2 Doesn't apply

T14.12.1 Ignore the text “[DC ONLY]”



IN TECHNICAL INSPECTIONS

On this chapter Formula SAE Italy 2022 will follow the “[FS-Rules 2022 v1.0](#)” with the exceptions and additions listed below.

IN 1.2 General rules

IN.1.2.14 Presenting a vehicle for Technical Inspection constitutes a declaration by the team that they have determined by self-inspection that the vehicle complies with the Formula SAE Italy 2022 Rules.

IN 1.6 Technical Inspection Authority

Decisions of the Technical Inspectors and the Chief Technical Inspector concerning vehicle compliance are final and may not be appealed.

IN 2 PRE-INSPECTION: No pre-inspection will be performed.

IN 3 [EV ONLY] ACCUMULATOR INSPECTION: No accumulator inspection will be performed.



S STATIC EVENTS

On this chapter Formula SAE Italy 2022 will follow the [“2022 FSAE Rules”](#), with the exceptions and additions listed below.

S 1 BUSINESS PLAN PRESENTATION EVENT (BPP)

On this chapter, Formula SAE Italy 2022 will follow its own rule listed below.

S 1.1. Business Plan Presentation Objective

- S 1.1.1. The objective of the BPP is to evaluate the team’s ability to develop and deliver a comprehensive business model, which demonstrates their product – a prototype race car – could become a rewarding business opportunity that creates a monetary profit.
- S 1.1.2. The judges should be treated as if they were potential investors or partners for the presented business model.
- S 1.1.3. The race car doesn’t have to be the core of the business idea, however, the business plan presentation must relate to the specific prototype race car entered in the competition. The quality of the actual prototype will not be considered as part of the BPP judging.

S 1.2. Business Plan Presentation Procedure

- S 1.2.1. The Business Plan Presentation will be held in a three-stage process.
- S 1.2.2. Stage 1 (S 1.3) and Stage 2 (S 1.4) will be held virtually prior to the competition. The Racing Elevator Pitch (S 1.3) must be submitted prior to Stage 1 and the exact date will be published on his document and available on the competition website
- S 1.2.3. Stage 1 and Stage 2 will be handled as a drop-out stage. You need to convince the judges of your idea, in order to progress to the next stage. Teams that fail to do so, will not be eligible for points of the next stages.
- S 1.2.4. Stage 3 (S 1.5) will take place during the competition, as part of the static events. Teams can choose if they want to compete in person at the event site, virtually or in any hybrid combination.
- S 1.2.5. Teams unable to attend within the assigned time period in Stage 2 or Stage 3 will receive zero points. The teams are responsible for the performance of their equipment and connectivity.



S 1.3. Stage 1: The “Racing Elevator Pitch”:

- S 1.3.1. You must submit a prerecorded 30-second video and it must be in a common video format, e.g. avi, mpg, mp4, wmv
- S 1.3.2. Teams are not limited in the way they present these 30 seconds. Visual aids of any kind are allowed, but not required
- S 1.3.3. The target is to catch the attention of the judges, so that they want to know more about your business idea
- S 1.3.4. Two weeks after submitting the video, teams will be informed if they have made it to Stage 2.

S 1.4. Stage 2: The “Business Pitch”:

- S 1.4.1. Content of the “Business Pitch” is a compact version of the Business Plan Presentation with a specific focus on business figures. The teams have to present a realistic financial concept of a profitable project
- S 1.4.2. The Business Pitch is limited to 3 minutes. The judges will stop any presentation exceeding 3 minutes. Immediately following the Business Pitch there will be a 5 minutes question and answer session
- S 1.4.3. The goal is to convince the judges that the team’s idea is worth an investment.
- S 1.4.4. Teams are not limited in the way they present these 3 minutes, but it must be presented by one or more team members, however not more than three.
- S 1.4.5. The event organization will provide the links to the respective software and communicate the slots in time.
- S 1.4.6. 48h after presenting the Business Pitch, teams will be informed if they have made it to Stage 3.
- S 1.4.7. All teams who made it to Stage 3 will be assigned a specific **Deep Dive Topic**, which has to be part of the 10 Minute Business Plan Presentation.
- S 1.4.8. All team members must present their student and team member credentials, if requested by event officials.

S 1.5. Stage 3: The 10 Minute Business Plan Presentation

- S 1.5.1. The 10 Minute Business Plan Presentation will be part of the static events onsite of the competition covering all areas of the business idea
- S 1.5.2. Presentations are limited to a maximum of ten minutes. The judges will stop any presentation exceeding ten minutes
- S 1.5.3. The presentation will not be interrupted by questions. Immediately following the presentation there will be a Q&A session.
- S 1.5.4. A maximum of two team members may present the business plan physically at the event. For presenting and/or the Q&A session, only three members are allowed to dial in virtually. All team members that join the presentation virtually must present their student and team member credentials prior to Stage 3, if requested by event officials.
- S 1.5.5. All team members involved in the BPP must be introduced to the judges at the beginning of the presentation. Only team members who have been introduced may answer the judges’ questions even if they were not actually presenting.
- S 1.5.6. The Business Plan Presentation Finals will be in presence.



S 1.6. Feedback

S 1.6.1. After the finishing of all three stages feedback will be available to the teams upon request **on** the event site, in person or virtually. If you drop out before stage three the respective teams will be informed about feedback possibilities.

S 1.7. Business Plan Presentation Scoring

S 1.7.1. The scoring of the stages is subsequent. For example, if a team fails to participate in Stage 1, there is no possibility for that team to score points at a later stage. Teams that fail to attend their presentation at any stage within their assigned time period will receive zero points for this stage as well as all following stages.

S 1.7.2. The maximum scoring of the BPP event is 75 points.

S 1.7.3. The scoring for the non-finalist is calculated as follows:

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

Where:

“P_{your}” is the score awarded to your team by the business judges in the initial judging (all 3 stages added up together).

“P_{min-F}” is the lowest score awarded to any team participating in the finals in the initial judging (all 3 stages added up together).

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

Possible penalties from Rules 2020A 5 could affect the final scoring.

Note: The intent of these changes is to avoid skewing the initial points distribution in events with non-uniform points distribution (more likely with fewer participants)

S 1.8. Stage 1 “Racing Elevator Pitch” will be evaluated on following categories:

Category	Points
Business Idea	5
Content	5
Demonstration and Delivery	5
Do investors want to know more	5
Total	20

S 1.9. Stage 2 “Business Pitch” will be evaluated on following categories:

Category	Points
Business Figures	5
Content	5
Demonstration and Delivery	5
Are investors convinced of profitability	5
Total	20



S 1.10. Stage 3 “Business plan presentation” will be evaluated on following categories:

Category	Points
Novelty	5
Content	10
Finances	5
Deep Dive Topic	10
Demonstration and Delivery	5
Structure	10
Questions	10
General Impression	5
Total	60

S 2 COST AND MANUFACTURING EVENT

On this chapter, Formula SAE Italy 2022 will follow chapter S 2 of “FS-Rules 2022 v1.0” with the exceptions and additions listed below.

S 2.10 Cost and Manufacturing Scoring

S 2.10.3-4-5 The Cost Event will host no finals

Once a team completed the BOM, DBOM and CBOM files on the FSG Website Tool, all the documents must be submitted here: <http://formula-ata.it/docs>, together with the offline ones.

S.4.2 Design documents

On this chapter, Formula SAE Italy 2022 will follow chapter S.4 of “2022 FSAE Rules” with the exceptions and additions listed below.

S.4.3.4 [DV ONLY] Autonomous Design Report (ADR)

S.4.3.4.2 The ADR should contain a description of the autonomous system with a review and derivation of the team’s design objectives. Any information to scope, explain or highlight design features, concepts, methods or objectives to express the value and performance of the autonomous system to the judges shall be included at the team’s discretion.

S.4.3.4.3 Evidence of information mentioned in the ADR should be brought to the competition and be available, on request, for review by the judges.

S.4.3.4.4 The ADR must not exceed five pages of content (text, which may include pictures and graphs).



S.4.3.4.5 Any portions of the ADR that exceed five pages of content will not be evaluated.

S.4.3.4.6 The ADR must be written as a scientific paper.

S.4.8.1 [DV Only] The design event starts with the submission of the DSS and the ADR and their review respectively.

S4.8.2 [DV ONLY] Teams need to show some simulation test data, where the judges can see how the algorithms work.

S.4.9.3 Design Judging Score Sheets are available at the FSAE Online website, except for DV Design Committee, which will judge following categories:

Vehicle Concept <ul style="list-style-type: none"> » Architecture » Target setting » Validation » Simulation / Testing » Development approach
Autonomous System <ul style="list-style-type: none"> » Perception » Localization » Mapping » Path planning » Path tracking
Vehicle System <ul style="list-style-type: none"> » Chassis » Actuators » Electrics / Electronics » Powertrain
Software Architecture <ul style="list-style-type: none"> » Controls » Real-time architecture » Calibration / Training » Safety / Security management
Documentation <ul style="list-style-type: none"> » ADR quality » Coherence with the vehicle » Innovation from previous years

S.4.10.1. Scoring may range from 0 to 150 points, at the discretion of the Chief Design Judge.

[DV Only] Scoring may range from 0 to 200 points, at the discretion of Chief Design Judge



D - DYNAMIC EVENTS

On this chapter Formula SAE Italy 2022 will follow the “2022 FSAE Rules”, with the exceptions and additions listed below.

D.1.1 Dynamic Events and Maximum Scores

Acceleration 100 points

Skid Pad 75 points

Autocross 125 points

Efficiency 100 points

Endurance 275 points

Total 675 points

D.1.2 Additional Rules for DV Dynamic Events

On this chapter Formula SAE Italy 2022 will follow the rules of the “[FS-Rules 2022 v1.0](#)” that are listed below and all the rules that are mentioned in the listed ones.

D2.2.8 When driving in autonomous mode, an ASR has to be present at the race control with the RES. Additionally, one single monitoring device (laptop, tablet, ...) may be brought (no complicated antenna construction or similar!)

D2.4 Cones & Markings for Autonomous Running

D2.5 Start-up Procedure for Autonomous Running

D2.6 Vehicle Break Downs and Usage of RES during Autonomous Running

D2.7 Procedure After Completing an Driverless Dynamic Event

D4 SKIDPAD EVENT

with the exceptions and additions listed below:

D4.2 Doesn't apply

D4.4 Doesn't apply

D4.5 Doesn't apply

D4.6.4 If a team's run time including penalties is below T_{max} , additional points based on the following formula are given:



$$SKIDPAD_SCORE = 96.5 \left(\frac{\left(\frac{T_{max}}{T_{team}} \right)^2 - 1}{1.25} \right)$$

T_{team} is the team's best driverless run time including penalties.

T_{max} is 1.5 times the time of the fastest driverless run of all teams including penalties

D5 ACCELERATION EVENT

with the exceptions and additions listed below:

D5.2 Doesn't apply

D5.4 Doesn't apply

D5.5 Doesn't apply

D5.6.3 If a team's best time including penalties is below T_{max} , additional points based on the following formula are given:

$$ACCELERATION_SCORE = 96.5 \left(\frac{T_{max}}{T_{team}} - 1 \right)$$

T_{team} is the team's best DV time including penalties.

T_{max} is 2 times the time of the fastest DV vehicle including penalties.

D6 AUTOCROSS EVENT

with the exceptions and additions listed below:

D6.2 Doesn't apply

D6.3 Doesn't apply

D6.5.2 If a team's corrected elapsed time is below T_{max} , points based on the following formula are given:

$$AUTOCROSS_SCORE_i = 140 \left(\frac{T_{max} - T_{team_i}}{T_{max} - T_{min}} - 1 \right)$$



$$AUTOCROSS_SCORE_{total} = \max(AUTOCROSS_SCORE_1, \text{avg}(AUTOCROSS_SCORE_1, \dots, AUTOCROSS_SCORE_n))$$

$T_{team,i}$ is the team's time including penalties of run i.

T_{max} is the time for driving the lap with 4 m=s.

T_{min} is the fastest corrected elapsed time of all teams

D8 TRACKDRIVE EVENT

with the exceptions and additions listed below:

D.8.3.4 If a team's corrected elapsed time is below T_{max} and the run was not DNF or DQ, points

based on the following formula are given:

$$TRACKDRIVE_SCORE = 225 \left(\frac{T_{max}}{T_{team}} - 1 \right)$$

T_{team} is the team's corrected elapsed time.

T_{max} is 2 times of the corrected elapsed time of the fastest vehicle over all runs.

D9 DYNAMIC EVENTS PENALTIES

with the exceptions and additions listed below:

D9.2 Doesn't apply

D9.3 Doesn't apply

D.1.1.2 [DV ONLY] Dynamic Events and Maximum Scores

Acceleration 100 points

Skid Pad 100 points

Autocross 150 points

Trackdrive 275 points

Total 625 points

D.15.4 Efficiency Scoring

D.15.4.1 [EV ONLY]

D.15.4.1.1 Energy efficiency is measured during the endurance event.



- D.15.4.1.2 The endurance energy is calculated as the time integrated value of the measured voltage multiplied by the measured current logged by the data logger. Regenerated energy is multiplied by 0.9 and subtracted from the used energy.
- D.15.4.1.3 Only vehicles which score points in the endurance event will receive points for efficiency.
- D.15.4.1.4 Teams whose corrected elapsed endurance time exceeds T_{max} receive zero points for efficiency.
- D.15.4.2 [CV ONLY]
- D.15.4.2.1 Efficiency is measured during the endurance event.
- D.15.4.2.2 Only vehicles which score points in the endurance event will receive points for efficiency.
- D.15.4.2.3 Teams whose fuel volume used during the endurance event exceeds 26 l=100km receive zero points for fuel efficiency.
- D.15.4.2.4 Teams whose corrected elapsed endurance time exceeds T_{max} as defined in D7.7.4 receive zero points for efficiency.
- D.15.4.2.5 Fuel pumps will be turned on and fuel valves will be opened to ensure complete refueling.
- D.15.4.2.6 The measured fuel volume of vehicles using E 85 fuel is divided by 1.4 to be comparable to the vehicles using 98 RON.
- D.15.4.3 [CV ONLY] The trackdrive energy is calculated based on following formula:

$$EN_{team} = V_{team} \cdot 3.55 \text{ kWh/l}$$

V_{team} is the team's corrected used fuel volume.

- D.15.4.4 The team's efficiency factor is calculated based on:

The efficiency factor is calculated based on the following formula:

$$EFFICIENCY \ FACTOR = \frac{T_{min} \cdot EN_{min}^2}{T_{team} \cdot EN_{team}^2}$$

T_{team} is the team's uncorrected elapsed driving time.

T_{min} is the fastest uncorrected elapsed driving time of all teams who are able to score points in efficiency.

EN_{team} is the team's corrected used energy.

EN_{min} is the lowest corrected used energy of all teams who are able to score points in efficiency.

- D.15.4.5 Efficiency points are calculated using the following formula:



$$EFFICIENCY\ SCORE = 100 \cdot \frac{\frac{0.1}{E_{team}} - 1}{\frac{0.1}{E_{max}} - 1}$$

E_{team} is the team's efficiency factor.

E_{max} is the highest efficiency factor of all teams who are able to score points in efficiency.

D.15.4 Efficiency [DV only]

NOT APPLICABLE