



FORMULA SAE[®] ELECTRIC

"Know Before You Go"

June 17 -21, 2025

Michigan International Speedway

Agenda

Mobility, Advanced™

- Review Competition Logistics
- Event Specifics
 - Design
 - Tech ME & EV
- Red Car
- Energy Meter
- FSAE Mobile App Use
- Scoring

Competition Logistics – Overall Site Layout

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Competition Logistics – Team Arrival

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- First Day Arrival – Enter off US 12 via guard shack at Gate 12
 - Volunteers will guide you to paddock assignment
- Teams will be given ONLY one parking pass which needs to remain with your FSAE transporter (box truck or truck/trailer combo)
 - No personal vehicles will be allowed to park inside the oval; all teams will park in MIS Fan Zone and enter via Pedestrian Tunnel
- Registration is in G1, and needs completed by all team members before unpacking of transporter
 - Have your Fast Track Roster completed

NEW for 2025: Only students with FSAE transport will be allowed in paddocks during initial team paddocking. All others will have to wait outside.

Competition Logistics – Team Arrival MIS FAN ZONE

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FSAE – Parking Plan

Gate 3 Entrance –

- Guests and volunteers would enter through Gate 3 and follow the green path to the general parking area in the Fan Zone.
- Guests wishing to use the ADA lot would follow the blue path to the ADA lot.
- The purple area would be an overflow area for parking if the general Fan Zone fills up.

Tunnel Entrance

- Those with proper credentials will follow the yellow path through the tunnel.



Competition Logistics – Team Arrival

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- Tuesday – 8:00 AM
- Wednesday – Saturday - 7:30 AM

Friendly Reminders:

1. If you need/want to paddock next to a specific team coordinate same time arrival.
2. The day you register; your accumulator MUST be onsite.



NO MATTER THE DAY – DO NOT ARRIVE AND START QUEING BEFORE TIME PUBLISHED ON SCHEDULE.

Competition Logistics – Team Departures

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Tues – Fri: Official Closing of Site is 7:30PM

Sat: Official Closing of Site is ~10:00 PM

Official Closing Time = You Must Have Exited the Event Site

- Does Not Mean “We start packing up the paddock and vehicle”
- All Parking Lots will be locked at 8:00 PM*

Make sure your accumulators are TURNED IN before leaving

Competition Logistics – Team Meetings/Events

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Tues, 6/17

- Welcome Meeting @ 5:15 PM

Wed, 6/18

- Faculty Advisors Reception

Thurs, 6/19

- Driver Meetings – Mandatory 8AM and 6PM
- Panoramic Photo – staging begins @ ~6PM

Fri, 6/20

- Driverless Demo: 8AM - 10AM
- Presentation Feedback Seminar @ 9:30 AM
- Empowering Women in Mobility Panel @ 11:30 AM

Sat, 6/21

- Public Design Review starts @ ~6:00 PM
- Awards Ceremony starts ~8:00 PM

Expectations – Come Prepared with Knowledge

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SAE has published numerous items online Competition Resources and updated FSAE Mobile App:

- Schedules
- Maps
- Tech Order Number
- Energy Meter Use Agreement
- Student Handbook
 - Event descriptions and operations
 - Paddock Rules
 - Event Site Review
- Scoring Files
- *Coming Soon...recorded link of this presentation*

Expectations – Dress Code

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Student engineering competition with focus on race cars = dress appropriately for the situation

- *Long pants are preferred but not required in most areas; when wearing shorts please be professional.*
- *Shirts are required.*
- *Closed-toe shoes are mandatory; anything open-toe you will be asked to change or leave.*

★ These rules also apply to your friends and family. Help them enjoy their experience by communicating these to them before their arrival.

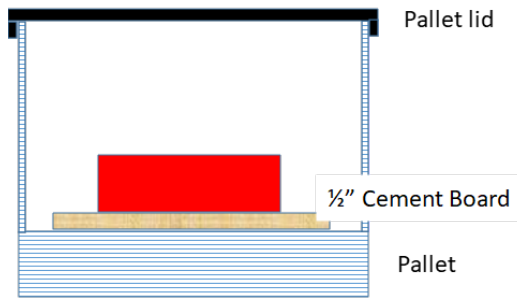


Michigan sees all types of weather (rain, snow, sun, wind) so come prepared. Keep in mind your future employer may be onsite ;-)

Expectations – Overnight Accumulator Storage

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- Mandatory: Accumulators must be stored in crate every night
 - Must be turned in before OR at deadline of 7:00 PM
- Failure to store crate overnight will result in expulsion from competition



Expectations - Accumulators at Static Events

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- HVD must always be removed.
- If accumulator has not passed accumulator tech it **cannot** be in the car or at the static event.

Expectations - Electrical Safety Officer (ESO)

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Where is the ESO required?

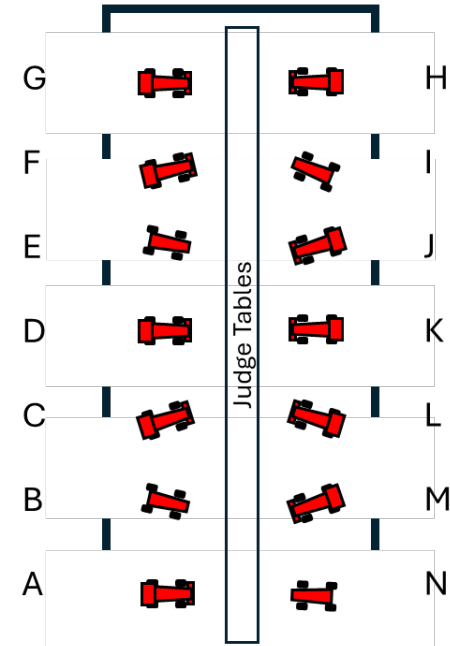
- Anywhere the accumulator goes before it has passed tech inspection
- Anytime the TS is activated
- What if ESO has other responsibilities?
 - Multiple team members can be qualified to be the ESO.
 - Only one member is the ESO at any given time as indicated by armband

Design Event

Event Specifics – Design Event

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- Located in Tent – North G3
 - Enter and exit through door for your Queue
- Car must be weighed before Design Event
- Car does not need to have passed Tech
- Accumulator DOES need to have passed Tech
- Car should be presented in “race ready” condition
- Be prepared to remove bodywork and wheels if/when asked
- Judges will stay on schedule. Be on time!



Layout Notional:
entrances may be on as
many as four sides of tent

Event Specifics – Design Event

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- Start with a ~2-minute introduction
- Judges will discuss subsystems with team members. Explain both “what” and “why”.
- Show your work: Laptops, binders, broken parts, photos, tables, plots, etc.
- Room in tent is limited. Display boards are permitted, but large displays can get in the way.
- After 45 minutes of discussion judges will take 15 minutes to write their notes.

Event Specifics – Design Event

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- Don't expect feedback during First Round Judging
- Design Judges will give feedback on Fri/Sat – an open discussion!
- Scoresheet is a tool to determine your Design score
 - Scoresheet Points \neq Design Event Points
- ~10% of teams invited to Design Finals
- During Finals, every Design Judge visits every team
- Feel free to talk with Design Judges post-event
 - They're here to guide, mentor and support your efforts
- Saturday Garage Hours 10AM – 1PM: discussions with any judges

Tech Inspection

Event Specifics – Tech Inspection

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- Review Event Description – Student Handbook
- Items to Bring with you – see Event Description
- Adjust the pedals to their frontmost position before arriving
- Bodywork removed if necessary to access:
 - Impact attenuator height (and condition)
 - Ultrasonic tube or monocoque panel measurement
 - Ride height from ground to lowest point of SIS

Event Specifics – Tech Inspection Numbers

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- Tech Inspection order is published on FSAEonline.com
- Number provided in your registration packet
 - 2 sets to use for EV and ME
 - Tape to Accumulator Container and Headrest
- Come to the Tech Marshall Tent near top of G2 (small white tent)
- Monitor the line - you may align yourselves in order by number
- Both Tuesday and Wednesday morning before Tech opens – if you are one of the first 20-30 numbers, start lining up and be ready to go

Event Specifics – Tech Line and Staging

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- Tech line coaches are there to assist and guide you
 - We will help guide you to where you need to go
 - Ask us questions
 - Let us know what you are looking for
- Please come to the line when tech numbers near yours are being staged
 - We will take the next lowest number that is staged, we won't wait for the missing number
 - We will take some teams out of order to support inspections
- We have limited room for staging, if you come too early, we will send you back to paddock
- The intent of this whole process is that your team will not have to stand in line all day

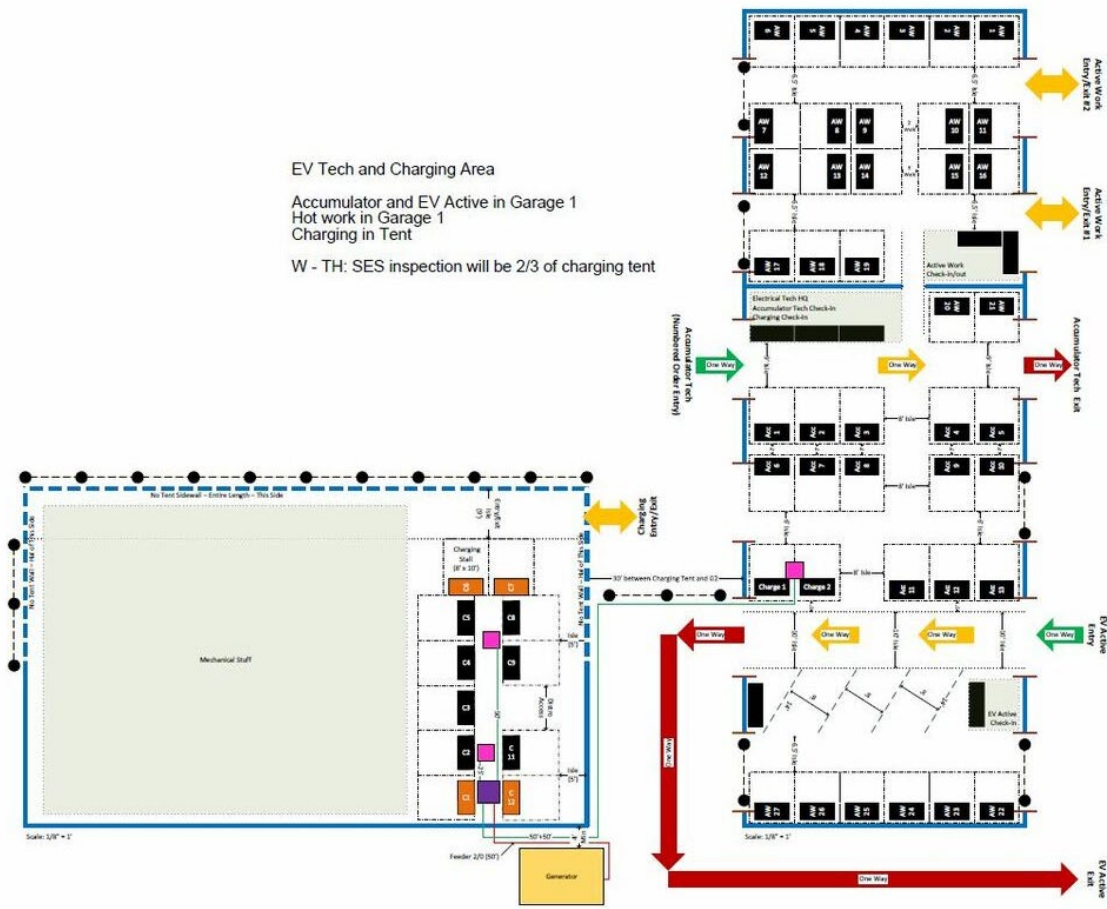
Event Specifics – Tuesday @ Tech

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- Accumulator Inspection Opens
- Accumulator Structural Inspection in Charging Tent First
- Then Stage to Enter EV Accumulator Tech in G2
 - Must have gone to Accumulator Structural first
 - Must have approved ESF to begin EV Accumulator Tech
- Priority for Tuesday is to get as many teams through EV Accumulator Tech as possible

Event Specifics – Tech Inspection Workflow

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Event Specifics – Wednesday @ Tech

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- Main Inspection Line Opens. Accumulator Inspection Continues same as Tuesday
- Structural Inspection in Charging Tent First
- Then Stage to Enter the Main Inspection Line in G3
 - Main Inspection will be “Assembly Line” style again this year
- Priority for Wednesday is to get as many teams through the Main Inspection Line as possible

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Event Specifics – Re-Tech

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- Later in the day on Tuesday and Wednesday, might have opportunity for Re-Tech
- Most Re-Tech starts Thursday
- Come back to the Tech Marshall Tent and let us know you are there for Re-Tech

Hot Work / Charging

Charging

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- Only allowed in provided charging location, from provided charging outlets.
- Teams will be allowed 1 outlet (either 120V/20A NEMA 5-20 or 208V/20A J1772)
- Must show steady/falling temperatures over last 15 minutes to leave charging area.

Hot Work

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- Energized electrical work is allowed ONLY in hot work area.
 - All work where $> 60V$ is exposed.
- Teams must provide and use proper PPE.
 - Including leather outer gloves on electrical gloves.
 - Safety glasses required at all times.
- All hot work must be approved by hot work area manager.
- Some operations may not be allowed.

Red Car

What is a Red Car

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Red Car = a vehicle whose electrical system is or may be compromised.

A Red Car is identified by the following:

- **Tractive System Status Indicator** indicates red (or fails to indicate green).
- **Physical damage** to the vehicle (anything that isn't body work)
- **Fire/thermal event** occurring or suspected.

Red Car Procedure

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Volunteers or Students should follow the steps below:

1. Shutdown car with red shutdown button
2. Get driver out of car
3. Radio for Red Car team and MIS Fire and Safety
4. Do not touch the vehicle.
5. Red Car team and MIS Fire and Safety will take over control of vehicle/situation.

Red Car Procedure

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What happens next:

1. Critical conditions will be remedied immediately.
2. Vehicle will be moved to red car area.
3. Work plan developed by team and approved by Red Team.
4. Vehicle returned to a safe state before it can leave the Red Car area.

Status Zero – New for 2025

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- If we do not have **ALL** the following available:
 - Red Car team
 - MIS Fire and Safety
 - EMS
- **ALL** site operations must **STOP**, including:
 - Dynamic events
 - Hot work
 - Charging
 - Tech Inspection
 - Paddocks
- Status Zero **WILL BE** called out on radio.

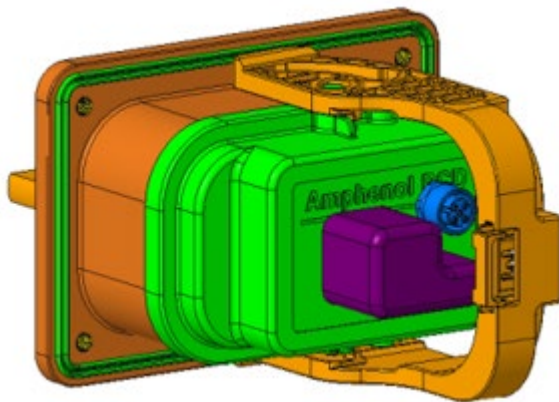
Energy Meter & Download Stations

Energy Meter – New for 2025

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Recap:

- New energy meter required for 2025
- Design based on an off-the-shelf 2-part service disconnect
- Teams all received free modified receptacle last fall
 - Teams were to design and ensure accessibility to download connector without having to remove any components or the energy meter



Energy Meter – New for 2025

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Teams will be given an energy meter at competition.

- Teams can request an energy meter on Tuesday when they register in G1 OR anytime throughout the competition.
- Teams will need to complete Energy Meter Use Agreement to receive energy meter
 - Available online Competition Resources
- Teams will need energy meter installed to pass technical inspection.

Energy Meter Download Station – New for 2025

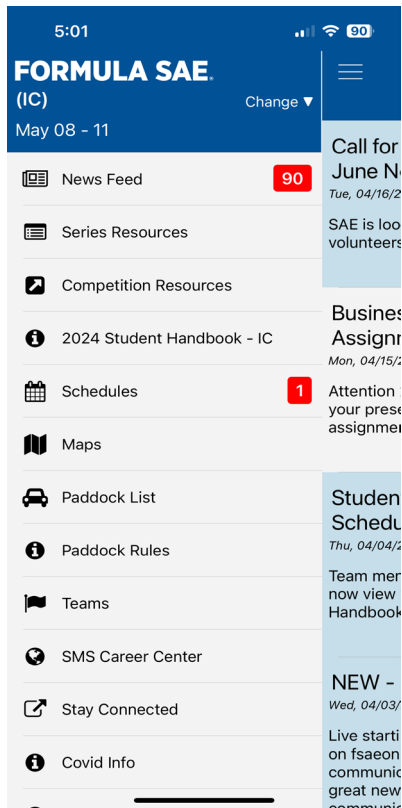
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- Download stations will be available at all short dynamic event areas, practice track and EV Tech
- Cabling to connect to download connector will be provided as part of the download station
 - Instruction guides will be available at each station
- Status and data available on results.fsaonline.com
- Teams will be responsible for downloading data and associating to dynamic runs before 6PM Friday for short dynamic events.
 - Volunteers will assist teams in downloading data post endurance and collect the energy meters from teams
- Download early and often!
- Check to make sure your data is recording!

FSAE Mobile App & Scoring

FSAE Mobile App – Staying Informed

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- Notifications
 - Emergency alerts
 - Schedule changes, etc.
- News Feed
- Student Handbook
- Schedules
- Site Maps
- Paddock Rules
- Live Results

PA Announcements via Loudspeaker on 91.5 FM

- Announcement requests can be made in G1

There will be Wi-Fi onsite however, it does NOT provide Internet Access. Serves more as an intranet vs internet.

Teams will need a US data plan

FSAE Mobile App – Scoring

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- Local Wireless Connection
- Check Results for your Team
- Leaderboards
- Problem Reports

FSAE Mobile App – Wireless Connection

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- Connect to the WiFi network "SAE-GuestsAndTeams"
- Password: welcometeams

This WiFi does NOT provide Internet Access



This information on the local WiFi network and access will be posted on signs at Michigan Speedway. Check with registration desk if any issues

FSAE Mobile App – Scoring

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Multiple ways to access the Results:

- Link from the Formula SAE App
- Go to: <http://mobile.fsaeonline.com>



You can check your results and see the leaderboards both at the event site and from anywhere! Your university and supporters can see results as they happen!

FSAE Mobile App – Results

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- Check Results for Your Team or other Teams
 - Results by Car
- See all Times for Events
 - Results by Event
- See Leaderboards for Each Event
 - Event Leaderboards
- Review Document Penalties
 - Results by Event

FSAE Mobile App – Results Posting

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- Static Results are posted once available, usually on Friday
- Document Penalty should be posted soon after we get onsite
- Dynamic Results posted as they happen, almost live!
- If Dynamic results do not get posted right away, do not be concerned. We have not missed your score!

FSAE Mobile App – Problem Reports

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- A Problem Report is a way for you to let scorekeeping know that there is an issue with your results
 - You submit the Problem Report
 - We will check on the issue and let you know
- You may submit Problem Reports anytime before the deadline, the sooner the better!
- If you question your Design, Cost or Presentation scores, please speak directly to your judges or the Event Captain before you submit a Problem Report



Problem Reports are Different from Protests. Follow the guidance in the Formula SAE Rules if you are considering a Protest

FSAE Mobile App – Problem Reports

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To submit a Problem Report:

- Click on one of the orange buttons in the Results
- Click on a generic “Report a Problem for a Result not listed here” if something is missing
- For More Details of Scoring and Problem Reports, see the separate presentation posted at fsaeonline.com

Final Questions?

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Recorded Link

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2025 FSAE (EV) recorded link below:
[Know Before You Go](#)