



ashwa RACING

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**NOVEMBER - DECEMBER
2025
EDITION**

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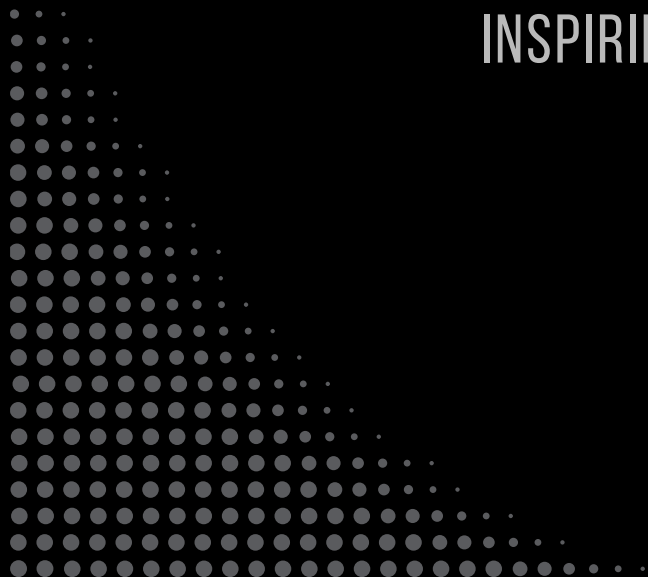


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**VISION
AND
MISSION**

GUIDING PURPOSE,
INSPIRING FUTURE.



> MISSION AND VISION <

VISION

- To be the national leader in all categories of Formula Student, to push the limits of engineering and compete in events at the highest level.
- To foster student mobility solutions in the future by developing sustainable prototypes across various domains.

MISSION

- Prepare students for the industry by designing and building world-class vehicles while facilitating industry interaction.
- Showcase India's engineering expertise in mobility on a global stage and provide talent opportunities for the industry.

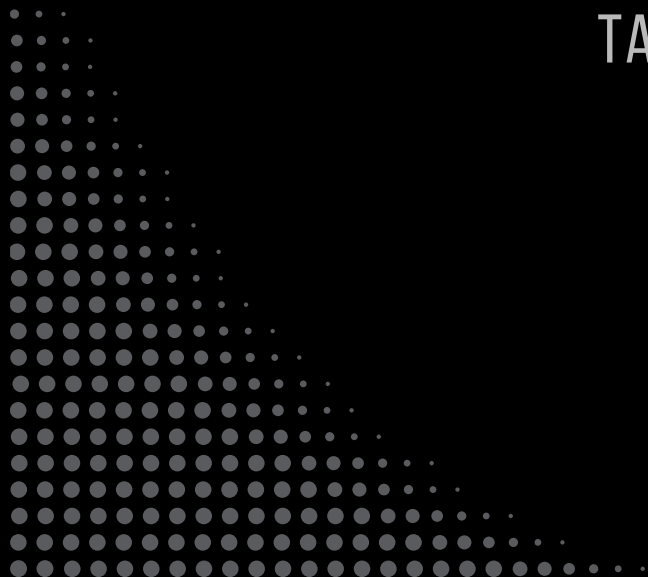


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**STUDENT
INDUCTION
PROGRAM**

IGNITING FRESH
TALENT.





STUDENT INDUCTION PROGRAM

1. Student Connect

Junior engagement this season began with the 2028 batch organizing an engineering activity for the 2029 batch, introducing basic structural and circuit concepts through hands-on tasks.

Non-circuit students worked in teams of five to design and build bridge structures using a fixed number of ice cream sticks and adhesive. Before building, they were caught up to speed on triangulation, its role in rigidity and load distribution, and its relevance to chassis and bridge design. Each team was then given one hour to complete their bridge.



Structures were evaluated on two criteria:

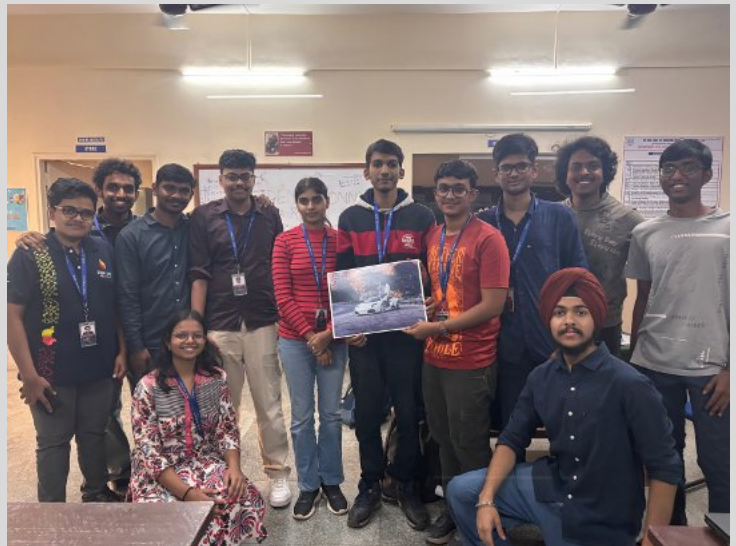
- Maximum load carried
- Number of sticks used

Scores were given on the strength-to-material ratio. Seniors from the 2026 and 2027 batches judged the event. The winning team received a Hot Wheels car, and the runners-up received posters.



Circuital students ran a two-stage competition called Electromaze. In Stage 1, teams of three navigated a maze by solving critical thinking questions at each junction, with points assigned by difficulty. The top two teams won an electronics kit (1st place) and posters (2nd place).

In Stage 2, teams solved three problem statements using basic logic gates and implemented their solutions on a breadboard with gates, switches, and LEDs. Due to time constraints, scoring was based on correct theoretical logic, and the top two teams were declared winners.



2. Recruitment

Recruitment tests for the 2029 batch were conducted in November on two separate dates for the juniors' convenience. Candidates who cleared the written test were interviewed by senior club members. The focus was on evaluating their understanding of the technology and science behind Formula Student, in addition to their overall fit for the team.

3. Icebreaker

Recruits from the 2029 batch who cleared the interviews were invited to an icebreaker session. The event began with an introduction to the club, followed by light-hearted games.

The session helped juniors:

- Learn about technical and non-technical subsystems
- Understand the club's work ethic and expectations
- Bond with their batchmates and future teammates

This warm welcome set the tone for their journey in the club and gave them a first glimpse of what being part of the team means.



FIGHTING FRICTION TOGETHER.



SKF
X
ASHWA RACING



SKF X ASHWA RACING : FIGHTING FRICTION TOGETHER

AB SKF (Svenska Kullagerfabriken) is a global leader in bearings, seals, and lubrication systems. Established in 1907, they hit the ground running with the invention and mass production of double-row self-aligning ball bearings. This innovative idea, among many others, is what has propelled their reach to over 130 countries worldwide today.

They have been committed to India since 1923, providing engineering solutions through their five technology-centric platforms: bearings and units, seals, mechatronics, lubrication solutions, and services. In 2011, by setting up a Global Technical Centre (GTCI) in Bengaluru, showcasing a strong commitment to research-based innovation. The focus here is on testing and on providing advanced technical knowledge for design, process and supplier validation. In addition, the centre conducts bearing analysis and has a fully equipped laboratory for metallurgy and chemistry, mechatronics, as well as a product investigation centre.



When it came time to select high-quality and effective bearings for our cars, the choice couldn't have been clearer.

We thank SKF for being a catalyst in not only our hopes and aspirations but also Formula Student Engineering in India, as a whole. Ashwa Racing is proud to be associated with you.



SKF



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**GARAGEHOLD
GREATNESS**

MOTUL
X
ASHWA RACING





MOTUL X ASHWA RACING: GARAGEHOLD GREATNESS

Motul S.A. is not just a brand; it's a legacy deeply ingrained in the automotive world, earning its place as a "garagehold name". With an enduring and rich history spanning over 170 years, it's not surprising that it is the automatic choice when the question of superior lubrication arises. Motul's sustained excellence serves as a powerful testament to its quality and reliability in the demanding field of high-performance fluids.

This commitment to comprehensive, cutting-edge product development is rooted in a deep-seated culture of innovation. It is precisely this shared dedication to pushing the boundaries of performance and technology that makes Motul S.A. an invaluable and close partner to Ashwa Racing. Inspired by the pursuit of ultimate performance on the track and driven by a relentless motivation to excel, the synergy between Motul and Ashwa Racing is a collaboration built on mutual respect and a shared vision for engineering excellence.

Motul are one of our key premier product sponsors. They have provided us with a huge range of products. Electrical Contact Cleaners which find specific use on our EVs, Throttle Body cleaners for the intake manifold of competing RZ-XX6C Combustion car, DOT 4 Brake fluids coursing through our brake hoses and last, but certainly not the least, their flagship 300V 4T Engine Oil for the race dominating performance our car is sure to guarantee.



We at Ashwa racing sincerely thank Motul for all these (among many more) products and their continued support with us. From before pre-race to post-race and everything in between, their spirits keep our spirits high!





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**FABRICATING
GREATNESS**

PEGASYS MACHINES
X
ASHWA RACING





PEGASYS X ASHWA RACING: FABRICATING GREATNESS

Pegasys Machines Pvt. Ltd. is a well-known manufacturer, supplier, and exporter in the machine industry, specialising in PC and PLC-controlled assembly that are designed to carry out different tasks such as controlling the automatic process in production lines, assisting varied cut to length machinery, and controlling temperatures in cold stores. Their products are widely recognized in the market for high performance, long-lasting life, and error-free designs.

Pegasys Machines serves several industries including electrical switchgear, automobile, refrigeration, air conditioning, engineering, and even the pharmaceutical industry. Among their range of services Shaft Straightening Machine, Automatic Shaft Straightening Machine, Crack Detection, Multi Point Shaft Straightener, Small Shaft Straightening Machine, and Assembly stand out.

Quality and innovation are central to the company's growth. They have their very own Quality Control Unit and an ultra-modern manufacturing setup built as per international standards to ensure customization capabilities, durability, competitive pricing, timely delivery and precision to all its clients. With this vision, to provide for their clients, Pegasys Machines continues to develop business relations with a foundation based on honesty, transparency, and dedication.

When it came to partnering up with Pegasys Machines, we were delighted to onboard them as our silver-tier sponsors.

Thank you Pegasys Machines for your support. We are proud to be associated with you and hope to continue this partnership long into the future.





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BEYOND THE BUILD

COMPLIANCE,
CAPABILITY &
CONTROL





BEYOND THE BUILD: THE JOURNEY TO THE STARTING LINE

Photo Submission — Locking in Compliance Before Competition

The Photo Submission is considered one of the first milestones that need to be accomplished within the Formula Bharat competition timeline. This is a mandatory pre-event requirement where teams are tasked with submitting a set of high-resolution photos that demonstrate the car in its final form.

These photos include all normal angles of the car, along with close shots of key safety and technical features like the hoops, harness points, firewall, kill switches, driver ergonomics, and controls. These photos are meticulously assessed by the team of technical and safety inspectors of Formula Bharat to ensure that the car conforms to the rules before the team comes to the event.

At the level of the team, this procedure is more than just a matter of paperwork. It is a first-stage technical audit, alerting the team to possible non-compliances and possible safety concerns well before they become a problem on-site. It is a far more effective way to nip problems in the bud, both on the site visit and in competition. The successful completion of the photo submission is a critical stage in advancing the combustion chassis from the stage of completion through to competition.



Vehicle Status Video — From Assembly to Race-Ready

Technical requirements identify the Vehicle Status Video (VSV) submission with the objective of proving the vehicle is more than assembled, it is fully functional and capable of dynamic motion. Formula Bharat calls for a 60-second video that needs to have the following: engine startup, at least a 30-meter forward translation, a 180-degree turn, the translation back to the beginning, and a complete shutdown.

Although the criteria seem simple, the process to achieve them requires great planning and coordination. The integration of the systems, electricability, drivetrain performance, braking, safety features, and the setup on the track come into consideration. This phase clearly underscored the difference between owning a car and owning a racing car.

To ensure they submitted their work without any issues within the stipulated deadline, they had to stay back and do their final checks, rehearse, and film their VSV. The VSV was recorded, and they were able to submit their work a day before the deadline, which was a great milestone in their build process and confirmed their combustion vehicle was ready for use.

Driver Selection – Precision, Consistency, Control

The process for selecting the drivers was carried out in a structured, performance-oriented manner. Given the ergonomically designed cockpit meant for a height ranging from 5 ft 8 in to 5 ft 10 in, the preliminary filtering was based on physical compatibility. They were also expected to have a low weight, with the best possible under 65 kg, but under 60 kg was considered a priority.

Interested individuals were shortlisted on these parameters, after which six candidates moved to the final selection level. Dynamic performances were judged by means of time trials on 270cc and 400cc go-karts, where all individuals had to complete six laps on each category. If the candidate had an accident while driving, it resulted in immediate disqualification, thereby justifying the need to handle the karts cautiously.

While the assessment carried out is based on outright speed, it also included the aspects of consistency, vehicle control, as well as the ability to handle the pressure. After this, four drivers had to be selected, two of whom would be from the mechanical team, while the other two would be from the electrical team.



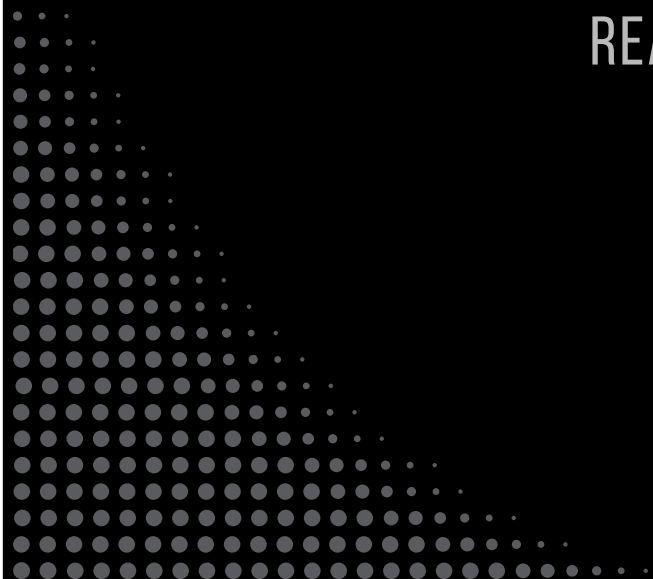


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PROGRESS IN MOTION

THE MILESTONES
REACHED

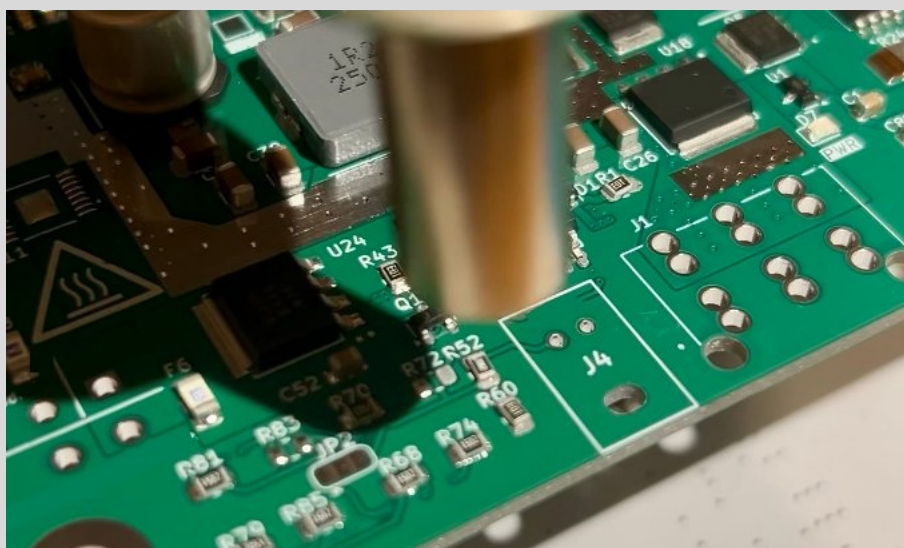




PROGRESS IN MOTION: ELECTRICAL, POWERTRAIN, AND SYSTEMS MILESTONES

PCB Assembly and Electrical Testing

All procured components were populated and soldered onto their respective PCBs using the hot air reflow technique. To streamline the workflow and meet project timelines, PCB assembly was distributed across three dedicated assembly substations operating in parallel. Over the course of three weeks, a total of 45 PCBs were assembled, covering multiple subsystems of the vehicles. Following assembly, each board underwent systematic electrical testing and functional verification to identify any manufacturing or soldering defects early in the process. All assembled boards passed testing and were confirmed to be operating as intended.



Assembly of Power Distribution Unit

Motor Controller Enclosure Design & Manufacturing

The new motor controller casing, which was designed to address both packaging and thermal management requirements, was manufactured and assembled. The enclosure was engineered to securely house the inverter while maintaining compliance with mechanical and electrical safety standards. A key feature of the new design is the integration of custom cooling channels, specifically tailored to improve heat dissipation from the inverter's IGBTs during high-current operation.

Competition Document Submission

The ESF-1 (Electrical System Form 1) provides a high-level overview of the vehicle's electrical system and key safety concepts, including the accumulator setup, shutdown circuitry, insulation monitoring approach, and major tractive system components. Rather than being a complete or final system design, it is used by the judges to identify potential safety or rules concerns early in the season, before detailed technical inspection. This year, the team submitted the ESF-1 ahead of the deadline, earning early-submission bonus points, and received positive feedback from the judges for several of the design choices made, reflecting the strength and thoughtfulness of the team's approach.

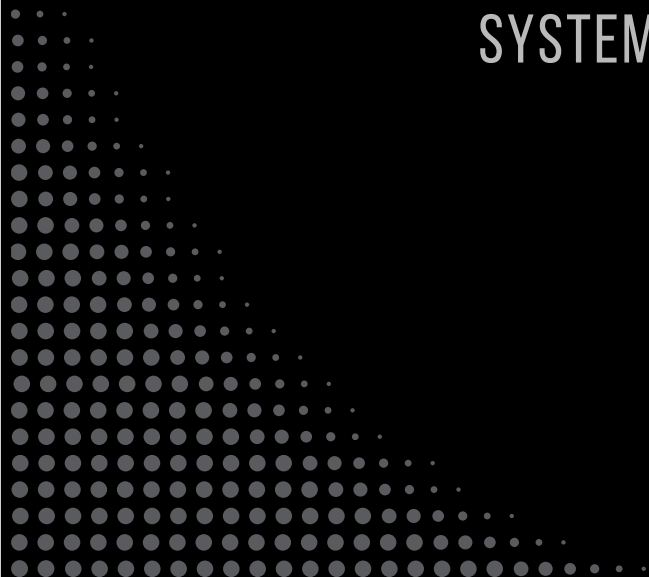


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ELECTRICAL SAFETY BRIEFING

HIGH VOLTAGE
SYSTEMS BRIEFING





ELECTRICAL SAFETY BRIEFING: DO'S AND DON'TS FOR A SAFE WORK ENVIRONMENT

For a team building high-voltage powertrains, what makes our car fast is also one of the biggest risks we deal with. Educating team members on the basics of HV systems and the precautions to be taken are the first steps towards building a safe and vigilant workspace.

Hence, a briefing session was conducted by Dhruva Kashyap of the '26 Batch, lead of Electrical and Testing at Ashwa Racing.



The session started off with understanding what HV means to us in the context of the accumulator. It was made clear that negligence towards it would lead to fatal mistakes.

Topics such as contact area and moisture conditions were covered. The Key takeaway was that minute amounts of currents are sufficient to overwhelm the nervous system to render no muscle control at best and cause ventricular fibrillation at worst.

We were also briefed about the various safety indicators and how to interpret them.

The agenda of this briefing was to inform the team on the risks, precautions, and countermeasures concerning High Voltage Systems. The session ended on a lighter note with a quiz for all the members to answer to recap the session and enhance our understanding of the EV's electrical unit.



NOVEMBER - DECEMBER EXPENSES

EXPENDITURE	AMOUNT
Motor Service and Inbound Logistics	₹62,638.00
Suspension Rod End Inserts	₹27,273.00
Registration for 'Formula Hybrid+Electric'	₹260,970.00
Components for Power Distribution Unit	₹18,997.00
PCBs for AMS,PDU, and Logic Controllers for DAQ	₹10,203.00
Polycarbonate Sheet for Accumulator Segments	₹18,821.00
Tires	₹288,688.00
Brakes	₹70,977.00
Hub Bearings	₹30,621.00
Aluminium for Accumulator Segments	₹11,187.00
Aluminium for Drivetrain	₹16,783.00
Waterjet Cutting	₹11,496.00
Race Helmet	₹18,252.00
High Voltage Charger	₹61,688.00
Driver Safety Equipment & Impact Attenuator	₹74,382.00



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(2025-2026)**

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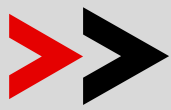
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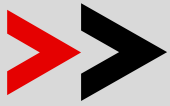


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**TEAM
DIRECTORY
2026**

DRIVEN BY PASSION, UNITED BY ENGINEERING—
THIS IS ASHWA RACING!

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Dr. Ravindra S. Kulkarni

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