



INDIAN SUPERKARTING SERIES

PRESENTS

**INDIAN SUPERKARTING
SERIES**



SEASON-3

SEASON - 3

RULEBOOK

IC & E-Kart

Get ready to race down the adventure again

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1. Organization and Championship

1.1. INDIAN SUPERKARTING SERIES

Are you a Motorsports enthusiast?

If yes, then witness the soul stirring action of Country's best Karts competing each other to wrap the charcoal track with the fumes of rage and dullness, Get a chance to design the dream, fabricate in reality and in all, fuel it with sweat and passion, sheer determination and unruffled nerves to the heathen clocks challenging you Design your own Kart, fabricate it and battle at our tracks but make sure we are not just looking for the race lovers but Engineers, skill yourself with the finest of technicalities with your vehicle. It's not the burger which excites you, it's the Engine Roar.

Don't believe us. The basic outline of event consists of designing and fabricating a go kart and then competing with these go-karts in the final race. All the participating teams will have no bars for creativity and innovation with few restrictions mentioned in the Rule Book. The real essence of the event lies in the sheer engineering practical application and tests in real time.

Each team is competing to have its design accepted for manufacture by a fictitious firm. The students must function as a team to design, innovate, build, test, promote and compete with a vehicle within the limits of the rules. The vehicle and associated documentation must be researched, designed and fabricated by the team members without direct-indirect involvement of professionals and faculty. Proof of manufacturing (photograph/video) can be asked to present at any time during the event. Vehicles, which have been professionally fabricated, may be penalized heavily or even disqualified from the competition. The decisions of the organizing committee in this regard will be final. Team must also generate financial support for their project and manage their educational priorities.

1.2. Organizing Committee

The organization provides a platform to young enthusiasts, engineers and car lovers to showcase their talent at a grandeur stage. Racing is not just about speed but more about how you survive breakdowns and the best way to do so is by competing with the best. HINDUSTAN MOTOR SPORTS and MIT GROUP OF INSTITUTES, UJJAIN jointly organize motorsport events where you can learn and earn while having fun. The organization fosters innovation and provides students with an opportunity to be recognized at national level for Research and Development careers in automotive engineering. Now it is the time to challenge your potential and experience the thrill by competing with the best minds of the nation. Design, innovate, learn and get ready to pull the throttle and win accolades across the country. Organizing committee holds all the rights to change the venue, dates, Prize Money of the event with the prior information of about one week.

1.3 Judging Criterion

The Karts are judged in a series of static and dynamic events including technical inspection, cost presentation and engineering design, solo performance trials, and high performance track endurance, the dynamic events are scored to determine how well a Kart performs. Each dynamic event has specified minimum acceptable performance levels in the scoring equations possible that will be declared/uploaded later in the team accounts. The following points are

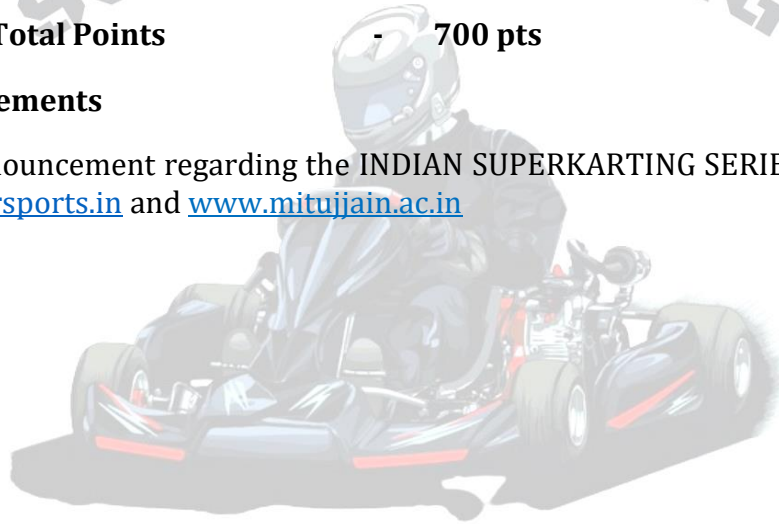
Static Events	Design Evaluation	-	200
	Business Presentation	-	100
	Cost Analysis	-	100
	Total Points	-	400 pts

Dynamic Events

Skid Pad	-	150
Auto cross	-	150
Acceleration	-	150
Endurance	-	350
Total Points	-	700 pts

1.4 Official Announcements

The entire official announcement regarding the INDIAN SUPERKARTING SERIES will be published on www.hindustanmotorsports.in and www.mitujain.ac.in

**SEASON - 3**

2. ISS-3 Rules and Organizer Authority

2.1. Rules Authority

There are several rules, regulations and restrictions which are to be followed by participating teams. Organizing Committee is having right to impound each and every rule associated with the event. Violation anyone of the participating member or team may be liable to be penalized severely, inclusive of and up to debarring of the team from the competition at any age or withdrawal of award/awards, as well. Ambiguities or questions concerning the meaning or intend of these rules will be resolved by ISS-3 organizing committee during competition onsite

2.2. Rules Validity

The rules will be same throughout the event. However, amendments (if any) will be made known to all the participating teams

2.3. Rules Compliance

By registering for this event the team members of the team as individuals, faculty advisors and other personnel of the college/university agree to comply with and will be bounded by these rules, interpretations or procedures issued or announced by INDIAN SUPERKARTING SERIES 2024. All team members, faculty advisors and other university representatives are required to cooperate with, and follow all instructions, penalties and results from competition organizers officials and judges, Disputes if any are subject to Faridabad jurisdiction only.

2.4. Loopholes

It is virtually impossible for a set of rules to be so comprehensive that it covers all possible questions about the vehicle's design parameters or the conduct of the competition. Please keep in mind that the safety remains of paramount importance during ISS-3 so any perceived loopholes should resolved in the direction of increased safety/concept of the competition.

2.5. Participating in the competition

Teams, team members as individuals, faculty advisors and other representatives of a registered college/university who are present on-site at the competition are considered to be "participating in the competition from the time they arrive at the event site until they depart the site at the conclusion of the competition or any act which shows their non-participation or earlier by withdrawing

Failure to submit any of the required documents (virtual round presentation, FDR and TI sheet) within 3 days of the deadline will constitute an automatic withdrawal of your team.

On 4th day your team registration will be cancelled and in no any circumstances refund adjustment in cash or kind cannot be done.

Teams which do not appear in -

1. Virtual round

2. Onsite Technical Inspection and Dynamic round

Even on proper eligibility within stipulated time shall not be eligible to appear in the next level of the event.

2.6. Right to Impound

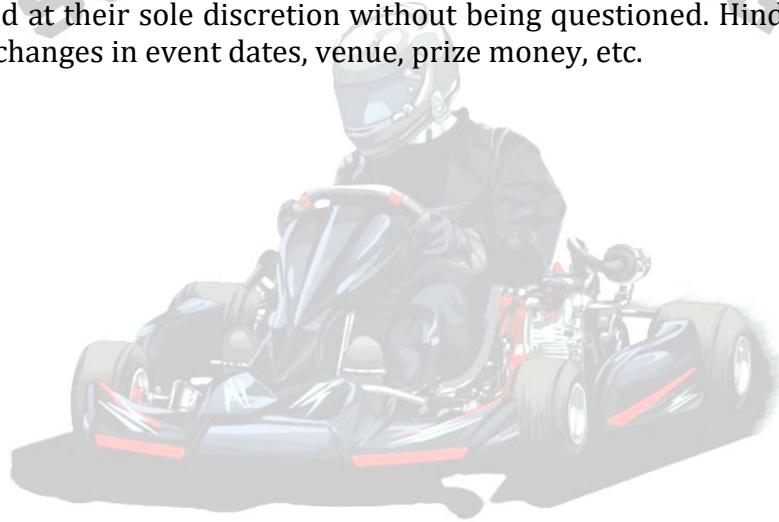
HINDUSTAN MOTORSPORTS/ISS reserves the right to impound any onsite registered vehicle at any time or at the stage during the competition for inspection and the examination by organizers, officials and technical inspectors.

2.7. Violations of Intent

The violations of intent of rule will be considered a violation of the rule itself. Questions about the intent or meaning of a rule may be addressed to the organizers.

2.8. General authority

ISS-3 organizing committee reserves the sole rights to revise the schedule or venue of the competition and interpret or modify the competition rules at any point of time and in any manner that is in their sole judgment, required for the efficient operation of the event or the ISS-3 as a whole. Also if the organizers find it to re-conduct the certain round or event in case of any disputes, confusion, failure in maintaining. Strictness or any other reason, then the organizers have full authority to reorganize event/particular round at their sole discretion without being questioned. Hindustan Motorsports has all the rights to make changes in event dates, venue, prize money, etc.



SEASON - 3

3. Eligibility

3.1. Team Requirement

The team registering for INDIAN SUPERKARTING SERIES must have a Team Name, Team Logo, Team Captain and the Faculty Facilitator. Maximum five teams register from one College and in case of multiple registrations from a single College Team Name, Team Logo and Team Captain must be different but the Faculty Advisor can be same. And a team can comprise of members from different colleges. Maximum allowed colleges in a team are three. Faculty facilitator can be chosen from any of the colleges there cannot be more than 25 members in a team under any circumstances.

Eligibility Criteria-Eligibility is limited to undergraduate and graduate students from engineering degree/diploma to ensure that this event is an engineering competition rather than a race, our sole motive remains the honing up of engineers and encouraging better engineering practices. Individual members of a team participating in this competition must satisfy the following requirements. Team members must be enrolled as degree seeking undergraduate or graduate students in a college or university. All those team members who have registered while still being enrolled in a UG course are eligible to participate in the competition (Team members who have graduated before the year 2024 or in are not eligible to participate).

Faculty Advisor Requirements- Each team is expected to have a Faculty Advisor appointed by the university. The faculty advisor is expected to work as a team advisor and is not allowed to interfere during static and dynamic events. Faculty advisors should not get involved directly or indirectly in design, build or repair any parts of the vehicle & ensure it is done by participating students only.

3.2. Registration Requirements

Team Registration Online registration will be open 24x7 on our website www.hindustanmotorsports.in & www.mitujain.ac.in from 26th January 2024. Once the team has been registered online, the payment must be done within 7 working days from the date of registration (In case of payment failure within the due dates, online registration will be cancelled)

3.2.1. Registration Agreement

By registering in ISS-3 the Team Captain/Team Member/Faculty Advisor/College Management must agree with the rules and regulations. They understand that all the information provided in the registration documents and online registration forms are correct to the best of their knowledge Also, they accept that team would undertake all the activities without the help of a professional directly or indirectly. In case of violation of rules and regulations specified in this Rule Book, the team is liable for disciplinary actions as per the decision of the Management. The amount deposited by teams is non-refundable.

3.2.2. Registration Fee

Registration fees of Rs 20,000/- per team (All inclusive, up to 25 members) non-refundable or adjustable in any circumstances. For extra member, Rs. 650/- per member (Maximum extra members that can be added is 5 i.e. the team size cannot be more than 30 in any case) and the option adding the extra members more than 25 will be available after the register phase.

3.2.3. Mode of Payment

The account details for submitting registration amount will be sent to teams on their particular mail id after submitting registration form.

3.3. Driver's Requirements

3.3.1 Age

Every Team is supposed to have two drivers and both the drivers of the team must be at least 18 years of age.

3.3.2. Driver's License

Each driver must have a valid Driver's License (Four Wheeler) issued by the Government of India (Learner's License not allowed). Both drivers must provide a license copy when insisted by Technical Committee.

3.3.3. Driver's Safety Gear

The following are the minimum requirements and restrictions that will be enforced through technical inspection, at any stage of competition. Noncompliance if any observed by the inspection/organizing/judging committee members must be corrected and no vehicles without passing the technical inspection would be allowed to participate further in the event. All the parts of Driver's Safety Gear must meet the required rating (specified). No driver would be allowed to drive the vehicle without the complete driver's safety gear in any of the dynamic event. All the safety gears shall have manufacturers labeled attached with a month & year of manufacturing, which is mandatory. Without label and invoice, teams will not be allowed to participate.

The complete driver's gear of ISS-3 will consist of the following items:

3.3.3.1 Driver's Suit

A fire resistant one piece suit, made from a minimum of 1-layer that covers the body from the neck down to the ankles and the wrists. The suit must be certified to either one of the following standards and be labeled as such: SFI 3-2A/1 (or higher) FIA Standard 1986.



3.3.3.2 Underclothing

It is strongly recommended that all drivers wear fire resistant underclothing (long pants and long sleeve t-shirt) under their approved driving suit. This fire resistant underclothing should be made from an acceptable fire resistant material and should cover the driver's body completely from neck down to ankles and also the wrists

Note: If you don't wear fire resistant underclothing, it is strongly recommended that you wear cotton under clothing (t-shirt and long underpants) under approved driving suit.



3.3.3.3 Helmet

A well-fitting closed face helmet that meets one of the following certifications and is labelled as such Dot, Snell K2000, K2005, K2010, M2000, M2005, M2010, and SA2000. SA2005, SA2010 SFI 31.2A. SFI 31.1/2005 - FIA 8860-2004 FIA 8860-2010- ISUBIS rated.



Open-faced helmets are not allowed. All helmets to be used in the competition must be presented during Technical Inspection where approved Helmets will be stickered. The organizer reserves the right to impound all non-approved helmets until the end of the competition.

3.3.3.4 Neck Support

The use of neck support is mandatory. The neck support must be a full circle (360) and SFI rated. Horseshoe collars are not allowed.



3.3.3.5 Gloves

Leather gloves with extra foam are acceptable.



3.3.3.6 Shoes

Fire resistant shoes made from acceptable fire resistant material. Shoes must be certified to the standard and labeled as such SFI 3.3 or higher FIA 88562000.

Note: Sport shoes / Canvas shoes /Leather shoes / Industrial safety shoes are not allowed at any point of the event.



3.3.3.7 Socks

Fire resistant socks made from acceptable fire resistant material or cotton socks that cover the exposed skin between the driver's suit and the boots/shoes.



3.3.3.8 Balaclava

Only SFI Rated Balaclava is allowed.



3.3 Vehicle Requirements

3.4.1. Chassis Design Requirements

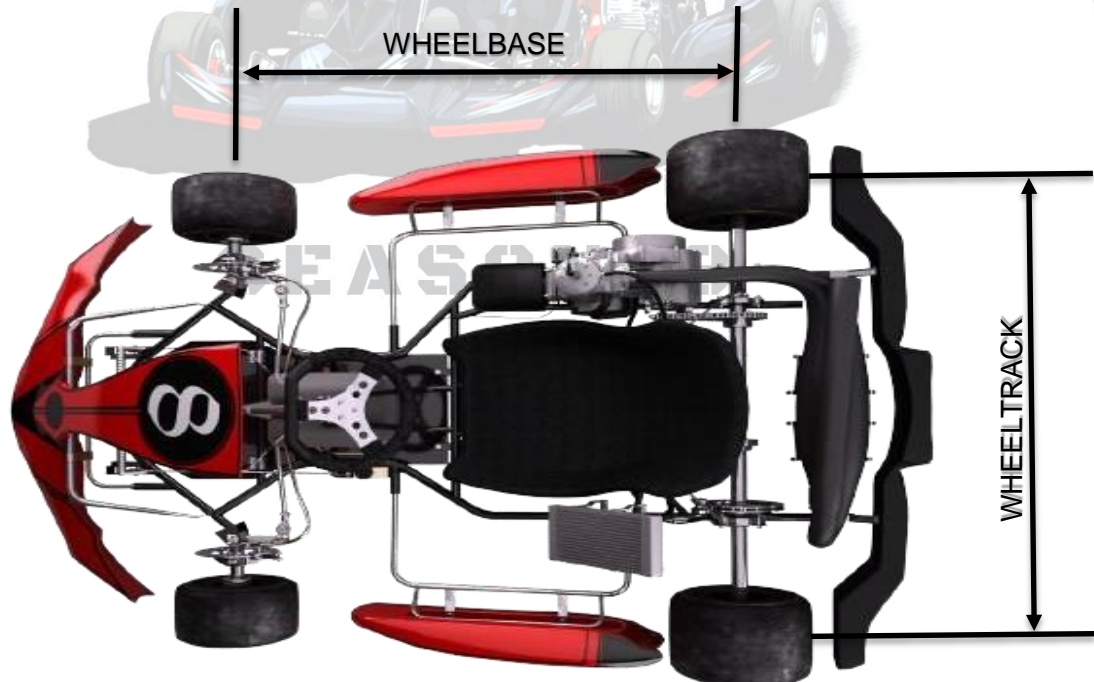
The vehicle must necessarily have four (4) wheels not in a straight line. The mountings and designing of chassis should be such that there should be **minimum 2 inches (gap) clearances between the driver and any component** of the vehicle in static and dynamic condition hands, torso, thigh etc. Body parts making contact with the parts at normal seating position are excluded from the rule. The **overall length must be less than 76 inches, overall width must be less than 60 inches** and the **maximum height should be less than 50 inches** from the ground. Any gaps or Holes in chassis are not permitted.

3.4.2. Chassis Material

The tube/rectangular pipe used in the fabrication of the chassis or the other frames/supports may be seam or seamless. **Minimum cross section must be 1 inch (25.4 mm)**, for pipe it will be OD and for rectangular section or square section, it will be its minimum height. Chassis material must **have minimum wall thickness of 1.5 mm**. Material certification is essential required to be produced during the technical inspection. Material should be certified from any of the material testing laboratories for its chemical and mechanical properties, the same report should be presented at the time of inspection and throughout the event.

3.4.3. Wheelbase and Wheel Track

The vehicle must have a **wheelbase maximum up to 65 inches & minimum wheelbase can be according to team's design requirement** and **wheel track (front or rear) must be no less than 60%-85% of the wheelbase of the vehicle. Maximum wheel track (front or rear) should not exceed 55 inches.**



3.4.4. Ground Clearance

With the driver onboard there must be a **minimum of 25.4 mm (1 inch) of static ground clearance** measured from the lowest point (except tyre) of the vehicle, under the complete vehicle (like chain sprocket, brake disc in ground clearance would be entertained).

3.4.5. Bumper (Front and Rear)

Bumpers must be installed in the front and rear of the vehicle such that they cover the tyres and protect them from any collision which may occur on the track. They must be made of S.S or M.S tubes. **Minimum OD inch (25.4 mm) and minimum wall thickness 1.50mm.** Bumpers must have proper accessibility for use as towing point or where temporary rope or harness can be tied for towing purpose. **Use of Aluminum material is not permitted.**

3.4.6. Suspension

Strictly Prohibited.

3.4.7. Steering System

The steering system must be able to control (simultaneously) at least two (2) wheels. The steering system must have positive steering stops that prevent the steering linkages from locking up either in RH or LH turning the inversion of a four-bar linkage at one of the pivots). The stops may be placed on the spindles or chassis or on the rack and must prevent the tires from contact in body or frame members during the dynamic events. Allowable total steering system free play (inclusive of play in all the steering linkages) is limited to seven degrees, measured at the steering wheel. The steering wheel must be mechanical connected to the front wheels, i.e. Steer by-wire or electronic steering prohibited. **Minimum turning radius should not exceed 2.5m.**

3.4.8. Braking System

The brake system installed must be capable of stopping the vehicle in a straight line without losing control during the brake test. The vehicle must have hydraulic braking system and the pedal must directly actuate the master cylinder through a rigid link tic, cables are not allowed). All brake lines must be securely mounted and not fall below any portion of the vehicle. Electronic braking systems are strictly prohibited. In case of any wheel to disc brake mechanism bleeding ports for disc caliper should be upside to that of piston mechanism of caliper. There should be no leakage from the tandem master cylinder (TMC) or reservoir.

3.4.9. Pedals and Lever

In any case, pedals must never protrude forward of the chassis including bumpers. Pedal footrest must be provided. Pedals should not tend to bend on the application of force during dynamic events. Pedal size should be according to the driver's foot Karts with manual transmission system are allowed to use gear lever system of either mechanical linkage or wire cable type Movement of gear lever links wire cable must not be restricted by any other component and should maintain a significant clearance with every component nearby

3.4.10. Visibility Requirement

The engine compartment must be completely visible to examiners.

3.4.11. Fuel Tank and its position

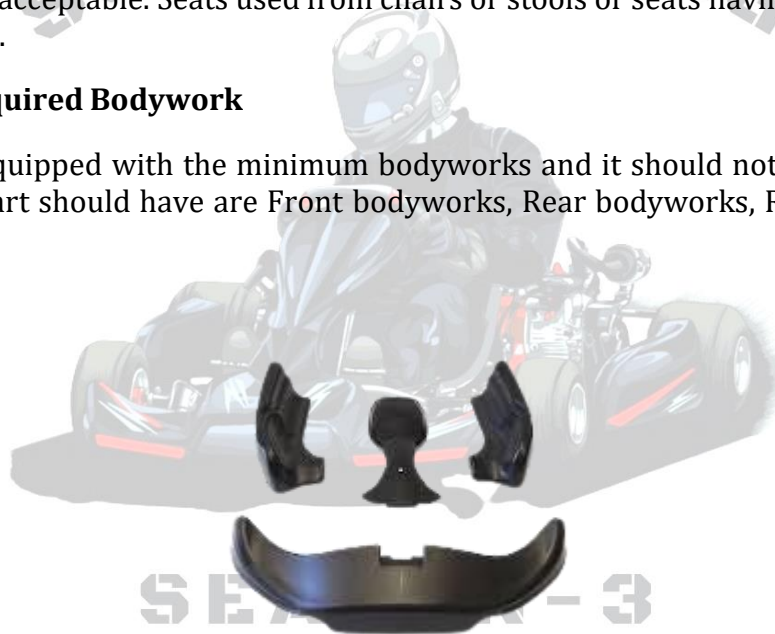
The capacity of the fuel tank can be up to max 5 liters in volume. The placement of fuel tank should be such that it maintains a proper distance from the engine and also it should not be above the battery. It must be securely fixed to the chassis and be designed in such a way that neither it nor the fuel pipes (which must be flexible present any danger of leakage during the event. A quick attachment to the chassis is strongly recommended. The tank shall in no way be shaped to act as an aerodynamic device. The fuel feed system to the engine must be the same as provided by the manufacturer of that engine. There must be a fuel volume indicator to display the volume of fuel inside the tank.

3.4.12. Driver Seat

The seat mounting must be rigid enough to withstand the various forces that the vehicle will undergo while the go-kart is being driven on the track. **The driver seat should be at least 1 inch away from the firewall's each and every corner.** The Driver's seat must be designed in such a way that it prevents lateral motion of the driver when multidirectional forces act on him when cornering braking. The seat must not protrude below the lowest plane of the chassis frame. Under any condition what-so-ever. Only go-kart bucket seat is acceptable. Seats used from chairs or stools or seats having height from floor pan are strictly prohibited.

3.4.13. Minimum required Bodywork

Every kart must be equipped with the minimum bodyworks and it should not be made of metal. The body parts which a kart should have are Front bodyworks, Rear bodyworks, Right side bodyworks & Left side bodyworks



Please note that only self-fabricated bodyworks are considered for evaluation of the winner for aesthetics. The teams are free to design any type of bodyworks but the minimum requirements must be fulfilled.

3.4.14. Brake Light

The vehicle must be installed with a brake light red in color which is clearly visible from the rear. If an LED brake light is used, it must be clearly visible in very bright sunlight. This light must be mounted between the wheel centerline. All the electrical connections done must be well insulated and should be tied properly.

3.4.15. Exhaust System

The exhaust system should be so chosen such that it reduces down the emission of harmful gases from the exhaust. Use of suitable catalytic converter and the mufflers is recommended. The exhaust system must be properly shielded preventing the delicate parts which may get affected if exposed to the heat. The exhaust must be mounted properly to avoid the physical contacts of the viewers or the technical inspectors. **Shielding to exhaust pipe with cotton rope, jute rope is strictly prohibited.** Team can use metallic porous sheet to cover the exhaust pipes. The shielding of exhaust must be such that it does not cause hindrance in the heat dissipation of exhaust pipe and also shielding guard should not have any direct contact with the exhaust.

3.4.16. Kill Switch

The electrical system must include at least two kill switches. The kill switches must deactivate the engine ignition. The kill switches must NOT deactivate the brake light. Kill switch must kill the engine on pressing only, not on pulling

Kill switches locations-

(A) Cockpit Switch The cockpit switch must be located in the front of the cockpit within easy reach of the driver. The switch must not be mounted on a removable steering wheel assembly

(B) External Switch The external switch must be mounted on the driver's right side of the vehicle the switch must be within easy reach of track marshals, the switch must be mounted rigidly, with no sharp edges nearby.

3.4.17 Wheels & Tyres

Only Go-kart standard tyres must be used.

3.4.18 Lock Nuts

Locking nuts are mandatory to be used everywhere in the vehicle.

3.4.19. Bolts

All bolts used in the system must meet metric grade M8.8. No fastener used should be less than 8.8 hardness. Thread lockers spring washers are prohibited. All fasteners used should have minimum three (3) threads showing past the nut.

3.4.20 Fire Extinguisher

Each team must have at least two (2) no's of fire extinguisher each of 1(one) KG ABC type. One fire extinguisher must be mounted on the kart within the reach of driver and other with a team representative accompanying the kart throughout the event. Fire extinguisher should be in proper working condition. It should be accompanied with a sticker or a bill clearly mentioning its expiry date.



3.4.21. Path for Wires and Pipes

No pipelines/wire connections must go under the chassis. It is strictly prohibited. Doing so may lead to disqualification of the team.

3.4.22 Firewall

Firewall is a boundary which protects the driver from the heat produced by the engine. So, the firewall must be made up of a suitable material which can solve the purpose. It should be made in such a manner that driver's body parts are not affected by the engine heat at any time during the dynamic/static condition. There should be **minimum 3 inch clearance between the firewall and the engine cylinder block** and minimum 1inch clearance between the firewall and other parts of engine. There should not be any part of chassis member or any mounting in the 1inch clearance between the firewall and engine.

3.4.23 Unstable Vehicle

Any vehicle exhibiting handling issues or other vehicle dynamics that are deemed unstable by the technical inspectors will not be permitted to participate in the dynamic events. The decision of the Head of the Technical Committee of ISS-3 in this regard will be final and binding to all. This is in the interest of safety of all teams.

3.4.24 Seat Belt

Strictly Prohibited.

3.4.25 Kart Stand

The kart, at all times, must be accompanied by a self-fabricated or pre-fabricated movable and foldable kart stand. No independent motion of the Go kart will be allowed in any circumstances apart from the actual final day race. The stand is expected to be at least 35 inches tall. Take special care for the stability of the stand and probable motion restrictors to ensure maximum usability. It must be painted with red color. Teams are free to select or design their own kart stand. Teams can use prefabricated stands also. **Floor tray/Belly pan-** The cockpit must be fitted with a belly pan over the entire length of the cockpit, so that the driver cannot contact the ground and is protected from debris while seated normally, Belly pan material must be metal, fiberglass, plastic, or similar material. They must be designed to prevent debris and foreign object intrusion into the driver compartment. Expanded metal fabric, or perforated panels are not allowed.

3.4.26 Final Vehicle Design

The design report must contain a valid and complete design of the vehicle including all subsystems.

3.5. Vehicle Power Train

Teams are free to select any engine meeting following requirements

IC KART

Single Cylinder, Four Stroke Engine

Engine Cooling System- Air/water/oil Cooled

Maximum Capacity- 130cc /160cc

Type of Transmission- Manual gearbox/CVT/Centrifugal Clutch type

Engine Tuning

Teams have full flexibility to tune the engine, but there are few restrictions which a team must not do at all during the whole event i.e. Increase engine capacity, temper the rated RPM of engine, modify the internal of combustion cylinder or piston & using energy boosting devices/hybrid systems are strictly prohibited. Teams can design their vehicle at any maximum speed. This can be done by selecting an appropriate final drive reduction under any circumstances, if any teams found tempering with the engine (with reference to the above points) shall be subjected to immediate disqualification from the competition. The jurisdiction lies in the hands of the ISS-3 authorities.

Original bill of original registration papers (if vehicle belongs to team members) or an attested no objection certificate (NOC) from the owner with the original registration papers is to be presented during Technical inspections. Failure to present the same will directly lead to disqualification of the team.

Starting System

Every kart must be either electric start or recoil or pull start. Karts must be equipped with an on-board starter switch which, must be used to start the engine at all times by the driver itself. Kick-start is prohibited.

Note- Positive locks and recoil spring must be provided with the throttle pedal

At the end of race, Engine of suspected karts may be inspected. However, if any team alters the capacity of cylinder, will be disqualified from the event. Power Train Guards all rotating parts such as belts, chains, and sprockets that rotate at the rate of the drive axle(s) or faster, must be shielded to prevent injury to the driver or by standers if the components fly apart due to centrifugal force. These guards/shields must extend around the periphery of the belt or chain and must be wider than the rotating part they are protecting. They must be mounted with sound engineering practice, in order to resist vibration. Rotating parts must also be guarded all around, in addition to the guard around the periphery. All around guarding (finger guards) must prevent small, searching fingers from getting caught in any rotating part. Non rigid, fabric coverings. Ceconite and neoprene are unacceptable for use as finger guards.

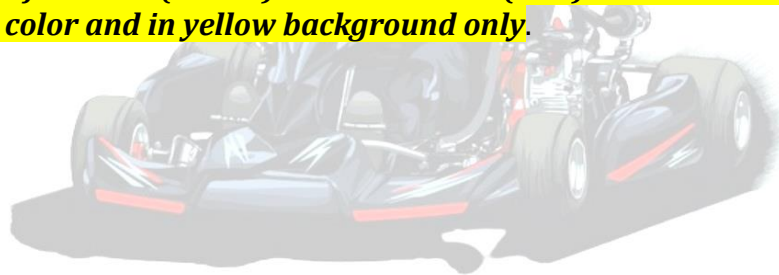
A complete cover around the engine and drive-train is an acceptable shield there must not be any sharp edges on the complete vehicle.

E-KART**Motor Type-Any type of DC Motor****Maximum Nominal Power-6kW****Maximum Voltage-72V**

- Motor must not give power output more than 6 KW any time in the event.
- Teams are free to use any type of controller suitable with motor and battery package.
- Motor must not be directly connected with battery. It must have Controller in between.
- The Battery must be rigidly fixed in the kart with good engineering practices.
- Battery terminals must be properly insulated.

3.5. Vehicle Identification

Each team will be given a vehicle number, and the vehicle will be known by this number in the whole event. Teams are required to have a team name with an impressive team logo along with the college logo, which is to be placed on the vehicle's body with ISS-3, HINDUSTAN MOTORSPORTS and MIT logo. Teams are advised not to place any logos on the front nose of the vehicle because the vehicle number will be placed on the front of the vehicle. The kart number must be clearly visible from all sides, front and rear of the vehicle. **The height of numbers must be at least 152.4 mm (6 in). And must have a minimum line width of 15 mm (0.6 in.) and 76. 2 mm (3 in) wide it is mandatory to stick kart number in black font color and in yellow background only.**

**SEASON - 3**

4. Virtual Round

In the Virtual Round, all the teams are required to showcase their research and development in a power point presentation and also the same should be uploaded at the team portal on the hindustanmotorsports@gmail.com. The prime objective is to design the complete CAD Model of the Go-kart. The design should be complete in all respects to the extent of being considered ready-to-manufacturing. The teams will be evaluated based on their knowledge of the basic automotive design technology and about the Go-Kart design and manufacturing requirements. There will not be any elimination for the teams who are appearing for the virtual round. Further details/guidelines for the virtual round will be released on team login page. Documents to be prepared:

Vehicle Design

Design Report

Innovation Report

Cost Report

Design Validation Plan

Gantt chart

4.1. Vehicle Design

Different views of completely assembled design of the vehicle must be presented in this report. Body works other than similar in professional go kart must be justified.

4.2. Design Report

The design report must contain all the necessary details related to the vehicle like analysis, calculations, etc. This report must not exceed 10 pages and it is recommended to provide at least three different views of vehicle drawing with proper dimensions. This can be verified during Final Round. Further guidelines will be uploaded in the team account on website.

4.3. Cost Report

The cost report must include all the calculations and cost of the parts procured and also its machining cost as per market rates. Only GST bill accepted in cost reports. All original bills needed.

4.4. Design Validation Plan

The design validation plan is the assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customers. All the virtual and real time tests and analysis are to be included in the design validation plan.

4.5. Gantt Charts

Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project. Terminal elements and summary elements comprise the work breakdown structure of the project. This chart is basically the management of the project and distribution of different tasks in the team members with completion deadlines. The Gantt chart must be attached along with the design report.

5. Final Round

5.1. STATIC TEST

Reports to be submitted

a. Engineering Design Report

b. Cost Report

e. Innovation Report

d. Business Plan

A. Procedure- Teams must upload the above-mentioned reports on Google Drive and share the link with at hindustanmotorsports@gmail.com as per the deadlines given in the event calendar.

B. Penalties- If the teams fail to submit the reports within the specified time period, following penalties are to be imposed if the reports are delayed by

- One day- 5 Points
- Two days- 10 Points
- Three days- 20 Points
- Four days- 35 Points

Note- The status of report submission is marked as "Not Submitted" after 4th day, Zero points will be awarded to such teams in static evaluation

C. Public Reports- By submitting a cost report to the competition's organizing body for judging you and your team agree that all your reports may be reproduced and distributed by the competition organization, in both complete and edited versions, in any medium or format anywhere in the world. It is the intent of this move to make the static event more transparent and improve the educational experience of the students by providing the full range of reports for teams to review. Reports for a given competition season will not be published before the end of the calendar year. Support materials such as technical drawings, will not be released.

5.1.1 TECHNICAL INSPECTION

A. Objective of Technical Inspection

Objective to determine if the vehicle meets the ISS-3 Rules requirements and resections and if considered as a whole, it satisfies the intent of the Rules.

- For purposes of interpretation and inspection the violation of the intent of a rule is considered a violation of the rule itself.
- Technical inspection is a non-scored activity.

B. Inspection & Testing Requirement

Each vehicle must pass all parts of technical inspection and testing, and hear the inspection stickers, before it is permitted to participate in any dynamic event or to run on the practice track.

C. Team Responsibility

Teams are responsible for confirming that their kart, and the required equipment, satisfies the requirements and restrictions of the ISS-3 Rules before presenting it for Technical Inspection

Presenting a kart for Technical Inspection constitutes a declaration by the team that they have determined by self-inspection that the vehicle complies with the Rules.

D. Items to be Inspected- The Technical Inspection Sheet (detailed list of items) to be inspected.

E. Technical Inspection Procedure

a. Collage level Technical Inspection- In-House TI is the preliminary technical inspection of the kart inside the college itself and it will be executed by Faculty Advisor. Separate guidelines for collage level TI will be made available in the account. Minimum of 80% work completion is required in order to attend the college level TI.

b. Technical Inspection in Final Round - Technical Inspection in the final round will examine all items included on the TI Sheet that can be found in team account plus any other items the inspectors may wish to examine to ensure conformance with the Rules. The exact procedures and instruments employed for inspection and testing are entirely at the discretion of the Chief Technical Inspector. Decisions of the inspectors and the Chief Technical Inspector concerning vehicle compliance are final and are not permitted to be appealed.

c. Inspection Condition- Vehicles must be presented for technical inspections in finished condition, i.e. fully assembled, complete and ready to-run. Technical inspectors will not inspect any vehicle presented for inspection in an unfinished state.

NOTE: Karts may be presented for technical inspection even if final tuning and set-up has not been finished.

d. Correction and Re-inspection- If any part of a vehicle does not comply with the Rules, or is otherwise deemed to be a concern. Then the team must correct the problem and have the kart re-inspected. The judges and inspectors have the right to re-inspect any vehicle at any time during the competition and require correction of non-compliance.

"As-Approved Condition" Once a vehicle has passed inspection, except as specifically allowed for "Modification and Repairs", it must remain in the

"As-approved" condition throughout the competition and must not be modified

e. Driver Exit Time- A inflexible part of technical inspection where driver must come out of the kart in 5sec with or without the steering wheel.

5.1.2 COST AND MANUFACTURING EVENT

Note: Additional information about the cost and Manufacturing Event including Cost Tables and other information may be obtained from the team account.

A. Cost and Manufacturing Event Objective

The objectives of the Cost and Manufacturing Event are: To teach the participants that cost and budget are significant factors that must be considered in any engineering exercise. For teams to make trade off decisions between content and cost based on the performance advantage of each part and assembly to gain experience with creating and maintaining a Bill of Material (BOM). For the participants to learn and understand the principles of Design for Manufacture and Assembly, lean manufacturing and Minimum Constraint Design

B. Rules Objective

The objectives of the Cost and Manufacturing

Event rules are: To provide a logical, simple and time efficient rule set enabling students to achieve the event's objectives. To improve fairness by providing consistent pricing guidelines independent of team geographical location by using standardized Cost Tables to require the minimal burden of supporting documentation such as receipts or catalog pages. However, in order to convey design information to cost judges engineering documentation (drawings, process descriptions, etc.) are required.

C. Event Requirements

This event is comprised of three (3) parts

Part 1 "Cost Report" the preparation and submission of a report (the "Cost Report"), which is to be sent which is to be submitted.

Part 2 "Discussion" A discussion at the Competition with the Cost Judges around the team kart. This evaluates not only the cost of the car, but also the team's ability to prepare accurate engineering and manufacturing cost estimates.

Part 3 "Real Case" Real case scenario where students will have to respond to a challenge related to cost of manufacturing of the student vehicle

D. Definitions The following definitions will apply throughout the cost event rules

- **Adjusted Cost**-The final cost for the vehicle including penalties Amended Cost The cost of the vehicle after modification by the competition addendum
- **Bill of Material** - A hierarchical list of all parts of the vehicle Cost Report All materials, including electronic and hard copy submitted for judging Cost Tables All tables that list costs for objects and processes Design for Manufacture and Assembly (DFMA) the process where parts are designed for ease of manufacture and assembly, resulting in lower cost. Fixed Cost Costs associated variable costs when included in the Cost Report
- **Initial Cost** The cost of the vehicle submitted for initial judging in the Cost Report
- **Lean Manufacture** - A methodology for producing goods the emphasizes the elimination of waste and improvement in process how with the goal of optimizing the cost and quality of goods.
- **Minimum Constraint Design (MCD)** A design methodology emphasizing elimination of redundant constraints in the attachment of parts. Each part requires constraint in six degrees of freedom and additional constraints can make assembly difficult force tight tolerances and increase the cost of manufactured goods.
- **Purchased Parts** Also called bought parts: these items are listed in the Cost Tables in a near as installed condition. For example wheels, engines and motors are purchased parts. In some cases, purchased parts may still require additional processing before they can be assembled to the car. Wheels, for example, do not include the machined features for mounting to the hub. Purchased parts do not include fasteners unless specifically noted in the Cost Tables.
- **Quantity** the amount of the item.
- **Raw Materials** used for manufacturing parts, such as aluminum, steel and rubber hose.
- **Tools** refer to hand or power tools used to assemble the vehicle. The costs of these tools are not included in the Cost Report the effects of the tools used for assembly are captured in the process tables for labor as different costs are given based on the tools used for assembly.
- **Variable Cost** is a cost associated with production that is proportional to the vehicle volume produced. All costs submitted with the Cost Report will be variable costs.

E. General Requirements

The Cost Report Must:

- Use the standardized Cost Tables.
- List and cost every part on the prototype vehicle. This includes any equipment fitted on the vehicle at any time during the competition. The cost of any on-board fire suppression system, rain tires, video or radio system, and transponder does not need to be included in the Cost Report.
- Be used on the estimated costs of materials, fabrication, purchased parts, and assembly of the kart. The costs must be calculated as defined in the rules
- Be based on actual manufacturing techniques used on the prototype.
- Include tooling for processes requiring it.

The cost tables have been designed to:

- Be verifiable at the event. Differentiating between different types of materials (for example different alloys of steel) is not possible so no differentiation is made in the table cost
- Minimize influence on safety equipment content. For example, driver harnesses are cost independent of the style chosen.
- Higher costs of some goods must reflect actually higher value of those goods. However, the costs must still allow for team innovation and vehicle content with some reduction in cost score

5.2. DYNAMIC TEST

Brake Test- It's mandatory for a vehicle to pass the brake test to participate in any of the dynamic events. The vehicle must stop in a straight line after the brake is applied on the vehicle and the wheels on which the brake mechanism is acting must get locked immediately after pedal is pressed. Each vehicle will be given only 3 attempts to pass the brake test. After the successful brake test attempt, vehicle will not be allowed to avail remaining attempts (if left) Vehicle dynamic stability will also be checked during the test, vehicle possessing abnormal behavior will be checked again. The TI can be cancelled if the vehicle is found dynamically unstable or unsafe in the Brake Test. Few frequently occurred problems are listed below Un-usual sound from transmission (generally sound produced by chain) Unsafe frame (Design and manufacturing) Improper wheel alignment etc. If these issues found with the vehicle after static inspection, vehicle Technical Inspection will be cancelled and again will be given chance to rectify it.

5.2.1. Brake Test Track

The guidelines will be elaborated on venue only.

Note: *Vehicle's speed must not be less than 35KMPH while attempting brake test. Brake Test is not having any points, but it's mandatory for a vehicle to clear the test to qualify for any of the dynamic event. Three attempts will be given to each team to clear the test.*

5.2.2 Acceleration Test

The guidelines will be elaborated on venue only.

Scoring Formula-Acceleration score $100x (T (\text{longest- Yours})/T (\text{Longest-Shortest}))$

NOTE: Each team may make two (2) attempts may or may not with different drivers Scoring will be based on the better of the two attempts.

5.2.3. Skid Pad Objective

The objective of the skid-pad event is to measure the Kart cornering ability on a flat surface while making a constant-radius turn.

Skid Pad Layout

Will be disclosed at event site.

NOTE: Each team may make two (2) attempts may or may not with different drivers Scoring will be based on the better of the two attempts.

Scoring Formula

Scoring Formula-Skid Pad score $100x (T (\text{longest- Yours})/T (\text{Longest-Shortest}))$

Penalties-Will be disclosed at event site.

DNF- Vehicles that spin-out can continue as long as they have not gone off course but if they go out of the course then to be classified as DNF.

Incorrect Laps- Vehicles that do not follow procedure, i.e. run an incorrect number of laps or run the Laps in the wrong sequence will be classified as DNF.

5.2.4. Autocross Test

The objective of the autocross event is to evaluate the vehicle's maneuverability and handling qualities of a tight course without the hindrance of competing vehicles. The autocross course will combine the performance features of acceleration, braking, and cornering into one event.

Procedure-all details provided in final dynamic rounds.

NOTE: Each team will get two (2) attempt only

Scoring Formula-Autocross score $250x (T (\text{longest- Yours})/T (\text{Longest-Shortest}))$

Penalties-Will be disclosed at event site.

Note-Timing can be electronic/manual.

5.2.6 Endurance

All the details for this event will be disclosed at the event site only.

Mechanical Problem- No additional penalty other than the time lost to ensure that the car is safe to continue.

Reckless or Aggressive Driving- Any reckless or aggressive driving behavior (such as forcing another car off the track, refusal to allow passing, or close driving that would cause the likelihood of car contact) will result in a black flag for the driver. When a driver receives a black flag signal, he must proceed to the penalty box to listen to a reprimand for his driving behavior. The amount of time spent in the penalty box will vary from one (1) to four (4) minutes depending upon the severity of the offense.

Inexperienced Driver- The Chief Director of Operations may disqualify a driver if the driver is too slow, too aggressive, or driving in a manner that, in the sole opinion of the event, officials, demonstrates an inability to properly control their car resulting in a DNF.

6. Rules General Rules & Regulations

6.1. Rules Authority

There are several rules and restrictions, which are to be followed by each and every team. HINDUSTAN MOTORSPORTS reserves right to modify each and every rule associated with the event. Violation of rules by anyone of the participating member may be liable to be penalized severely, inclusive of and up to debarring of the team from the competition at any stage or withdrawal of award/awards, as well.

6.2. Validity of the Rules

The rules will be same throughout the event and any amendments will immediately be made known to all the participating teams through emails and the same will be uploaded on the website www.hindustanmotorsports.in & www.mitujain.ac.in

6.3. Rule Compliance

By registering for this event the team, members of the team as individuals, faculty advisors and other personnel of the college and university agree to comply with, and he bound by, these rules and all rule interpretations or procedures issued or announced by HINDUSTAN MOTORSPORTS. All team members, faculty advisors and other university representatives are required to cooperate with, and follow all instructions from competition organizers, officials and judges. All the technical queries will only be answered through proper mailing channel. None of the technical queries will be entertained on telephones. Teams will need to submit their weekly reports via mails. Failing to do so will lead to penalties none of the queries regarding the event will be entertained after 15 days from the end of the event

6.4. Right to Impound:

HINDUSTAN MOTORSPORTS reserves the right to impound any onsite registered vehicle at any time or at the stage during the competition for inspection and the examination by organizers, officials and technical inspectors.

6.5. Behavior

Unsportsmanlike Conduct

In the event of unsportsmanlike conduct the team will receive a warning from an official. A second violation will result in expulsion of the team from the competition. Failure of a team member to follow an instruction or command directed specifically to that team or team member would result in a twenty-five (25)-point penalty

Arguments with Officials

Argument with, or disobedience to any official may result in the team being eliminated from the Competition. All members of the team may be immediately escorted from the grounds Smoking and Illegal Material - Alcohol, illegal drugs, weapons or other illegal material are prohibited on the event site during the competition. This rule will be in effect during the entire competition any violation of this rule by a team member will cause the expulsion of the entire team. This applies to both team members and faculty advisors. Any use of drugs or the use of alcohol by an underage individual, will be reported to the local authorities for prosecution.

6.6. Vehicle Related

Vehicle Movement- Vehicles may not move under their own power anywhere but on the practice or competition tracks. Off track vehicles must be pushed at a normal walking pace by means of Push Bar/members pushing the vehicle, with all four (4) wheels on the ground, a team member sitting in the cockpit to steer and brake and with another team member walking beside the kart. During performance events when the excitement is high, it is particularly important that the kart be moved at a slow pace in the pits. Violation of this rule will result directly into the 25 points penalty.

List of Purchased Parts

All the teams have permission to buy the readymade fabricated parts but use of these parts in excess may lead to the disqualification of the vehicle or penalty of 70 points.

List of the prefabricated parts

Kill Switches, Wiring Harness, Springs, Brake drum, disc, caliper and brake Fluid, Brake Fluid Line, master cylinder, Steering column, Steering wheel, Wheel rims & Tyres, Tie Rod Ends, Engine, Fuel tank exhaust system, Chain, Sprockets, Fuel Pipe, Fasteners, Bearings, Brackets.

Other Penalties

- a. Violation of rules- 100 points disqualification
- b. Misbehavior/arguments with officials or volunteers-100 points/disqualification
- c. Tampering with TI sticker or making restricted changes in vehicle after TI-100 points/disqualification
- d. Entry without permission on tracks- 100 points disqualification

Intentional damage of track/tent/other properties will result to the penalty of Rs.5,00,000 INR /- or more on the team also prize and certificates will not be awarded to the particular team/team members.

SEASON - 3

7. PROTESTS

We recognize that there can be differences in the interpretation of rules, the application of penalties and the understanding of procedures. The officials and staff will make every effort to fully review all questions and resolve problems and discrepancies quickly and equitably.

7.1. Preliminary Review Required

If a team has a question about scoring, Judging, policies or any official action it must be brought to the organizers attention for an informal preliminary review before a protest can be filed.

7.2. Cause for Protest

A team may protest for dynamic round scores. Teams, team members or any other members may not protest for rule interpretations or actions. Protest for any other issue other than dynamic round scores will be considered unethical and illegal with regards to this rulebook and appropriate legal action will be taken against such team/team members in this case. Such protest will also result in permanent disqualification or banned for future events.

7.3. Who can file the protest?

Only team captain on behalf of whole team can file the protest. Other team members should not accompany or interfere in filing of such protest.

7.4. Protest Format and Forfeit

All protests must be filed in writing in prescribed manner with in stipulated time and presented to the organizer. In order to have a protest considered, a team must deposit an Rs.30, 000 amount, which will be forfeited if their protest is rejected.

7.5. Time duration to file protest

Protests concerning any aspect of the competition must be filed within half hour (30 minutes) of the posting of the scores of the event to which the protest relates.

Decision-*The decision of the competition protest committee regarding any protest is final and is non-challengeable. All the disputes (If any) regarding the whole event are subject to only Ujjain Court jurisdiction.*

COMMON AWARDS

AWARD	PRIZE
OVERALL CHAMPION	50,000
OVERALL 1 ST RUNNER-UP	25,000
OVERALL 2 ND RUNNER-UP	15,000
BEST DESIGN/CAE	3,000
BEST INNOVATION	3,000
BEST BUSINESS PLAN	3,000
TI OK IN FIRST ATTEMPT	5,000
BEST BUILD QUALITY	TROPHY
BEST TEAM	TROPHY
BEST FACULTY ADVISOR	TROPHY
BEST PHOTOGRAPHY	TROPHY
BEST TEASER	TROPHY
BEST AESTHETICS	TROPHY

130CC AWARDS

AWARD	PRIZE
ENDURANCE WINNER	20,000
ENDURANCE 1 ST RUNNER-UP	10,000
ENDURANCE 2 ND RUNNER-UP	TROPHY
ACCELERATION WINNER	11,000
ACCELERATION 1 ST RUNNER-UP	5,000
ACCELERATION 2 ND RUNNER-UP	TROPHY
AUTOCROSS WINNER	11,000
AUTOCROSS 1 ST RUNNER-UP	5,000
AUTOCROSS 2 ND RUNNER-UP	TROPHY
SKID-PAD WINNER	11,000
SKID-PAD 1 ST RUNNER-UP	5,000
SKID-PAD 2 ND RUNNER-UP	TROPHY
TRACTION/TUG OF WAR WINNER	10,000
TRACTION/TUG OF WAR 1 ST RUNNER-UP	3,000
TRACTION/TUG OF WAR 2 ND RUNNER-UP	TROPHY

160CC AWARDS

AWARD	PRIZE
ENDURANCE WINNER	20,000
ENDURANCE 1 ST RUNNER-UP	10,000
ENDURANCE 2 ND RUNNER-UP	TROPHY
ACCELERATION WINNER	11,000
ACCELERATION 1 ST RUNNER-UP	5,000
ACCELERATION 2 ND RUNNER-UP	TROPHY
AUTOCROSS WINNER	11,000
AUTOCROSS 1 ST RUNNER-UP	5,000
AUTOCROSS 2 ND RUNNER-UP	TROPHY
SKID-PAD WINNER	11,000
SKID-PAD 1 ST RUNNER-UP	5,000
SKID-PAD 2 ND RUNNER-UP	TROPHY
TRACTION/TUG OF WAR WINNER	10,000
TRACTION/TUG OF WAR 1 ST RUNNER-UP	3,000
TRACTION/TUG OF WAR 2 ND RUNNER-UP	TROPHY

E-KART AWARDS

AWARD	PRIZE
ENDURANCE WINNER	20,000
ENDURANCE 1 ST RUNNER-UP	10,000
ENDURANCE 2 ND RUNNER-UP	TROPHY
ACCELERATION WINNER	11,000
ACCELERATION 1 ST RUNNER-UP	5,000
ACCELERATION 2 ND RUNNER-UP	TROPHY
AUTOCROSS WINNER	11,000
AUTOCROSS 1 ST RUNNER-UP	5,000
AUTOCROSS 2 ND RUNNER-UP	TROPHY
SKID-PAD WINNER	11,000
SKID-PAD 1 ST RUNNER-UP	5,000
SKID-PAD 2 ND RUNNER-UP	TROPHY
TRACTION/TUG OF WAR WINNER	10,000
TRACTION/TUG OF WAR 1 ST RUNNER-UP	3,000
TRACTION/TUG OF WAR 2 ND RUNNER-UP	TROPHY



INDIAN SUPERKARTING SERIES

SEASON-3

130CC,160CC,E-KART
PRIZE MONEY-3.8 LAKHS
REG FEE-20,000
FINAL EVENT-3-6 JULY,2024

EARLY BIRD REGISTRATION STARTS FROM
26 JANUARY,2024

6267336735,9244961751
hindustanmotorsports@gmail.com
WWW.HINDUSTANMOTORSPORTS.IN
WWW.MITUJJAIN.AC.IN

AN EVENT BY



MIT GROUP OF INSTITUTES,UJJAIN



NEERAJ WADHE
PHOTOGRAPHY

ARC GLOBAL
BUILDING TOGETHER

