



DEPARTMENT OF AUTOMOBILE ENGINEERING

AND

*SpeedTwenties*

*Presents*

*ENDURO'*

**2020**



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## ABOUT DEPARTMENT OF AUTOMOBILE ENGINEERING

The Department of Automobile Engineering at SNS College of Technology was established in 2013 with the aim of developing qualified and industry-ready automobile engineers who can contribute to the evolving automotive sector. This department focuses on teaching students the fundamentals and advanced concepts of designing, manufacturing, testing, and servicing automobiles, integrating knowledge from mechanical, electrical, electronics, and materials science to prepare graduates for a wide range of roles in the automotive industry. The curriculum is regularly updated to reflect the latest trends and technologies in vehicle systems and engineering, helping students stay aligned with industry requirements.

The department is equipped with specialised laboratories such as Automotive Electrical Lab, Engine Testing and Emission Lab, Vehicle Maintenance and Reconditioning Lab, Automobile Systems Lab, and Thermal Systems Lab to strengthen practical learning and hands-on experience. Students also benefit from domain-specific activities like guest lectures, workshops, technical symposiums, and participation in competitive projects such as mini-bike and go-kart teams, which enhance both technical skills and teamwork. Under its guidance, students have achieved recognition in various events and research initiatives.

## OBJECTIVE OF ENDURO' 26

The objective of the ENDURO'26 (100 cc National level) Dirt Bike Competition organized by the Department of Automobile Engineering is to provide students with a practical platform to apply their mechanical and automotive engineering knowledge in a real-time environment. This event aims to encourage innovation, design skills, fabrication techniques, and problem-solving abilities by challenging participants to build and optimize a compact dirt bike within the 100 cc category. It promotes teamwork, technical creativity, and hands-on learning beyond classroom theory. Additionally, the competition seeks to enhance students' understanding of vehicle dynamics, safety standards, and performance evaluation while fostering sportsmanship, leadership qualities, and a competitive engineering spirit among participants.

The sole purpose of this programme is to create an interest in the two and three wheeled Vehicle segment and provide required skills and knowledge to the budding Engineers of our Nation to grab the plenty of opportunities in the years to come.

## EVENT CATEGORY

Our ENDURO'26, The National level Mini Dirt Bike Competition is exclusively organized for two-wheeler motorcycles equipped with 100 cc Internal Combustion (IC) Engines, and participation is strictly limited to this category to ensure fairness, safety, and uniform performance standards. Only bikes powered by conventional petrol-based IC engines with a maximum engine displacement of 100 cubic centimeters are eligible to compete in this event. This restriction has been implemented to maintain a level playing field among all participants, as engine capacity directly influences power output, torque characteristics, acceleration, and overall vehicle performance.

By standardizing the engine capacity, the competition emphasizes rider skill, control, balance, and technical handling over mechanical advantage. Modified engines exceeding 100 cc, electric bikes, hybrid models, or any alternative propulsion systems are not permitted under this category. Participants must ensure that their motorcycles comply with the specified engine capacity guidelines and adhere to all technical inspection requirements conducted by the organizing committee prior to the event. The use of approved safety equipment, proper chassis configuration, and standard fuel type is mandatory to uphold competition integrity and rider safety.

# REGISTRATION

- The teams can register online using the link.
- All the correspondence should take place from the Team's official mail ID. Registration fees are mentioned below and it will not be refunded in any case.
- Registration fee for each team is INR 4,000 (6 Members ) + INR 500 ( Each Extra Person ).
- All Women Teams will receive a 50 % concession on Team Registration to promote Vision of women empowerment.
- Once the registration is completed, the vehicle will be given a number and that vehicle will be known by that number throughout the whole event.
- Any program related official news regarding the event will be informed to the team via team official mail id (Corresponding mail id)

## TEAM REQUIREMENTS

- Teams registering for ENDURO'26 must have a unique team name and logo, and must appoint a team captain and a faculty advisor. In cases where multiple teams are participating from the same institution, each team must have a distinct team name, team captain, and faculty advisor for identification purposes.
- Participation is open to students currently enrolled in BE, ME, or Diploma programs.

## DRIVER REQUIREMENTS

- All drivers participating in the competition must be at least 18 years of age. Each team is required to have a minimum of two designated drivers.
- Any team member who operates the competition bike at any time during the event must possess a valid government-issued driving license.
- Any team member who operates the competition bike at any time during the event must possess a valid government-issued driving license.

## SAFETY REQUIREMENTS

- Helmet, gloves, shoes, elbow pads and knee pads must be there for two wheeler category.
- The driver seat must be fixed rigidly.
- Each team should have two drivers and they must have a valid driver license (learner's license is not allowed) and it must be shown to the inspection team.
- Every vehicle must be equipped with a functional brake light.

## TECHNICAL REQUIREMENTS

S.No	TECHNICAL PARAMETERS	DETAILS
1	OVERALL LENGTH	Max : 1800 mm
2	MAXIMUM WIDTH	Max : 750 mm
3	OVERALL HEIGHT	Max : 1200 mm
4	WHEELBASE	Max : 1400 mm
5	GROUND CLEARANCE	Min : 125 mm
6	OVERALL WEIGHT	Max : 150 kg

### Notes :

- The bike can be a single seater or double seater.
- The wheel size must be between 12 inches to 18 inches.
- Bicycle tires are prohibited.
- The use of front and rear mudguards is compulsory.

## VEHICLE REQUIREMENTS

ENGINE	100 CC SINGLE CYLINDER, 2 STROKE OR 4 STROKE, CARBURETOR OR FUEL INJECTIONED
COOLING SYSTEM	AIR COOLED / LIQUID COOLED
GEARBOX	CVT / CHAIN DRIVE
SUSPENSION	ANY
WHEELS	TUBE / TUBELESS
BRAKES	DRUM / DISC

## TECHNICAL INSPECTION

- The vehicle must be presented in front of the technical inspection committee jury in fully finished condition (ready to run condition).
- The vehicle will be re-inspected if any correction is given by the TI committee. After completion of technical inspection (TI), no modification or adjustment should be made without the permission of the TI committee.
- If any teams violating the above will be disqualified.
- Any decision taken by the TI committee will be final and they will be given full authority regarding the selection of teams for the dynamic events.

### Official Language :

The official language of the ENDURO'26 is English. Document submissions, presentations and discussions should be done in English.

## COMMON RULES

Material and Cross section required : Any material of minimum 0.1% carbon can be used. A circular cross section of minimum diameter 1 inch and 1.65 mm thickness is recommended. Usage of any other cross section requires a proper analysis report. The material and cross section must be chosen in such a way that it can withstand collisions during dynamic events.

Protection for the driver and passengers : All those moving parts must be shielded to prevent injury to the driver and passenger(s). All electrical components must be properly shielded from the driver. To avoid any short circuit, battery terminals must be shielded but should be kept accessible for the approach of any measuring instrument. All electrical connections should be properly insulated from the frame.

# TECHNICAL SPECIFICATIONS REQUIRED

## FRAME DESIGN :

Teams can use either Retrofitting Class or Self-Manufactured class but they should obey all the above mentioned specifications.

## BRAKE AND SUSPENSION SYSTEM :

- A hydraulic or non-hydraulic braking system must be there, and it must actuate properly during the brake test.
- A suspension system which actuates properly during dynamic events is mandatory.

## TRANSMISSION SYSTEM :

Use of chain, CVT or belt drive is permitted for delivering power. Direct transmission between the output shaft of the motor and the rear wheel is allowed.

# EVENTS

## EVENT CATEGORIES :

The ENDURO'26 contains two categories,

- Static Events - 250 points.
- Dynamic Events - 250 points.

## STATIC EVENTS :

## TECHNICAL INSPECTION :

The objective of the Technical Inspection round is to determine whether the ability of the vehicle meets the requirements and restrictions of rules. Technical inspection doesn't have any points, but every vehicle must pass all parts of Technical Inspection and testing before it is permitted to participate in any dynamic event.

## DESIGN PRESENTATION :

Every team must present a report of their overall design, which includes the calculations used, design of the vehicle frame and different parts, analysis carried out and details of every part. During this presentation the vehicle must be showcased to the judge, and every detail provided during the presentation must be there in the vehicle. The total points for the design presentation is 100 points.

## INNOVATION :

Any team who has done innovative things in their vehicle needs to present it during their design presentation. They must have a separate report for their innovation. It contains 25 points.

## COST PRESENTATION :

Every team must submit a report which shows the manufacturing cost of the vehicle. In this report, the cost of the components used in the bike must be specified and it is cross checked by the inspection team.

Bills of every component must be there for checking. The actual cost must not vary with that in the report. If there is any mismatch in the bill and the report submitted, it results in the reduction of points. Absence of bills will also result in reduction of points. The total points for cost presentation is 75 points.

## BUSINESS PRESENTATION :

The objective of this presentation is to show how teams are going to make mass production of their vehicle and they should show their selling points. This will be a power point presentation and it contains a total of 50 points.

## DOCUMENTS REQUIRED :

During the static round soft copy as well as hard copy of design, innovation and cost reports are required.

## POINTS DISTRIBUTION OF STATIC EVENTS :

EVENTS	POINTS
TECHNICAL INSPECTION	NA
DESIGN PRESENTATION	100
INNOVATION	25
COST PRESENTATION	75
BUSSINESS PRESENTATION	50

## DYNAMIC EVENTS :

### BRAKE TEST :

The vehicle will be allowed to run on a 75 m long track, on which it must attain a minimum speed of 35 kmph. Then, it will be allowed to brake after crossing a certain line called the braking line and it must stop within 6 m after crossing the braking line. Only after clearing the braking test, the vehicle will be allowed to attend other dynamic events. The braking test does not have any points.

### ACCELERATION TEST :

During this test, the vehicle (except two-wheeler category) must carry payload along with the driver (no passenger). The vehicle needs to travel a 75 m long track with its maximum acceleration. According to the time taken, points will be granted. The team with the minimum time gets the maximum score. The maximum points for the acceleration test is 50.

### SKIP PAD :

In this event, vehicles must run in an 8 shaped track with a width of 3m. The maximum score for skid pad is 50. The team with minimum time gets the maximum score. If the vehicle hits any cone, 2 seconds per cone will be added to the overall timing of that vehicle as penalty. (Note: for two wheelers, leg touching the ground gives a 2 second penalty).

## **ENDURANCE :**

Endurance event is designed to evaluate the vehicles overall performance, reliability and efficiency. The vehicle needs to cover 5kms (approx.) for completing the endurance round.

## **PENALTIES :**

- For each cone the vehicle takes down, a penalty of 3 seconds will be added.
- If the vehicle leaves the track, it must re-enter at the same point or prior to it or a 15 seconds penalty will be given.
- For two-wheelers, leg touching the ground gives a penalty of 3 seconds.
- If any other mistake is done by the driver, appropriate penalties will be imposed.

This event contains 150 points and the vehicle which completes the laps in the shortest time will be given maximum points.

## POINTS DISTRIBUTION OF DYNAMIC EVENTS :

EVENTS	POINTS
BRAKE TEST	NA
ACCELERATION TEST	50
SKIP PAD	50
ENDURANCE	150



# EVENT RULES AND ORGANIZING AUTHORITY

## RULES COMPLIANCE

By entering ENDURO26, a national level competition, the team members & faculty advisors of the entering university agree to comply with, and be bound by, the rules of ENDURO'26. All the rules & procedures are issued or announced by the ENDURO'26 Organizing Committee. All team members, faculty advisors and other university/college representatives are requested to cooperate with us and follow all the instructions from competition organizers, officials and judges.

## BEHAVIOUR

All the members of every team are required to follow the rules laid by ENDURO'26 Organizing Committee, during the competition. Any team failing to follow the rules will result in elimination from the event. Arguments with officials may also result in the team being eliminated from the Event.

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. Alcohol, illegal drugs, weapons or other illegal material are strictly not allowed on the event site during the competition. Any violation of this rule by a team member will cause the expulsion of the entire team. Any use of drugs, or the use of alcohol by an underage individual, will be reported to the authorities for prosecution.

## OFFICIAL INSTRUCTIONS

Failure of a team member(s) to follow an instruction or command directed specifically to that team or team member(s) will result in a thirty-point penalty.

There should not be any direct involvement of industrial experts in Designing and manufacturing of the vehicle.



## FOR REGISTRATIONS



### CONTACT DETAILS

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