

NATIONAL AWARD SCHEME
FOR
CIVIL/STRUCTURAL
ENGINEERING STUDENTS
FOR

BEST INNOVATIVE STRUCTURAL STEEL DESIGN



INS DAG

INSTITUTE FOR STEEL
DEVELOPMENT AND GROWTH

www.insdag.com

OPEN TO
BE/B Tech Civil /ME/
M Tech Structural
Engineering Students

THEME:

STEEL INTENSIVE
SUPPORTING &
ROOF STRUCTURE
FOR A FUEL STATION CANOPY



INNOVATE
WITH STEEL



DESIGN
FOR STRENGTH,
SAFETY &
AESTHETICS



SUSTAINABLE
SOLUTIONS
FOR THE
FUTURE



NATIONAL
RECOGNITION
FOR EXCELLENCE

WHY PARTICIPATE?

- ✓ Showcase your creativity and technical excellence
- ✓ Win National Awards and Certificates
- ✓ Get recognition from Industry Experts
- ✓ Contribute to Sustainable & Innovative Infrastructure



OPEN TO
BE/B Tech Civil /ME/
M Tech Structural
Engineering Students



IMPORTANT DATES
To be announced
soon



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SHAPE THE FUTURE
OF FUEL STATION
INFRASTRUCTURE
WITH STEEL

Announcement for NACS (C) 2026

NATIONAL AWARD SCHEME FOR CIVIL/STRUCTURAL ENGINEERING STUDENTS FOR BEST INNOVATIVE STRUCTURAL STEEL DESIGN

THEME: Steel Intensive Supporting & Roof Structure for a Fuel Station Canopy

THE INSTITUTE

The Institute for Steel Development and Growth (INSDAG) is a not for profit, member-based organization, promoted and established at Kolkata by the Ministry of Steel, Government of India and the main steel producers of the country. Some of the major roles of the Institute are: awareness about benefits of steel and steel usage; preparing guidebooks, handbooks to facilitate cost effective design and construction by professionals; upgrading competence and skills of professionals by organizing refresher courses / training; communicating the benefits of steel vis-à-vis other competitive materials through life cycle cost studies etc.; regular interaction with Bureau of Indian Standards, Indian Road Congress and RDSO (Railways) for expediting revision in steel related codes for efficiency and cost effectiveness; providing requisite thrust to increased usage of steel and a host of other activities.

To work in unison
with all the
stakeholders
in the Steel Industry
so as to evolve
ways & means for
more efficient
use of steel
and provide
optimum value of the
customer

This National Level “Competition for Civil / Structural Engineering Students for Best Innovative Structural Steel Design” organized by INSDAG is entering into 26th consecutive year. This Competition aims at enkindling the thoughts and skills of the students to come with efficient designs reiterating the multifarious advantages of steel intensive construction such as flexibility in design, economic and ecological benefits, speedy construction, cost effectiveness, life cycle cost benefit etc.

Owing to the keen interest generated among the students, INSDAG is pursuing the task of arranging an interesting and challenging competition every year for the students of Civil / Structural Engineering studying in the Colleges all over India with a view to recognize, appreciate and finally reward the talents of would-be Civil / Structural Engineers for “Excellence in Structural Steel Design”.

THE BRIEF

The Brief about the Competition is available in this brochure along with the Announcement.

THE PRIZE

1st Prize (1 no.)	:	Rs. 75,000/- + Certificate
2nd Prize (2 nos.)	:	Each Rs. 50,000/- + Certificate
3rd Prize (2 nos.)	:	Each Rs. 30,000/- + Certificate

Participation certificates will be provided to all the eligible participants.

ELIGIBILITY Full Time Undergraduate & PostGraduate Degree Courses.

UG: Final year / pre-final year) - Team of maximum 4 (four) students in the team

PG: 2 PG / 1(one) PG + maxm. 3(three) UG students

THE SELECTION

Four Zonal Selection Committees (one each from the East, West, North and South Zones) consisting of renowned academics and professional engineers are entrusted with the task of preliminary screening of the entries received in each zone. In this **Initial Round**, 16 (sixteen) best entries will be selected (preferably four from each zone) based on the overall merit of the proposals, in accordance with the criteria formulated by the Committees.

Sixteen individuals/groups of the short-listed entries will present important aspects of their entry before the **Central Selection Committee** during the **Final Round** of Competition expected to be held around March 2026. The top five proposals will receive the **Prizes**.

ENTRY / APPLICATION

Last date to submit Expression of Interest (EOI): **25th September 2026.**

Submit Final Entry for the Zonal Round: **15th November 2026.**

Registration / EoI submission Link <https://www.insdag.com/civil-award>

Final design report shall be mailed to competitions@insdag.com.

The Zonal Coordinators

NORTH ZONE (J&K, Punjab, NCR, Haryana, UP, MP, Uttarakhand, HP)

Dr. Amar Nath Roy Chowdhury,
Assistant Professor

Civil Engineering Department
Indian Institute of Technology Kanpur
Uttar Pradesh, UP - 208016

Email : amarrc@iitk.ac.in

SOUTH ZONE (Kerala, TN, AP, Karnataka)

Dr. M Nithyadharan, Associate Professor,
Department of Civil & Environmental Engineering
Indian Institute of Technology Tirupati
Yerpedu, Andhra Pradesh 517619

Email: nithyadharan@iittp.ac.in

EAST ZONE (WB, Bihar, Jharkhand, Odisha, Assam, Chhattisgarh, Tripura)

Prof. Subhrajit Dutta, Assistant Professor
Department of Civil Engineering
NIT Silchar
Assam - 788010

Email: subhrajit.dutta@civil.nits.ac.in

WEST ZONE (Rajasthan, Gujarat, Maharashtra, Goa)

Dr. Dr. Yogesh D. Patil, Professor
Department of Civil Engineering
SVNIT SURAT

Ichchhanath, Gujarat - 395007

Email: ydp@amd.svnit.ac.in

EOI submission through google link in EOI form
Final Design report should be sent to the following
email: competitions@insdag.com

NO HARDCOPY required

Contact : Nibedita Dey (098305 66354)

SUBMISSION

The participants are advised to send their entries / applications containing the following:

1. General Arrangement and Design drawings showing Plan, Elevation and Sectional views highlighting the structural systems of the proposed structure. (Recommended scale for detail views should not be less than 1: 10). **Submission both in PDF and AutoCAD.**
2. Detail drawing(s) showing Structural Steel details: truss members, beams, column, bracings, claddings, etc. in accordance with 'Design Scope'. All drawings should be drawn in AutoCAD or similar software.
3. Drawing sizes should be **A3** only and should be presented in soft copies (**PDF & AUTOCAD**).

4. Design calculations (A4 size paper) should be complete in all respects and neatly presented, with suitable justification/assumptions as per Indian Standards. The use of standard analysis software like STAAD, SAP etc. is desirable. **Design checks for the selected sections (atleast one from each type) shall be presented manually preferably in Excel spreadsheets. Analysis of at least one frame/truss must be done in 2D in case of plane framed structure.** Connection design, typical detail of important junction, splice detail and detail sketches must be submitted.
5. All computer input and output files are to be submitted in soft form only.
6. The student team shall ensure that all submitted files, including CAD drawing, STAAD or SAP files, and Excel spreadsheet are functional and free of errors at the time of submission.
7. A brief write-up (Max. 2000 words, duly typed on A4 size paper) on the work (consisting of considerations / assumptions, description of the proposal, highlights / special features, etc.) duly authenticated by HOD / Principal shall be submitted.
8. Preparations of Perspective views, walkthroughs (videos) are not required and will not carry any marks.
9. A brief resume of the student(s) / applicant(s) containing name, address, phone / fax / e-mail, name of University / College, year of study and registration / roll number of the participant(s), and recent passport-size photographs (for each participant) should be submitted in soft copy only.
10. A certification from the Principal / HOD / Registrar of his / her Institute on office pad declaring bonafides under office seal / stamp should also be submitted.

OTHER RULES

1. **To be eligible for participation in the Competition it is essential for each student to enroll himself / herself as a student member of INSDAG before submitting application/entry to the respective Zonal Coordinators.**
2. Originality of work is essential, and the application will be disqualified, if found otherwise.
3. The decision of the Expert Committees will be final and binding. Canvassing in any form will lead to disqualification.
4. Family members and relatives of Expert / Selection Committee and INSDAG Employees are debarred from taking part in this Competition.
5. All the entries / proposals received by INSDAG at all stages of the above Competition will be treated as property of INSDAG and will not be returned to the participants. Moreover, INSDAG will not take any responsibility in case of missing any documents / communications from any side while in transit.

BRIEF OF NACS (C) 2026

INTRODUCTION

Fuel stations require durable, economical and aesthetically pleasing canopy structures to provide weather protection for fuel dispensing areas while ensuring safe vehicle circulation and unobstructed operation. Steel construction offers advantages such as long spans, speed of construction, flexibility in architectural form, ease of inspection, maintenance and future expansion.

APPOINTMENT AS CONSULTANT

A fuel company wants the design of a modern steel-supported fuel station canopy for their COCO fuel station. The objective is to develop a cost-effective, safe steel roof structure together with supporting columns and all associated structural components. It should also have provision to connect any facade cover with long and flat surface for space provision of branding.

Considering that you have been appointed as a structural consultant for this project to design a Steel Intensive Supporting & Roof Structure for a fuel station canopy in the **coastal area in Vishakhapatnam**. You must provide most economical and efficient schemes and all relevant design and drawing.

Scope of consultancy:

1. Development of an economical and efficient structural scheme.
2. Structural analysis, design and detailing of the steel canopy and supporting system and foundation.
3. Preparation of general arrangement drawings and bill of materials.

FACILITIES

The client has specified the following requirements for the proposed project:

Sl No	Parameter	Requirement
1	Project Type	Fuel Station Canopy
2	Plan Dimensions	12 m × 16 m
3	Clear Height (FFL to underside of canopy covering sheet)	6.25 m
4	Roof System	Steel canopy roof with beams / trusses supported on steel columns
5	Column Arrangement	Any cross section as per structural scheme maintaining functional circulation.
6	Maximum Depth - End to End distance of Façade Covering sheet over Canopy	750 mm (Required by Company for branding, Advertisement etc.)
7	Overhang	3.5 m on all sides (as shown in the schematic drawing)
8	Roof Covering	Colour coated steel sheeting / approved roofing system
9	Drainage	Suitable roof slope and rainwater drainage arrangement

MATERIALS FOR CONSTRUCTION

1.	Structural members like columns, beams, members and bracing systems	:	Structural steel of grade E250A or higher grade as required and applicable)
2.	Roof & Cladding	:	Standard Colour Coated Steel Sheet
3.	Foundation System	:	R.C.C. of minimum grade M25

STANDARD SHAPE OF THE STRUCTURE

While considering the shape and arrangement of the structure, stability, efficiency, economy as well as structural integrity of the entire system must be considered.

DESIGN LOADS

1. Dead Load:

Dead load will be the weight of the structure itself along with all permanent weight carried by it.

2. Live Load:

Live load on Roof - as per IS: 875 Part 2-1987 latest version and amendments

3. Wind Load:

Basic wind speed to be considered for the specified location as per IS: 875 Part 3 latest version & amendment

4. Seismic Load:

Seismic Zone for the mentioned location as per IS: 1893 latest version & amendment

5. Other Loads:

A temperature variation of 15° C must be considered. Please consult relevant specifications for other specific loads and action points.

GUIDELINES

The following guidelines should be taken into consideration:

1. Items designed in accordance with design scope should be checked for axial, bending, shear, bearing stress etc. as applicable. Equivalent stresses and any other stresses necessitated by the relevant codes should also be calculated.
2. Deflection calculated should be within the stipulations given in the relevant IS code.
3. For designing Base Plates and Anchor Bolts, the grade of concrete to be considered as mentioned above.
4. While selecting the steel sections for use, please refer to the INSDAG website or any manufacturer's catalogue for availability.

DESIGN SCOPE

Design of the superstructure

For designing the structure, the following tasks need to be undertaken:

- i) Preparation of Sectional views:** How the arrangement of facilities is provided.
 - a. Beams & Columns: Sections, such as NPB/ WPB/MB/MB/MC [refer IS 808], built-up sections, Tubular Sections [refer IS 1161 and IS 4923]. - latest version to be used
 - b. Truss members: IS 808, IS 1161 and IS 4923 - latest versions to be used
- ii) Structural Analysis:** Analysis of the structure in 2D or 3D as applicable
- iii) Member Design and Detailing:** The design and detailing of the following items as applicable:
 - a. All Columns / Girders / Beams
 - b. All Truss members / Arch members, Posts, Purlins and Girts
 - c. All Bracings, Struts and cables / steel cable / steel ropes.
 - d. Connection designs
 - e. Any other members conceived in the scheme.
- iv) Design of Connections:** All connections shall be either welded connection or bolted connection using mild steel or high tensile black bolts, turned bolts or HSFG bolts. Anchor bolts: Min of 4.6 grade or better as per IS:5624-2011

Design of substructure: Typical design calculations for the isolated or raft footing along with structural drawings

Bill of Materials: A bill of materials (in an A4 sheet) should be prepared for all items under the design scope to determine the quantity of materials required.

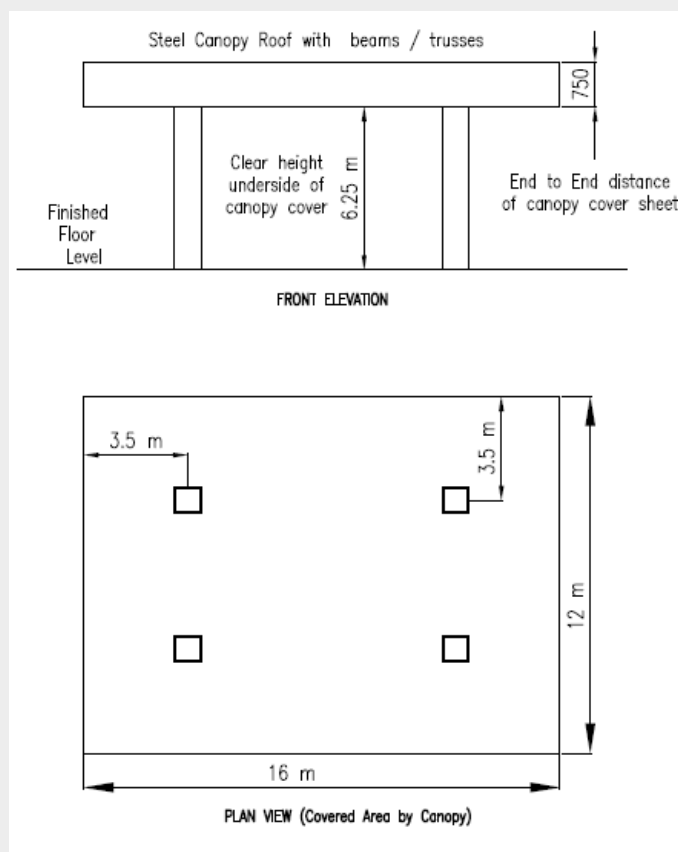
EXCLUSIONS

Structural bearings for support and all allied services, like electrical fittings are not in the design scope

DESIGN STANDARDS

- 1. Design**
 - Steel design - As per IS: 800 -2007 & NBC 2016 (latest revision)
 - Concrete design - As per IS: 456 -2000 NBC 2016 (latest revision)
 - Live load - As per IS: 875 Part 2 -1987
 - Wind load - As per IS: 875 Part 3-2015
 - Seismic load - As per IS: 1893 -2016
- 2. Material**
 - Rolled sections and plates - As per IS: 2062 – 2011
 - SHS/RHS - As per IS: 4923 – 2017
 - CHS - As per IS: 1161 – 2014
- 3. Welding**
 - Symbols for welding - As per IS: 813(Part 1) – 2018
 - Weld joint details - As per IS: 9595 – 1996
- 4. Fasteners**
 - High-strength structural bolts - As per IS: 3757 – 1985 (Reaffirmed 2019) & IS: 4000 – 1992 (Reaffirmed 2017)
 - Hexagon Head Bolt -As per IS: 1363 (Part 1)– 2019
 - Foundation Bolt -As per IS: 5624 - 2011

Schematic Plan & Elevation for Canopy & Support Structure



Detail schematic drawing (NOT TO SCALE) attached separately

CHECKLIST FOR SUBMISSION

Sl. No	Description
1	Content page for report and all submissions
2	All pages and drawings are to be numbered
3	All soft copies of drawings (AUTOCAD & PDF), input and output files of analysis. Excel spreadsheets for design checks etc.
4	Bonafide certificate
5	Student details along with photos in soft copy

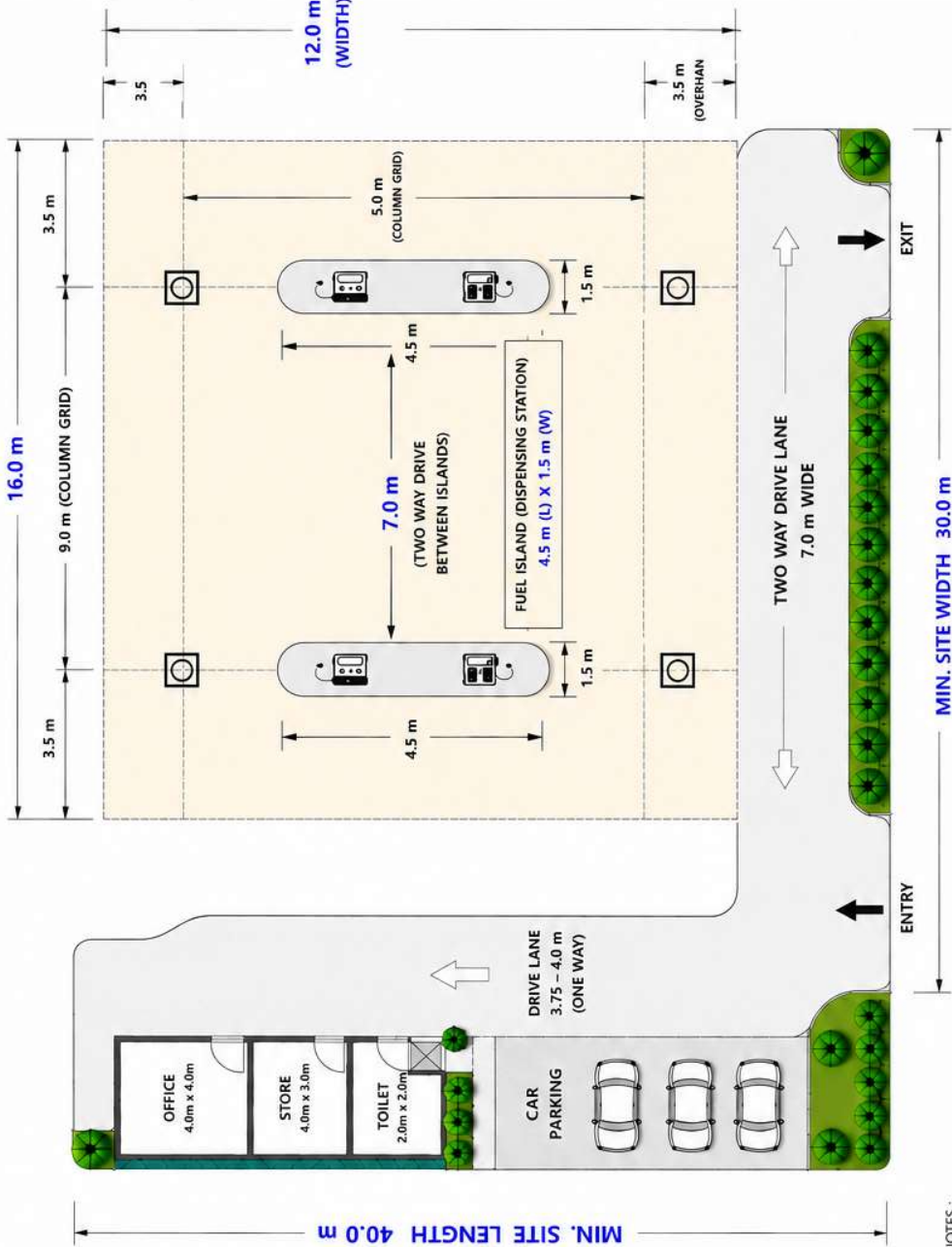
Visit us at www.insdag.com

The Announcement and the Brief of this year's Competition can be downloaded from INSDAG

FUEL STATION – SCHEMATIC PLAN WITH DIMENSIONS

Canopy Covered Area (Overall) : 16.0 m (L) x 12.0 m (W)
Column Grid : 9.0 m (Along Length) x 5.0 m (Along Width)
Clear Height Below Canopy : 6.25 m

CANOPY COVERED AREA (OVERALL)
16.0 m (LENGTH)



NOTES :

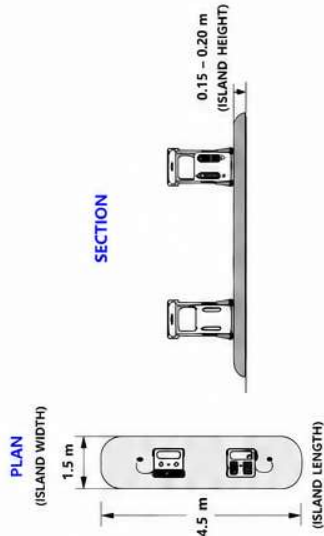
1. All dimensions are in meters.
2. Clear height is measured from finished ground level.
3. Provide proper drainage slope in all paved areas.
4. Dimensions are indicative and may vary as per OMC requirements and local by-laws.

Note: Dimensions shown NOT TO SCALE

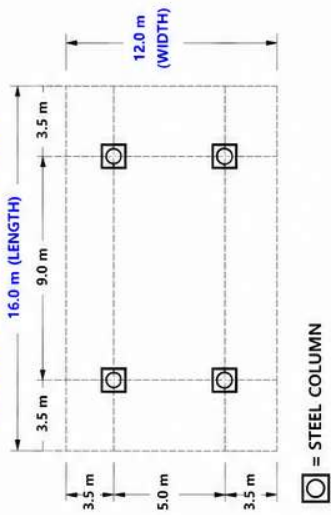
DIMENSION SUMMARY

Canopy Covered Area (Overall)	: 16.0 m (L) x 12.0 m (W)
Canopy Length (Along Island)	: 16.0 m
Canopy Width	: 12.0 m
Column Grid (Along Length)	: 9.0 m
Column Grid (Along Width)	: 5.0 m
Overhang from Column CL (All Sides)	: 3.5 m
Steel Column Size	: As per design
Clear Height Below Canopy	: 6.25 m (Typical)
Fuel Island (Dispensing Station)	: 4.5 m (L) x 1.5 m (W)
Distance Between Islands (Two Way Drive)	: 7.0 m
Drive Lane (One Way)	: 3.75 – 4.0 m

FUEL DISPENSING STATION (ISLAND) DETAIL



COLUMN GRID & CANOPY LAYOUT



EXPRESSION OF INTEREST FOR PARTICIPATION

(To be submitted by **September 25, 2026**)

NATIONAL AWARD COMPETITION FOR STUDENTS OF CIVIL/STRUCTURAL ENGINEERING YEAR 2026

For participation, please fill in all the details and attach documents (Student ID, payment receipt etc.) in google link given <https://www.insdag.com/civil-award>

Alternately

Account Details for Payment: (Online)

NEFT / RTGS / IMPS	QR CODE	UPI
INSTITUTE FOR STEEL DEVELOPMENT & GROWTH, BANK: UCO, Kasba, Branch – Kolkata SB a/c No – 08370100004683, IFSC : UCBA0002081		8334815444@ucobank

Consolidated Payment for whole group is allowed.

Please send an intimation mail and soft copy design report to competitions@insdag.com

Contact: Nibedita Dey
Sr. Manager (C &S) & Coordinator
Phone: 9830566354
Website: www.insdag.com

IMPORTANT INFORMATION

Student membership of INSDAG (onetime payment of Rs. 1000/- for EACH STUDENT) to participate in this National Level Competition along with benefits like attractive discount in fees of different upcoming training programs and publications & many more...

Last Date for Receiving 'EOI' – September 25, 2026

Last Date for 'Final Report' Submission – November 15, 2026

This is your turn. Go for it!!!

COMPETITION TOPIC:

**STEEL INTENSIVE SUPPORTING & ROOF STRUCTURE
FOR A FUEL STATION CANOPY**

JUDGING CRITERIA

Sl. No.	Stage of Evaluation	Evaluation Committee	Marks Allotted	Selection
1	Stage I	Respective zonal committee	150	4 Best ranking entries qualify for Stage II
2.	Stage II	Other 3 zonal committees	450 (150 marks each zonal committee)	-
3.	Stage III (Presentation round)	Central selection committee, Kolkata	400	-
4.	Final selection	- do -	Total marks 1000 (Sl. No. 1 to 3)	Prizes to best 5 entries

PRIZE WINNING COLLEGES IN THE PREVIOUS THREE YEARS

Year 2025

1st	National Institute of Technology Karnataka Surathkal
2nd-A	L. D. College of Engineering, Ahmedabad, Gujarat
2nd-B	M H Sabbo Siddik College of Engineering, Mumbai
3rd-A	Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha
3rd-B	Institute of Technology, Nirma University, Ahmedabad, Gujarat

Year 2024

1st	Indian Institute of Technology Mandi, Himachal Pradesh
2nd-A	Meghnad Saha Institute of Technology, Kolkata, West Bengal
2nd-B	Institute of Technology, Nirma University, Ahmedabad, Gujarat
3rd-A	Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha
3rd-B	L. D. College of Engineering, Ahmedabad, Gujarat

Year 2023

1st	Indian Institute of Technology Roorkee, Uttarakhand
2nd-A	G.H Raison College of Engineering, Nagpur, Maharashtra
2nd-B	L. D. College of Engineering, Ahmedabad, Gujarat
3rd-A	L. D. College of Engineering, Ahmedabad, Gujarat
3rd-B	M H Sabbo Siddik College of Engineering, Mumbai