शिक्षा मंत्रालय
MINISTRY OF EDUCATION

MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

Legacy that Inspires the Future
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धनबाद
IIT ISM
INDIAN INSTITUTE OF TECHNOLOGY
INDIAN SCHOOL OF MINES
DHANBAD

INSTITUTION'S INNOVATION COUNCIL
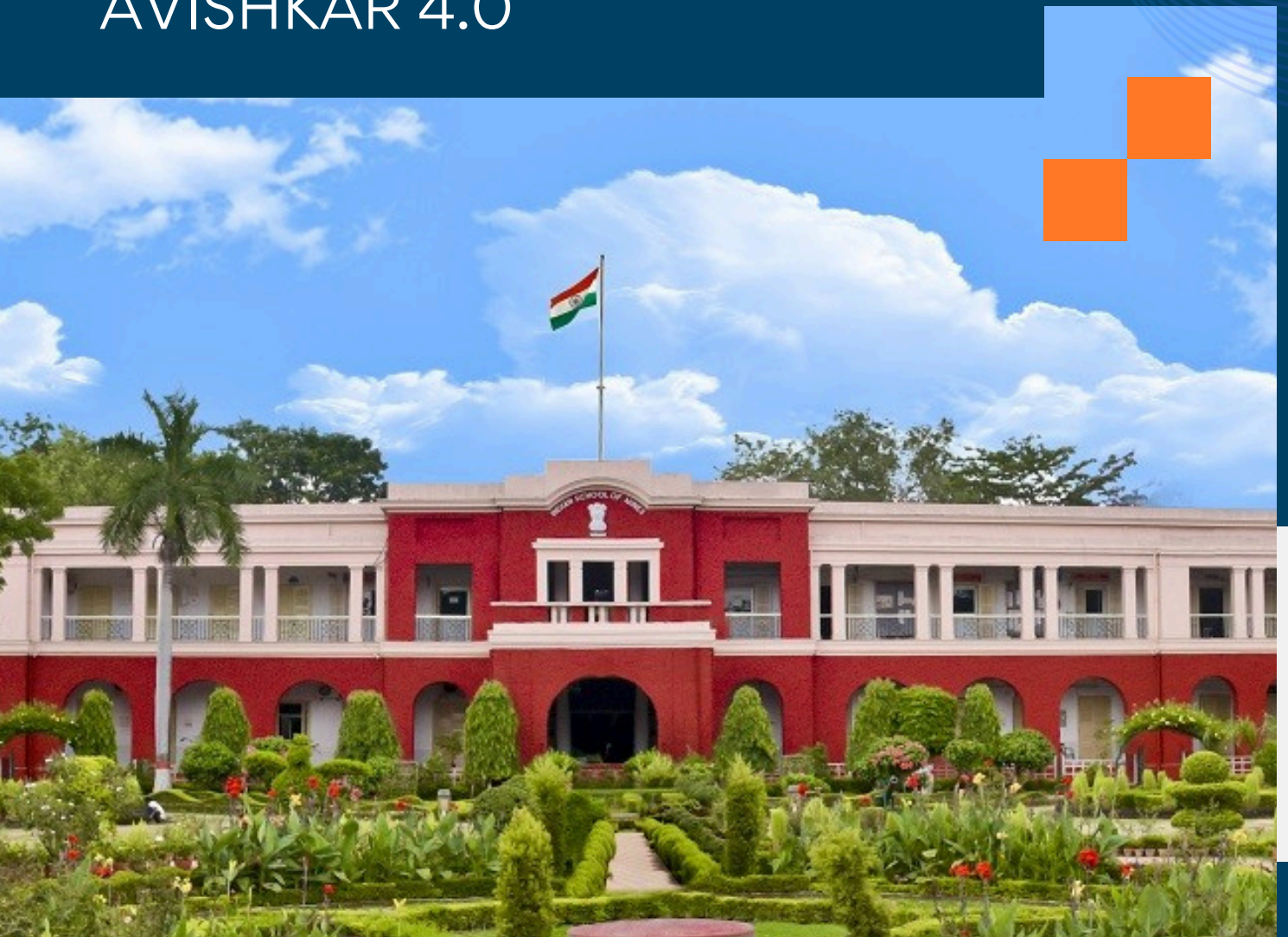(Ministry of Education Initiative)

NVCTI IIT (ISM) DHANBAD

Azadi Ka Amrit Mahotsav

# JH-SIC 2024

# JHARKHAND SCHOOL INNOVATION CHALLENGE 2024

## AVISHKAR 4.0

# About IIT (ISM) Dhanbad

Standing tall since 1926, the Indian Institute of Technology (Indian School of Mines) is steadily sailing through the millennium change and has emerged into one of the most prominent institutions. IIT (ISM) Dhanbad is an Institute of National Importance with full functioning of 17 branches of Engineering, Applied Sciences, Management Studies, and Humanities. Situated in India's mineral-rich belt in Dhanbad, IIT (ISM) has long centenary credentials to out perform achievements/contributions in the academia and industry.

# About NVCTI

Intending to build a culture of innovation among the students and faculty of the institute, IIT (ISM) Dhanbad has established the Naresh Vashisht Centre for Tinkering and Innovation (NVCTI) in September 2019 through the recommendation of the 11th BOG meeting of IIT (ISM) Dhanbad, with the generous financial support of our distinguished alumnus of the 1967 batch of Petroleum Engineering, Shri Naresh Vashisht. In an endeavor to provide an enabling physical environment for young creators to transform ideas into products leading to successful entrepreneurship, the center is equipped with stating-of-the-art "Tinkering and Innovation Laboratories" consisting of a Mechanical & Rapid Prototyping Unit; Gaming and Animation Design Unit; Electronic Circuit and IOT Unit; Battery-Pouch Cell Assembly Unit and Robotics and Automation Unit. The centre, situated in an area of approximately 11000sq feet of the newly constructed Instutite Innovation Hub (i2h) building inside the Institute Campus, is intended to build a positive innovation ecosystem to generate creative solutions to local and global problems of societal importance.

# About JH-SIC

The purpose of Jharkhand School Innovation Challenge (JH-SIC) being organized by NVCTI, IIT (ISM) Dhanbad, is to inculcate an innovation culture and provide a competitive platform to the budding innovators to showcase their imagination and creativity to identify challenges in their communities and to develop innovative solutions to address them.





**2021** | **Winner Avishkaar 1.0**

Mr. Shubham Kumar from Middle School Dhaiya Dhanbad, has won the title of State Champion for the development of Robotic Search Bot.

**2022** | **Winner Avishkaar 2.0**

Mr. Samarth & Team from DBMS English School from Jamshedpur. They have won title of State Champion for their innovative Smart and Intelligent Glass for Blind Person.

**2023** | **Winner Avishkaar 3.0**

Mr. Sagar Kumar from Loyola School, Jamshedpur. He has won the title of State Champion for inventing eco-friendly system for recycling of plastic bottles into useful 3D printer Filament.

# JH-SIC : OBJECTIVE

The Jharkhand School Innovation Challenge is an initiative aimed at promoting innovation and creativity among school students in the state of Jharkhand, India. The primary objectives of the challenge are as follows:
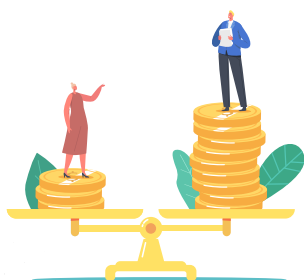
## Foster Innovation

The challenge aims to foster a culture of innovation among school students by encouraging them to think creatively, solve problems, and develop innovative ideas and projects.

## Enhance Problem-Solving Skills

The challenge provides students with an opportunity to identify and analyze real-world problems and come up with innovative solutions. This helps in developing their critical thinking, problem-solving, and analytical skills.

## Platform for Showcasing Talent

The challenge offers a platform for students to showcase their innovative ideas and projects to a wider audience, including educators, industry professionals, and policy makers. It helps in recognizing and rewarding talented students and provides them with exposure and networking opportunities.
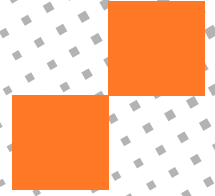
## Encourage Collaboration

The challenge encourages students to work in teams and collaborate with peers, teachers, and experts from various fields. This collaboration fosters teamwork, communication skills, and the ability to work effectively in a group.

# JH-SIC 2024
# THEMES

## JUNIOR

### GRADES: 7 to 10

**THEME: Sustainable Development Goal (SDG)**

Teams can select one or more SDGs to focus on with their hardware innovation. Each team would then design and create a hardware solution that addresses specific targets or indicators within the chosen SDG(s), while encouraging creativity and innovation in addressing pressing global issues.

## SENIOR

### GRADES: 11 & 12

**THEME: Cyber Physical System (CPS)**

The Cyber-Physical System Challenge aims explore the fascinating realm of CPS by designing and implementing their own projects. Participants will delve into various aspects of CPS, including embedded systems, sensors, actuators, data analysis, and real-time control by conceptualizing, building, and presenting their projects.

# EXPLORE THE JH-SIC 2024 THEMES

The **Sustainable Development Goals (SDGs)** are a set of 17 global goals adopted by all United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development. They aim to address various social, economic, and environmental challenges faced by the world today, including poverty, inequality, climate change, environmental degradation, peace, and justice.

For a **JUNIOR Category** Jharkhand school innovation challenge 2024 focusing on SDGs, participants can develop innovative ideas that contribute to one or more of these goals.

A **Cyber-Physical System (CPS)** refers to a system that integrates computational and physical components, typically connected through networks, to monitor, control, and interact with the physical world. CPS combines the capabilities of both cyber (computing and communication) and physical (sensing and actuation) elements to achieve various objectives, such as automation, monitoring, and optimization, across diverse domains including manufacturing, transportation, healthcare, and smart cities.

For **SENIOR Category,** Jharkhand School Innovation Challenge 2024 focuses on CPS. The participants can develop hardware-based innovative ideas based on emerging technologies such as Robotics, the Internet of Things, AI/ML, Cloud Computing, etc. The ideas must be implemented in the fields of Agriculture, Mining, Defence, Healthcare, Industry 4.0, Transpotation, etc.

# WHO CAN PARTICIPATE

## Eligibility

> Students of classes 7-10 (Junior Category) and classes 11 & 12 (Senior Category) from any school of Jharkhand having a valid DISE code are eligible to participate.

**Grade 7-10**     Junior Category
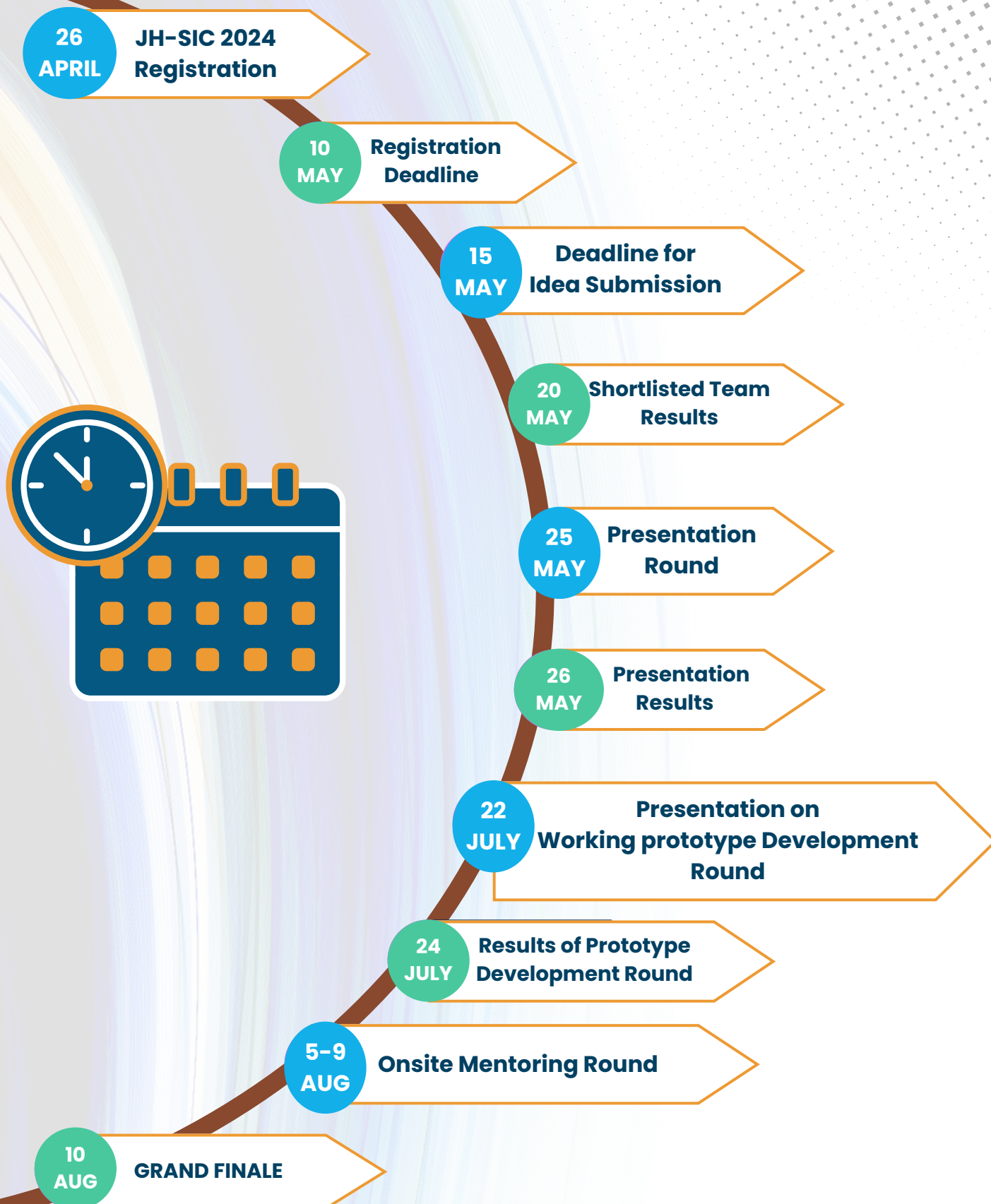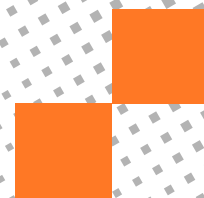**Grade 11-12**     Senior Category

> Students can participate only through school.  The nationality of all Students must be Indian.

> Any other discrepancy arising due to grades, nationality, etc., challenging the student's eligibility will be resolved by the NVCTI, IIT (ISM) Dhanbad. The decision made by NVCTI shall be final and cannot be challenged by any court of law.
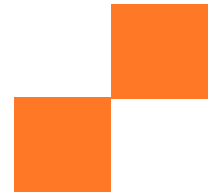
## General Rules

- The participants can register in a team with a maximum of 3 members including the Team Leader.
- All the participants must be from classes 7-10 under the Junior Category and classes 11 & 12 under the Senior Category.
- Entries must be submitted by the suggested deadline. Late entries will not be considered for evaluation.
- There is no entry fee for participation.
- Each school can submit a maximum of two ideas or two teams with one unique idea each from Junior & Senior category.
- Students cannot participate directly. Only schools can register teams from their registered ID on the JH-SIC 2024 Portal.
- **Award winners of the previous editions of JH-SIC are not eligible to apply.**

# Timeline: JH-SIC 2024

**26 APRIL** — JH-SIC 2024 Registration

**10 MAY** — Registration Deadline

**15 MAY** — Deadline for Idea Submission

**20 MAY** — Shortlisted Team Results

**25 MAY** — Presentation Round

**26 MAY** — Presentation Results

**22 JULY** — Presentation on Working prototype Development Round

**24 JULY** — Results of Prototype Development Round

**5–9 AUG** — Onsite Mentoring Round

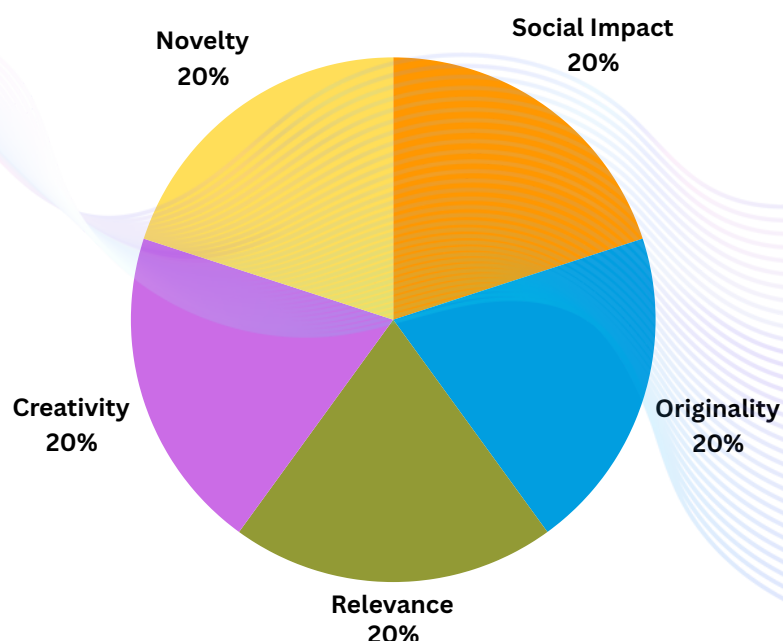**10 AUG** — GRAND FINALE

# Road Map

## REGISTRATION OF SCHOOL

- Schools have to register under the JH-SIC 2024 portal with all the required parameters.
- They will be required to appoint a JH-SIC 2024 School Coordinator of the event who will be the single point of contact from the school.
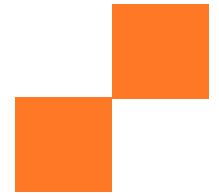- Registration can be done at http://nvcti.iitism.ac.in/jhsic/

## IDEA SUBMISSION

- Submission of ideas by student teams using the school Login ID.
- Maximum two separate entries are allowed from each school under EACH CATEGORY (Junior and Senior).
- Each team can have a maximum of 3 students including a Team Leader.
- Ideas can be submitted online in the prescribed format given under your school's login ID.
- All entries will receive a **confirmation message/mail** on the successful submission of their idea(s).
- Review and selection of idea by an expert committee comprising **experts from academia and industry**.
- The parameters of evaluation and corresponding weightage are given in the chart below.



Novelty 20% · Social Impact 20% · Originality 20% · Relevance 20% · Creativity 20%

# Road Map

## IDEA SHORTLISTED

Based on the expert committee's scrutiny and evaluation, potential ideas/teams will be selected for Presentation Round.

## PRESENTATION ROUND

- Teams selected for the Presentation Round will have to present their idea to a panel of experts.
- A fixed template of the presentation will be shared with the shortlisted teams.
- Submission should be made by filling in the specific fields mentioned in the template.
- Additional support files (e.g., videos of design concepts/ CAD diagrams/ Circuit diagrams/ Simulations)should be presented as part of the Proof of concept.

## RESULT PRESENTATION ROUND

Based on the presentation, ideas/teams will be selected for the Prototype Development Round (70% weightage to idea/methodology and 30% weightage to presentation).

## PROTOTYPE DEVELOPMENT ROUND

- Selected teams will be working on the Prototype development, which will last for 45 days.
- To convert the proposed idea into a prototype, all the selected teams will be supported by INR 10,000/- (in the reimbursement mode on submitting valid GST Bills, Transaction Proof & components purchased). The support funding & number of teams are subject to change.
- In the process, each team will be provided with a Mentor for guidance and help in the prototype development.

## GRAND FINALE

- Selected top 10 teams from each category will be called for the final showcase at IIT (ISM) Dhanbad for the Grand Finale.
- The selected Team will be staying at the IIT Dhanbad campus for a week (lodging and boarding will be managed by IIT ISM Dhanbad).
- The winners and the runner-up teams have to submit the final working prototype/product to NVCTI, IIT (ISM) Dhanbad.

# GRAND FINALE

A panel of experts will evaluate the 10 prototypes to select the top 5 prototypes based on their stage of development and cost-effectiveness.

Based on the degree of novelty, social applicability, cost-effectiveness, competitive advantage over existing technologies, and user-friendliness, under Junior and Senior Category, **CHAMPIONS** will be announced during the **GRAND FINALE** of the **JH-SIC 2024** event along with **I-Runner Up** and **II-Runner Up**. Two consolation winners will also be announced, one from each category.

# PRIZES & INCENTIVES

## SENIOR

₹ **50K** Cash Prize + Certificate

₹ **30K** Cash Prize + Certificate

₹ **20K** Cash Prize + Certificate

Consolation Prize: ₹ 10K

## JUNIOR

₹ **25K** Cash Prize + Certificate

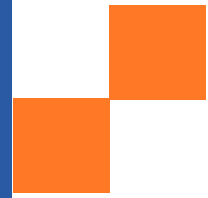₹ **15K** Cash Prize + Certificate

₹ **10K** Cash Prize + Certificate

Consolation Prize: ₹ 5K

The top 3 teams will get a Certificate of Merit and the remaining 1 team from each category will get a Consolation Certificate. The top 4 teams will also be awarded with a trophy. The top 3 Schools will get the Certificate of Merit along with a Trophy.

# GENERAL TERMS & CONDITIONS

By registering for this competition, it shall be deemed that each individual of the participating team has agreed to be bound by the following terms and conditions:

- Participants are expected and obliged to obey the IIT (ISM) Dhanbad laws while participating in the Inter-School Innovation Challenge. The NVCTI, IIT (ISM) Dhanbad reserves the right to disqualify or prohibit from participating in the event of any team that makes a submission that in the sole discretion of the NVCTI, IIT (ISM) Dhanbad does not conform with the **Eligibility Criteria** or does not comply with the Terms & Conditions and/or the **Competition Rules** and/ or violates the spirit of **AVISHKAR 4.0** as a competition. Besides, the NVCTI, IIT (ISM) Dhanbad may notify the appropriate legal/administrative authorities as it deems fit and/orinitiates any other action as may be advised.

- By entering the competition, each team and its members agree to accept the **decisions of the NVCTI, IIT (ISM) Dhanbad as final**, including the determination of the winners of the AVISHKAR.

- The NVCTI, IIT (ISM) Dhanbad shall have the discretion to initiate appropriate action against participating teams, including individuals of such participating teams, in case of any losses or damages arising from the violation of the Eligibility Criteria, Competition Rules, and the Terms & Conditions.

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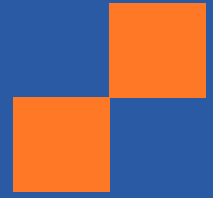
# CONFIDENTIALITY

By electing to participate in this event, each participating team and all of its team members agree to allow NVCTI, IIT (ISM) Dhanbad to use their names, images, and information regarding the team's business and prize information in publicity and marketing efforts through out the world, unless specifically prohibited by law. Each participating team must agree to accept that their registration form and other entries will not be returned to them and accept that their personal data will be available for information and statistical purposes.

**NVCTI IIT (ISM) DHANBAD**

# Nurturing Global Thinkers, Shaping Scientific Leaders