

AZEOTROPY 2019

Nano-Invento Problem Statement

Deadline for abstract submission – 11:59 pm, 3rd Feb, 2019

Introduction

Nanotechnology is the study and application of dimensionless particles and can be used across all the wide-ranging science fields. It is being used in several applications to solve environmental issues. This includes cleaning up existing pollution, improving industrial manufacturing processes to minimize the release of hazardous waste produced during the process, and making alternative energy sources more cost-effective. Through Nano-Tech, it is possible to tailor the structure of materials at extremely small scales to achieve specific properties, which makes Nano-Tech highly successful and effective. These unusual physical and chemical characteristics come about because there is an increase in surface area compared to volume as particles get smaller and also because they are subject to quantum effects. This means they can behave in different ways and do not follow the same laws of physics that larger objects do.

Aim

Nanotechnology has wide-ranging applications in medicine, energy, drug delivery, electronics, textile, agriculture. It provides solutions to many day-to-day problems. The aim of the competition is to **ideate a device, as an application of nanotechnology, which will be of day to day use.**

Sample Idea: Nanotechnology provides a solution for **self-cleaning, dirt and water repellent coating**. Traditional coating materials often do not stand the test of the increased demands made on materials today. In recent years, however, advances have been made using methods ascribed to nanotechnology. Using the existing technology one can model and design devices, like non-wetting shoes which repel water, oil. The same idea will not be entertained for the competition.

You must come up with a new innovative idea of device which involves the basic application of nanotechnology. The device must be useful in day to day life.



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www.azeotropy.org

Here is the list of few topics for reference.

- Paints and Coating
- Chemical Sensors/ Biosensors
- Electronics (Batteries)
- Lotus effect, self-cleaning
- Consumer Products
- Environment

Participants are encouraged to select topics apart from these. **Duplicate ideas, direct copying of idea from internet or plagiarism in any form will lead to immediate disqualification from the competition.**

Team Specifications

1. Each team may consist of a maximum of **3 participants**.
2. Students from the different institution can also form the same team.
3. **At least one participant** must be from Chemical Engineering.
4. Teams should first register for Nano-Invento and get a unique Team ID exclusive for this competition.
5. No participant can register for more than one team. In this instance, both the teams will be subject to disqualification.

Judging Criteria

A) Originality and Creativity (20%)

- new and unique value of a device

B) Application of nanotech in the device (20%)

C) Market analysis of the device/model (35%)

- Sales presentation Techniques (the degree to which the participants are able to sell their idea)
- Market potential
- How large is the market and how fast is it growing
- Capital requirements.

Feel free to include other relevant points

D) Practical application in day to day life (15%)

E) Impact (Presentation structure, Presentation skills, and delivery) (10%)

F) Bonus (10%)

- a prototype or preliminary version of a model



Structure of the Competition

A) Registrations

- Register for Nano-Invento at: <https://azeotropy.org/2019/competitions/nano>
- After successful registration, each team will be allotted a unique Team ID which would be used for all further correspondences.

B) Abstract Screening

It is mandatory for each team to submit an abstract to be eligible for participation on the event day. It serves as a brief description of your idea. Based on abstract submissions, teams will be shortlisted for the event day competition. Participants will receive a mail regarding the selection for the further round.

Write an abstract with a detailed description of your model (word limit 1000, file size not exceeding 1.5 MB).

Note that, abstracts containing ideas directly taken from the internet, or which are not of your own will be immediately disqualified.

a) The abstract should contain the following details:

- Name and contact information of the members and Team ID
- Schematic at macro and nano level of your device
- A short explanation on
 - Structure and manufacturing of the device.
 - It's working.
 - It's utilization in the day to day life.
- Application of nanotechnology in the device ideated
- Market analysis of the model (which includes target customers, cost margins, revenue, demands, and issues)

b) Upload your abstracts in PDF format only with the file name as **nano_invento<TeamID>.pdf**

c) The decision regarding the selection of abstracts rests with Team AZeotropy, IIT Bombay. No further correspondence shall be entertained in this regard.



C) Final Round on Event Day

The winners of the competition will be decided on the basis of results from Stage 1 (i.e. abstract selection) and will be called to demonstrate the idea in front of judges. The teams will be asked to make a Power Point Presentation which must include all the relevant points (mentioned in the judging criterion) and has to be concise. Based on their understanding and the performance they will be graded.

General Rules

1. The abstract should contain the original work of the participants and must not be plagiarized.
2. Modified abstracts can be uploaded to the portal again, but the final abstract submitted before **11:59 pm, 3rd Feb 2019** will only be considered. Your PPT must be based on the final abstract that you submit.
3. The problem statement on the website on the abstract submission deadline will be considered for all evaluations.
4. Any changes in the problem statement and updates regarding the competition will be notified to the registered participants through emails.
5. Submission of similar abstracts by teams from the same institution or falsifying information in the abstracts shall lead to immediate disqualification.
6. The decision regarding final selection of the team rests with team AZeotropy 2019.
7. No second attempts will be allowed for any team on the event day.
8. The judging criteria and specifications are subject to changes until the event day. Team AZeotropy holds all the right to do the same.
9. Final decision-making authority lies with Team AZeotropy, IIT Bombay

Certificate Policy

1. **Top 3 teams** will be awarded **Certificates** and **Cash Prizes**
2. Certificates and Cash prizes will also be awarded to a team with '**Best Innovative Idea**' (apart from top 3 teams).
3. **Certificate of Participation** will be given to all qualified teams performing on the event day.



Contact

For any queries related to the Problem Statement or Registration, participants can contact

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