Corning Future Innovator Program 2025

Corning Research Centre India

Instructions

- Form a team of **two** – comprising of any combination of undergraduate, graduate and PhD students. You are not eligible to enter the competition individually.
- The problem is designed to encourage interdisciplinary thinking, combining principles of engineering, material science, and sustainability. Remember, the best solutions balance technical ingenuity, practicality, and environmental responsibility.
- Follow the instructions provided for submitting your abstract.
- Teams shortlisted for the final round will be emailed by **Friday, July 11, 2025**.
- All the necessary information is provided about the problem. In case additional information is required, make suitable assumptions, and clearly state them.

Evaluation Criteria:

- **Literature Review:** How well does your submission demonstrate an understanding of existing solutions and their limitations?
- **Innovation:** How unique and creative is your approach?
- **Feasibility:** Is the solution realistic and scalable?
- **Impact:** How well does your solution address the problem? (Provide calculations/ simulation results and supporting evidence as suitable)
- **Presentation:** Thoroughness and clarity of concept explanation.

By participating, you are agreeing to following terms and conditions:

- Any information provided to Corning shall be considered non-confidential. You shall not share any information that is protected under any law, patent, confidentiality, or other contract, etc.
- Nothing provided by you shall prohibit or restrict Corning's right to develop, make, use, market, license or distribute products or services. You acknowledge that Corning may already possess or have developed products or services similar to or competitive with those provided by you.
- You shall not use any AI/chatbot generated solutions.

Problem Statement 3: Innovative Glass Pane to Enhance Energy Efficiency

Urban buildings in India account for a significant portion of the nation's energy consumption, with cooling systems contributing to approximately 40–60% of total energy use in commercial and residential structures. Rising temperatures, coupled with increasing urbanization, have led to mounting electricity demands to maintain indoor comfort. This trend poses substantial environmental and economic challenges, calling for innovative solutions to improve efficiency while reducing dependency on cooling systems.

Your challenge is to design innovative glass pane technology or modifications for buildings that effectively reduce heat loads from external sources (e.g., sunlight), thereby minimizing cooling requirements and saving energy. Alternatively, you may propose alternative arrangements or configurations of existing glass panes to achieve similar outcomes. The solution must address key concerns such as affordability, feasibility, environmental impact, and scalability within the Indian context.

Problem Statement

Your solution may involve new materials, coatings, patterns, designs, integration of smart technologies (e.g., dynamic or adaptive glass), or alternative arrangements of existing glass panes to improve thermal performance. The objectives are:

- Reduce heat transfer through glass panes (via conduction, radiation, or convection).
- Achieve measurable reductions in cooling energy demand for typical urban buildings in India.
- Ensure the solution is cost-effective, practical, and scalable for widespread adoption across diverse climatic zones in India.
- Explore alternative configurations or retrofitting strategies for existing glass installations.
- The proposed solution should be implementable in urban and rural settings across India, considering varied climatic conditions and economic limitations.

Deliverables:

A) For Abstract: A 3-content slide PowerPoint presentation (in pdf format) containing:

1. Literature review
2. Outline of core concept highlighting its potential impact.
3. Execution plan

B) For Final Submission:

1. A conceptual design with detailed explanations of its working principles.
2. Detailed literature review summarizing existing technologies and approaches for glass-based heat load reduction, identifying gaps that your solution addresses.
3. Supporting sample calculations or simulations demonstrating the effectiveness of your solution in terms of energy savings for a typical high-rise office building in Pune, India. (Use real life data wherever possible and cite your references)
4. A feasibility analysis including manufacturing considerations, affordability for Indian consumers, and environmental sustainability.