

EDUCATIONAL INITIATIVES BY MIE

Educational initiatives by *Modern Institute of Education (MIE)* have played a vital role in expanding learning opportunities for our students beyond the classroom. With a focus on exposure, mentorship, and skill development, these initiatives have helped bridge the gap between school education and higher academic or professional aspirations. Collaborations such as the **Sci-Tech Spins Lecture Series at IIT Delhi**, **STEM Mentorship Program at IIT Delhi** and **Outreach Programmes at Hindu College** etc. have given our students a unique platform to interact with experts, gain practical insights, and develop critical thinking.

SCI – TECH SPINS LECTURE SERIES HELD AT IIT DELHI

“Digital Microscope: The Science of Life”

15th October 2022



The lecture explained the phenomena of fluorescence, where some chemicals emit visible light after absorbing ultraviolet radiation. The students observed stained and unstained slides under traditional and digital microscopes and compared how digital microscopes display enhanced images directly on a monitor—offering a sharper and interactive view.

“Modern Science in Japan and India: Past, Present and Our Hope for the Future”

25th May 2023



Delivered by Prof. Yoshiro Azuma, the lecture offered a comparative overview of scientific and technological advancements in India and Japan. Students gained valuable insights into modern scientific developments and their potential in shaping the future.

“Mechanics of Cricket”

26th August 2023



Led by Mr. Gaurav Singh (Dept. of Applied Mechanics, IIT Delhi), this engaging session explored the Physics of ball movement and the biomechanics of player actions. The inter-disciplinary lecture connected science with sport, offering students an understanding of cricket through a scientific lens.

“How Standard is the Standard Model of Particle Physics?”

28th October 2023

Prof. Pradipta Ghosh (Department of Physics, IIT Delhi) introduced students to the development, structure, and relevance of the Standard Model of Particle Physics. The session also addressed current scientific challenges, including those emerging from research at the Large Hadron Collider, fostering curiosity about the evolving frontiers of modern Physics.



“Material Engineering Perspectives on Electrochemical Energy Storage Systems”

27th April 2024

Prof. S.V. Karra (Materials Science, IIT Delhi) delivered an insightful lecture, tracing the history of material engineering and its role in ancient energy storage. He explained the critical role played by materials in driving advancements in electrochemical systems, highlighting how material science has consistently propelled human innovation.

“Circuit Design: A Blend of Art and Science”

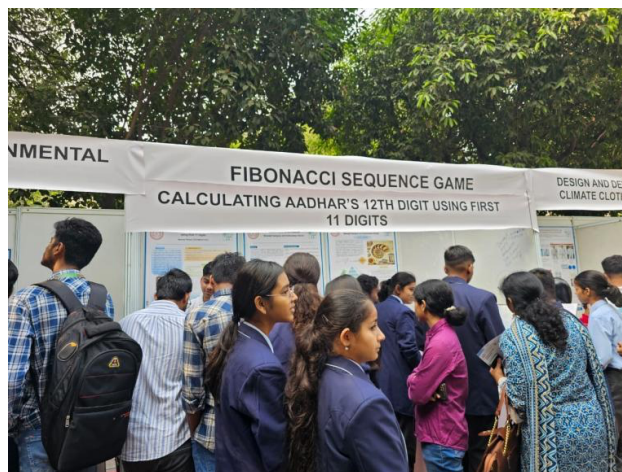
21st September 2024



Delivered by Prof. Ankesh Jain (Electrical Engineering, IIT Delhi), this lecture highlighted how circuit design integrates art, science, and technology. Students learned about the evolution of integrated circuits (ICs) from 2G to 5G, and how it enabled faster data processing. A standout segment in the session elaborated upon the role of nanostructures in enhancing miniaturization and circuit efficiency—critical to today’s electronics.

“Micro Chips”

9th November 2024



The lecture discussed the evolution of microchips, including the various types available today. It also highlighted how modern devices rely heavily on these chips for their functionality.

The ‘Open House’ exhibition at IIT Delhi featured a wide range of interactive stalls and activities, covering topics from mathematics to app development. The event was enthusiastically attended by our students.

“Earth’s Oceans: The Physics Behind Their Might” 18th January 2025



Delivered by Prof. Ritabrata Thakur (Applied Mechanics, IIT Delhi), this engaging lecture explored how oceans regulate global climate equilibrium through physical forces. His accessible style helped students understand the scientific dynamics behind oceanic power and its global impact.

IIT DELHI STEM MENTORSHIP PROGRAMMES

Session – 2023



The session was an engaging exploration of science and innovation - students discovered the mechanics and design of drones, learning what enables them to remain airborne. At the DIY Maker Space, they worked with laser cutting machines and understood how focused laser light differs from natural sunlight.

A behind-the-scenes look at bulletproof jacket manufacturing dispelled movie myths and highlighted how fibres and layering provide protection. Students also experienced a sensor-equipped lean stick for the visually impaired, appreciating its functionality as an inspiring example of technology enhancing accessibility.

The day offered immersive, hands-on learning experiences that combined curiosity with real-world relevance, leaving students inspired by the power of science to transform lives.

Session – 2024



An intriguing program that addressed cutting-edge topics such as AI, cryptography, laser cutting, 3D printing, and CNC machinery. Sessions on “Sensing Urban Sustainability” explored concepts like Zeno’s and Russell’s paradoxes, set theory, infinity, and solar energy solutions for urban heat islands. Students also delved into “Electricity Beyond the Switch,” understanding the evolution and function of modern electrical appliances and their societal impact. The program concluded with a discussion on climate change, its effects on ancient civilizations, and the role of greenhouse gases—drawing links to the Industrial Revolution and long-term temperature shifts.

Manasvi: Stem Mentorship Programme For High School Girls (2025)



The first phase of ‘Manasvi: STEM Mentorship Program for High School Girls’, a week long programme, comprised of technical as well as informal sessions. The day began with interactive group activities led by IIT Delhi student volunteers, followed by formal sessions and hands-on workshops at the MakerSpace Lab. Under the guidance of Prof. Jay Dhariwal (Department of Design) and the MakerSpace team, participants assembled solar lamp kits, thus gaining valuable practical exposure.

OUTREACH PROGRAMMES AT HINDU COLLEGE

Igniting Young Minds: An Outreach Initiative for School Students Hindu College, University of Delhi Under the aegis of DBT Star College Scheme & IQAC 4th – 7th July, 2022

The children enthusiastically performed various activities with a lot of zeal.



Three-Day Science Outreach Programme at Hindu College 15th - 17th April 2025



This initiative bridged school science with real-world labs. The programme was spread across three days—each day dedicated to a core subject:

Day 1 (Chemistry): Focused on Green Chemistry and sustainable practices.

Day 2 (Physics): Students engaged with real-time demonstrations and problem-solving.

Day 3 (Biology): Included practical experiments in Botany and Zoology, encouraging exploration and critical thinking.

Hindu College Youth Outreach Programme (Economics)

10th July 2025



The students attended a dynamic lecture at Hindu College, engaging in experimental economics through interactive games like Prisoner's Dilemma and Matching Coins. They explored key concepts such as game theory, Nash Equilibrium, and strategic decision-making, blending theoretical learning with real-world application. The session offered a multidisciplinary view of Economics and facilitated direct interaction with university experts.

IIT DELHI CHANGEMAKERS – SUMMER BOOTCAMP 2025

9th – 27th June 2025

108 Students
18 Teams
18 Projects
18 Days

YOUTH BOOTCAMP EXHIBITION
SUSTAINABILITY & INNOVATION

CHANGEMAKERS

TACKLING MARINE WASTE: MARINE-DEGRADABLE BIOPLASTIC

BRINGING DOWN WITHIN 72 HOURS, 100% BIODEGRADABLE, SAFE FOR MARINE LIFE

APPROVED BY: CHANDAN JAI SIMON, PUSHPA CHAKRABARTY, MANDELA SWAMINATHAN, PASTORAL MADHULI, RITU SARKI, RUPN KUMAR

DATE: 27th JUNE, 2025
TIME: 10:30 am to 01:00 pm

VENUE: Lecture Hall Complex LH-538, IIT Delhi

PROBLEM STATEMENT

Single-use plastic (SUP) marine waste (SMW) through ingestion and entanglement, is a threat to marine biodiversity, and food for marine life — driving a global crisis.

We need sustainable, ocean-safe alternatives now.

SCALE OF THE PROBLEM

525K+ SUPs are used daily in India
100K+ SUPs are used daily in India
11 mn SUPs are used daily in India

RESEARCH

We conducted over 100 experiments and concluded:
• SUPs are not biodegradable
• SUPs are not safe for marine life
• SUPs are not safe for marine life

BRAINSTORMING AND CONCEPTS

We began with two ideas:
• A marine-degradable bioplastic and biodegradable film
• After refining early unstable versions, we achieved a durable, ocean-degradable film.

PROTOTYPING AND TESTING

We developed a prototype for a marine-degradable bioplastic and biodegradable film, and tested its durability and biodegradability.

IN THE BOOTCAMP WE HAD:

CONNECT WITH NATURE
LAB VISITS
HANDS ON WORK
TEAMWORKING ON

TEAMS WORKING ON:

- Carbon Footprint
- Air Pollution
- Water Pollution
- Climate Change
- Renewable Energy
- Waste Management
- Water Scarcity

CLEANUP DRIVE CONDUCTED ON 27th JUNE COLLECTED 10,000 KG OF WASTE



Spanning three weeks (two online + one on-campus), this high-intensity boot camp challenged students to develop starch-based, marine-degradable bioplastics as an eco-friendly alternative to single-use plastics. The experience involved prototyping, research, fieldwork, and a plastic clean-up drive—where students walked nearly 20,000 steps in one day to clean the campus and nearby areas, thus learning sustainability, innovation and teamwork.

EDUCATIONAL VISIT TO ULTRA INTERNATIONAL LIMITED – PERFUMERY WORKSHOP 25th July, 2025



An educational and interactive Perfumery Workshop held at Ultra International Limited, Sahibabad. The workshop provided the students with a unique opportunity to understand the integration of science, art and business behind fragrances—something we often take for granted in our daily lives. Students prepared Perfumes, Roll-ons, Candles and Soaps.