Report on Experencial Learning of students of the Department of Physics & Department of Electronics, Asutosh College at Birla Industrial and Technological Museum (BITM, Kolkata) on 10/12/2025

§. The Department of Physics & The Department of Electronics, Asutosh College have arranged a visit for odd Semester Physics (Major) students to the BITM, Kolkata in West Bengal, India on 10/12/2025. A few faculty members of both the Department have accompanied around **45** selected participants from Asutosh College, main building (92, S.P. Mukherjee Road, Kolkata-26) to the BITM campus. The list of participants is attached herewith. Some electrifying highlights, hands-on learning, and lasting inspiration were gained by our students that we enlist below.

Selected program of our trip was started through a science based entertaining & wonderful magical show named "Science magic show" conducted by Technical Officer Mr. Tarun Kumar Das. The show highlighted several fundamental principles across physics and chemistry through a series of apparently miraculous feats and demonstrations. The scientific concepts covered Center of Mass and Center of Gravity focusing on the principles of stability and balance, illustrating how manipulating an object's center of gravity allows for seemingly impossible balancing acts. Water Pressure and Balance experiments demonstrated the power and effects of atmospheric and hydrostatic pressure, such as supporting a glass of water using only a simple piece of paper. A clear demonstration of fluid transfer against gravity, namely Siphon Principle was explained by pressure differences. Soon the program shifted to Thermodynamics including volatility fire show. Optics and Refractive Index related experiments were demonstrated by vanishing a coin by utilizing the illusion of vision. The presentation was concluded with few chemistry-related demonstration. To foster a spirit of inquiry and scientific curiosity among the audience, the presenter disclosed some scientific logic for several demonstrations and a select number of tricks were deliberately left as unsolved mysteries to encourage individual critical thinking and foster independent investigation into the relevant scientific principles.

Next, a 3D show was organized. On contraty to a traditional 2D screen, 3D animation was produced by wearing Virtual Reality or Augmented Reality glasses to individual . In this show there was double outline for each and every image presented in 2D plane, if one views without the given glass. One of the outline was more prominent than other. The topic about the environment more than 6000 meter deep within the sea was very selective and enriching. Interconnected phenomena and mutual relationship among living being to survive in this harsh condition were neatly demonstrated in around 30 minutes span.

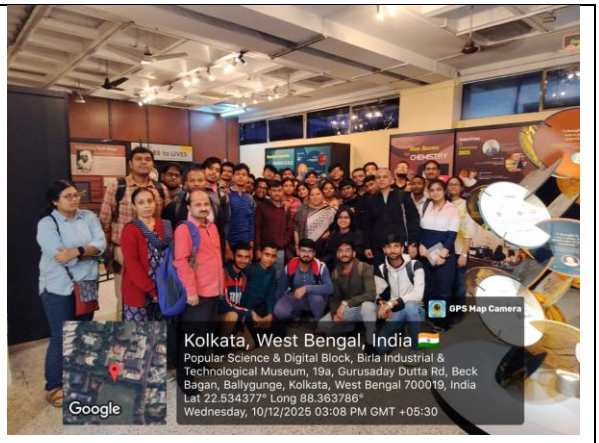
After that, students moved to a replica of underground coal mine standing with the actual applied technology and a demonstrator spoke the transport mechanism within the power plant. All coal types were explained, as well the challenges of this area, life of labour in this condition, unpredictable accident, oxygen supply, working principle of various machinery, supportive structure of cave, problems related to poisonous gases like methane and finally how to fill up the gap using sand unfertile soil and stone. He also represented the dependency on coal for maximum power supply. It was finished about an awareness of petroleum related product as well as promoting renewable energy source.

Next we moved various in-build galleries dedicated to various revolutionary invention. Technologies that explores include communication methods in past and present, post, telegraphy, telephony, radio and the innovations and technologies of various Indian path-breakers. Murals, mannequins, multimedia and modern art installations complement the teleprinters, ionosphere recorder, gramophone, manual telephone exchange, wall-mounted telephones, replica of Bell's liquid transmitter and fire-alarm box which occupy prime positions in communication center. Glacier in Iceland and mingle with the penguins

moving around visitors were represented digitally in digital adventure gallery. The Metals gallery of BITM depicts the story of the four most important metals – Copper, Zinc, Iron-steel and Aluminium through interactive exhibits, diorama, animated panels and multimedia presentation. Children's corridor contains various games, visual show, playing robot, mirror reflection and many more. Television gallery reflects the evolution of television as a medium of personalized household entertainment, featuring an innovative TV timeline, displays of vintage television technology, including animated exhibits of John Logie Baird's pioneering work, CRT-based transparent TV set cross-sections, and an interactive multi-camera setup. The classical physics section of this gallery has **28** interactive exhibits on Mechanics, Gravitation, Light and Electromagnetic Waves. The modern physics section of the gallery explored the subatomic particles, to the mysteries of the universe of black holes and pulsars, to the supercool region near absolute zero and to all such forbidden areas for ordinary human experience. The **38** exhibits with eye-catching visuals, working models, animations, video, multimedia, unmanned quiz and other presentation techniques make one's experience enthralling. There were some other area named mathematics gallery, popular science show, astronomy club, biotech lab, Motive Power that represent story of how the ever-increasing need for power in human civilization over the ages.

There was an exclusive show named "**High Voltage Theatre**". There was Wimshurst Machine invented by Jems Wimshurst generating high voltage electricity near about 28000 volt used in early 1880. Reprasenting staff demonstrated the actual phenomena of lightning process with experiment in lab. He also discussed about how to safe ourself from it. Which places were safe and which are not were discussed with explanation. There was another instrument called Tesla coil that is a resonant transformer that steps up low voltage to extremely high voltage, creating powerful electrical discharges through electromagnetic induction and resonant circuits, producing dramatic arcs. Researching and demonstrating concepts for transmitting energy without wires, creating spectacular high-voltage arcs for science shows, and in music performances were another uses of it. Main attraction was Van De Graaf Generator. It generator creates extremely high static voltages (millions of volts) for demonstrating electrostatics, but its primary scientific use is as a particle accelerator, boosting charged particles (like protons) to high energies for nuclear physics research, medical treatments (cancer therapy), and creating X-rays. It's also a popular educational tool to illustrate static electricity. An interesting phenomena demonstrated with hair follicle. The back ground of this it transfers the charge to the person who is touching it. Since the person's hair follicles are getting charged to the same potential, they try to repel each other. This is why the hair actually stands up. It is working principle is electromagnetic induction, converting mechanical energy to electrical energy by moving a conductor (wire coil) within a magnetic field (or vice-versa) to induce an electric current, based on Faraday's Law. This rotation cuts magnetic flux lines, creating an electromotive force (voltage) that drives current through an external circuit, with direction determined by Fleming's Right-Hand Rule.

A few memories as well as pictures shared by their scientists of the restricted facilities are attached.

	
In front of the Mining Expedition	Gathering in front of Main Building

Students & faculties at the high-voltage theatre before the enlightening show by Tarun Das.

§. List of Selected Candidates

Birla Industrial & Technological Museum *** Department of Physics and Department of Electronics** Date : 10.12.2025

Sl No	NAME	DEPARTMENT	SEMESTER	SIGNATURE
1	Rajnandini Saha	Physics	1	Rajnandini Saha
2	Adrija Datta	Physics	1	Adrija Datta
3	Debanjan Roy	Physics	1	Debanjan Roy
4	Arka Prava Banerjee	Physics	1	Arka Prava Banerjee
5	Aanhiti Bhattacharyya	Physics	1	Aanhiti Bhattacharyya
6	Subham Mandal	Physics	3	Subham Mandal.
7	Mainak Pal	Physics	1	Mainak Pal
8	Ritasmara Chakraborty	Physics	1	Ritasmara Chakraborty
9	Arkojyoti Banerjee	Physics	1	Arkojyoti Banerjee
10	Anwesha Katuwal	Physics	1	
11	Riya Roy	Electronics	3	Riya Roy
12	Sukrit Saha	Electronics	3	Sukrit Saha
13	Soham Chandra	Physics	3	Soham Chandra.
14	Tanmoy Saha	Electronics	3	Tanmoy Saha
15	Yudhajit Lala	Phsyics	1	Yudhajit Lala.
16	Dibyendu Mondal	Physics	1	Dibyendu Mondal
17	Sanchita kumari	Electronics	3	
18	Gourab Ambastha	Physics	3	Gourab Ambastha
19	Aniket Bardhan	electronics	3	Aniket Bardhan
20	NITYANANDA PAUL	Electronics	1	Nityananda Paul
21	Krishanu Mondal	Electronics	3	Krishanu Mondal
22	Rohan Saha	Physics	3	
23	Samriddhi Bhowmik	Electronics	1	Samriddhi Bhowmik
24	Anand singh	Electronics	1	Anand Singh
25	Ashish Sharma	Electronics	1	Ashish Sharma
26	Rupam Pal	Physics	3	Rupam Pal
27	Fajle Rabbi Mandal	Physics	3	Fajle Rabbi Mandal
28	ARKADEEP DHANG	Physics	3	Arkadeep Dhang
29	Souvik kumar paul	Electronics	3	Saavik kumar Paul.
30	Sayan Halder	Physics	3	Sayan Halder
31	Sangita Halder	Physics	5	Sangita Halder.
32	Arka koley	Physics	5	Koley.
33	Sanket Sarkar	Physics	5	Sanket Sarkar.
34	Aaditya Barman	Physics	5	Aaditya Barman
35	Rupal Maitra	Physics	5	Rupal Maitra.
36	Barnita Thokdar	Physics	5	Barnita Thokdar
37	MAYUUM UPADHYAY	Physics	3	Mayuum Upadhyay
38	Bartika Paik	Physics	5	Bartika Paik
39	Poshok Mitra	Electronics	3	POSHOK MITRA
40	RIMIL SOREN	PHYSICS	5	Rimil Soren.
41	ARJA BANERJEE	PHYSICS	5	Arja Banerjee
43	Upayan chatterjee	Physics	5	Upayan Chatterjee
44	Sourav Kr. Bhowmick	Electronics	Faculty	Sourav Kr. Bhowmick
45	Surjya Sarathi Bhattacharyya	Physics	Faculty	Surjya Sarathi Bhattacharyya
46	Amit Kumar Bhattacharjee	Physics	Faculty	Amit Kumar Bhattacharjee
47	Parikshit Dutta	Physics	Faculty	Parikshit Dutta
48	Arpita Bose	Physics	Faculty	Arpita Bose
49	Aditi Das	Physics	Faculty	Aditi Das
50	Subhadip Sarkar	Physics		Subhadip Sarkar
51	Bidhan Ch. Sana	physics	Faculty	Bidhan Ch. Sana
52	Holiotosh Poddar	Physics	3	Holiotosh Poddar
53	Bajna Chatterjee	Physics	1	Bajna Chatterjee.
54	Anwshree Barui	physics	1	Anwshree Barui

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