REPORT

Hands on Training Course ANALYTICAL TECHNIQUES FOR ENVIRONMENTAL MONITORING AND REMEDIATION

SEPTEMBER 23 - 29, 2022

ORGANIZED BY

DEPARTMENT OF CHEMISTRY

INDIAN INSTITUTE OF TECHNOLOGY, ROPAR, PUNJAB

IN ASSOCIATION WITH

SOPHISTICATED ANALYTICAL INSTRUMENTATION FACILITY (SAIF)

PANJAB UNIVERSITY, CHANDIGARH

सत्यमेव जयते
Department of Science & Technology
Govt. of India

HANDS ON TRAINING PROGRAM

ANALYTICAL TECHNIQUES FOR ENVIRONMENTAL MONITORING AND REMEDIATION

[Jai Anusandhan]

Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI)

SEPTEMBER 23 - 29, 2022

Organised by

Department of Chemistry, IIT Ropar, Punjab

In Association with

Sophisticated Analytical Instrumentation Facility (SAIF)
Panjab University, Chandigarh

Prof. Narinder Singh
Professor, Deptt. of Chemistry
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DAY 1

The commencement of the DST-STUTI preparing program started with the custom of light lightning while at the same time appealing to God for the generosity of Goddess Saraswati. The training program began with the introduction of the training program and its outcomes from Prof. Narinder Singh, IIT Ropar. Then, Prof. Gangaram Chaudhary, Director of SAIF/CIL, Punjab University, and Coordinator STUTI Program, addressing the importance of bringing collaboration in research and instrumentation technologies. The session guest, Prof. Harpreet Singh, IIT, Ropar talked about the collaboration which provides analytical instrumentation facilities to researchers all over the country to help them with their research. Dr. Rajeev Kumar, Panjab University, Chandigarh is the session guest. Thereafter, the introduction of the selected participants of the Insight and Hands-on Training Program was carried out. Research scholars and Professors from different institutions, have joined the training program for practical learning Prof. Ganga Ram Choudhary; Panjab University Chandigarh delivered a lecture on synthesis and characterization and environmental application of nano materials. Prof. Narinder Singh; delivered a lecture on Fluorescence spectroscopy and Time Resolved Fluorescence Spectroscopy. The overall workflow of the training program which includes environmental monitoring and remediation was conveyed to the participants.

IIT Ropar Post Lunch, the introduction of the selected participants of the Insight and Hands-on Training Program was carried out. Participants were imparted with Lab safety Instructions; Strategies for materials synthesis required for water analysis.

DAY 2

The second day of the Insights and Hands on Training Program on Techniques in ENVIRONMENTAL MONITORING AND REMEDIATION proceeded with the overview of the today's agenda for technical workshop training, which was given by Prof. Narinder Singh. He later introduced, today's session expert, Dr. Ramesh Kumar Sharma; Panjab University Chandigarh & Dr. Rajiv Kumar; Panjab University Chandigarh.

Dr. Ramesh delivered a lecture on Importance of Analytical Techniques in Environmental Science while Dr. Rajeev Kumar emphasized on Mycoremediation of xenobiotics waste from Pharmaceutical Industry. They also addressed some of the attendees' questions about the technical session while emphasising some of the limits discovered throughout the experimental approach.

Post lunch, Practicals were conducted under the guidance of Dr. Gagandeep Singh, IIT Ropar. Participants were divided into groups and had to perform experiment in different laboratories assigned. A Training on material characterizations and synthesis were carried out.

DAY 3

On the third day of the Hands-on Training Program on techniques for environmental monitoring and remediation, Dr. Gagandeep Singh, IIT, Ropar initiated the event by giving a brief highlight of the previous day's session and addressed Prof. Narinder Singh, IIT, Ropar to introduce the session expert, Prof. Navneet Kaur; Panjab University Chandigarh.

Prof. Navneet Kaur; Panjab University Chandigarh delivered a lecture on Biosensors and chemosensors for water pollution analysis. Dr. Narinder Singh; IIT Ropar delivered a talk on Strategies for visual detection of analytes using chromogenic receptors. An interactive session took place between the expert and participants. A detailed discussions on doubts and queries were also held during the lectures.

During the second half, a hands-on training on: Qualitative and Quantitative analysis of metal ions in waste water using chemosensors were imparted to the participants.

DAY 4

Day 4 started with the lecture on Machine learning and online analysis of river water by Dr. Harupjit Singh, NIT, Jalandhar and Prof. Navneet Kaur. Panjab University, Chandigarh. A comprehensive talk on machine learning including basic principles, interpretation and analysis. Talk provides detailed information about the fabrication and analysis of the river water. During the second half, a practical training on fabrication of

handheld devices for water analysis is given to the participants. An interactive hands-on training takes place during the second half.

DAY 5

The expert session, where Dr. Manoj Kumar Pandey, gave his talk on 'A general perspective on Nuclear Magnetic Resonance (NMR) Spectroscopy and Dr. Jasvir Singh, delivered a talk on Impacts of industrial waste on water pollution.

A field visit to Common Effluent Treatment Plant (CETP), Baddi was carried out where participants thoroughly learnt the process of waste water treatment and remediation methodology. An interactive session between the plant experts and participants had taken place.

Day 6

The 6th Day for the training program initiated with the routine highlights of the previous day by Dr. Gagandeep Singh, followed by a welcome speech for the experts Prof. Rajendra Srivastava & Prof. Harpreet Singh, IIT Ropar given by Prof. Narinder Singh, IIT Ropar.

Prof. Harpreet Singh delivered a talk on wealth from waste. He emphasized on how a waste material can be reuse for some other applications. Dr. Gagandeep Singh; delivered a talk on Extraction of nickel and chromium from waste water and conversion into nanomaterials. The sessions wer followed by doubts, queries and trouble shooting.

During the second half, a practical hands-on training on how to create wealth from waste and its practical demonstration was given to the participants.

Day 7

On the seventh day of the DST STUTI training program, the lecture on electron microscopy was given by the Dr. Sandeep Kumar, GJUST, Hisar. A detailed discussion on working principle, interpretation and applications in different fields of research. The future advancement in an electron microscopy was also covered during the lecture.

The doubts of the participants were covered during the practical hands-on training on microscopy. Participants gained practical experience on confocal microscopy.

VALEDICTION

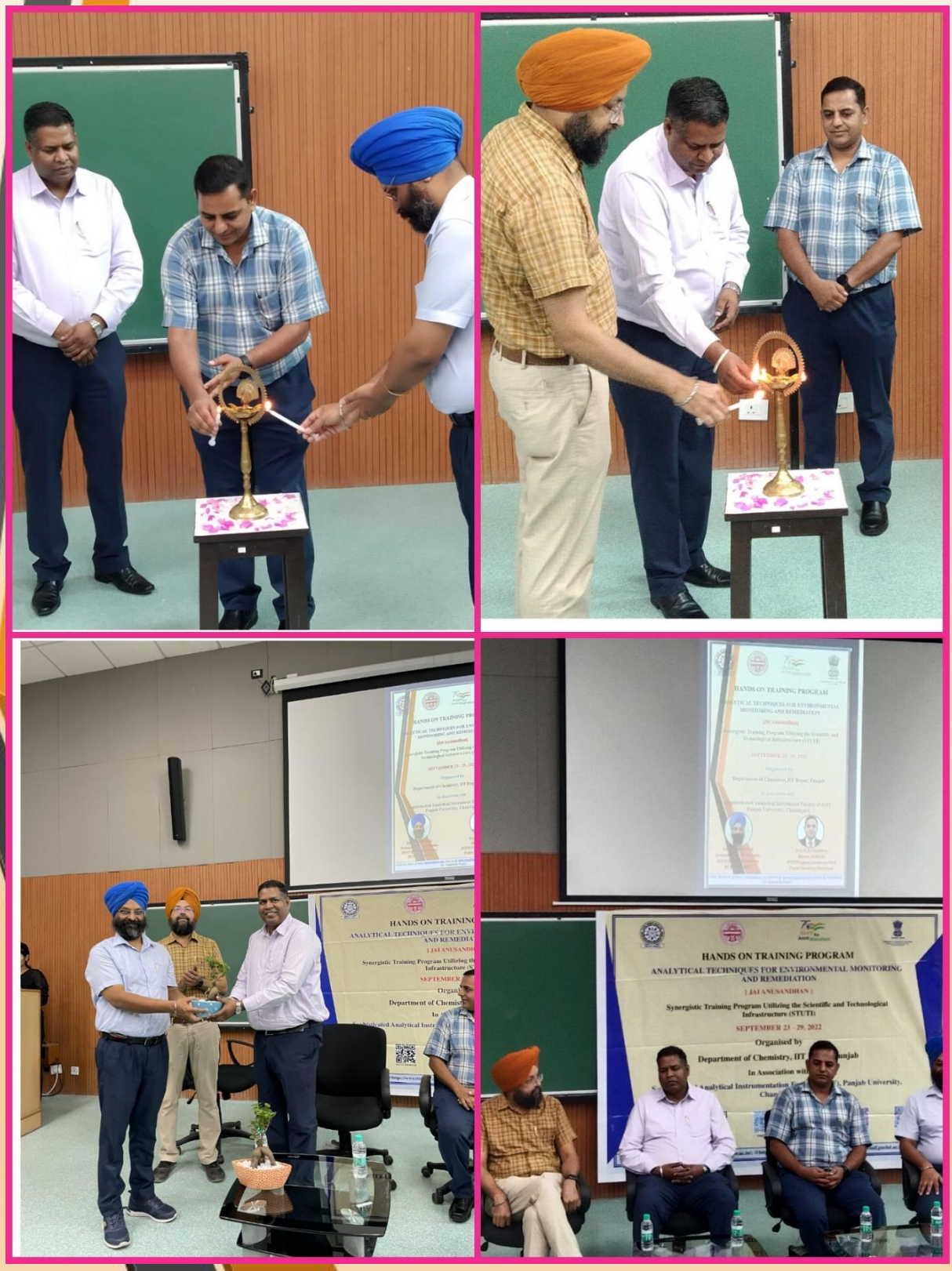
During the Valediction ceremony, the feedback of the participants, felicitation and certificate distribution took place.

Participants felt motivated and appreciated the efforts of the organizing committee of the Department of Chemistry, IIT, Ropar for training and hands on experience.

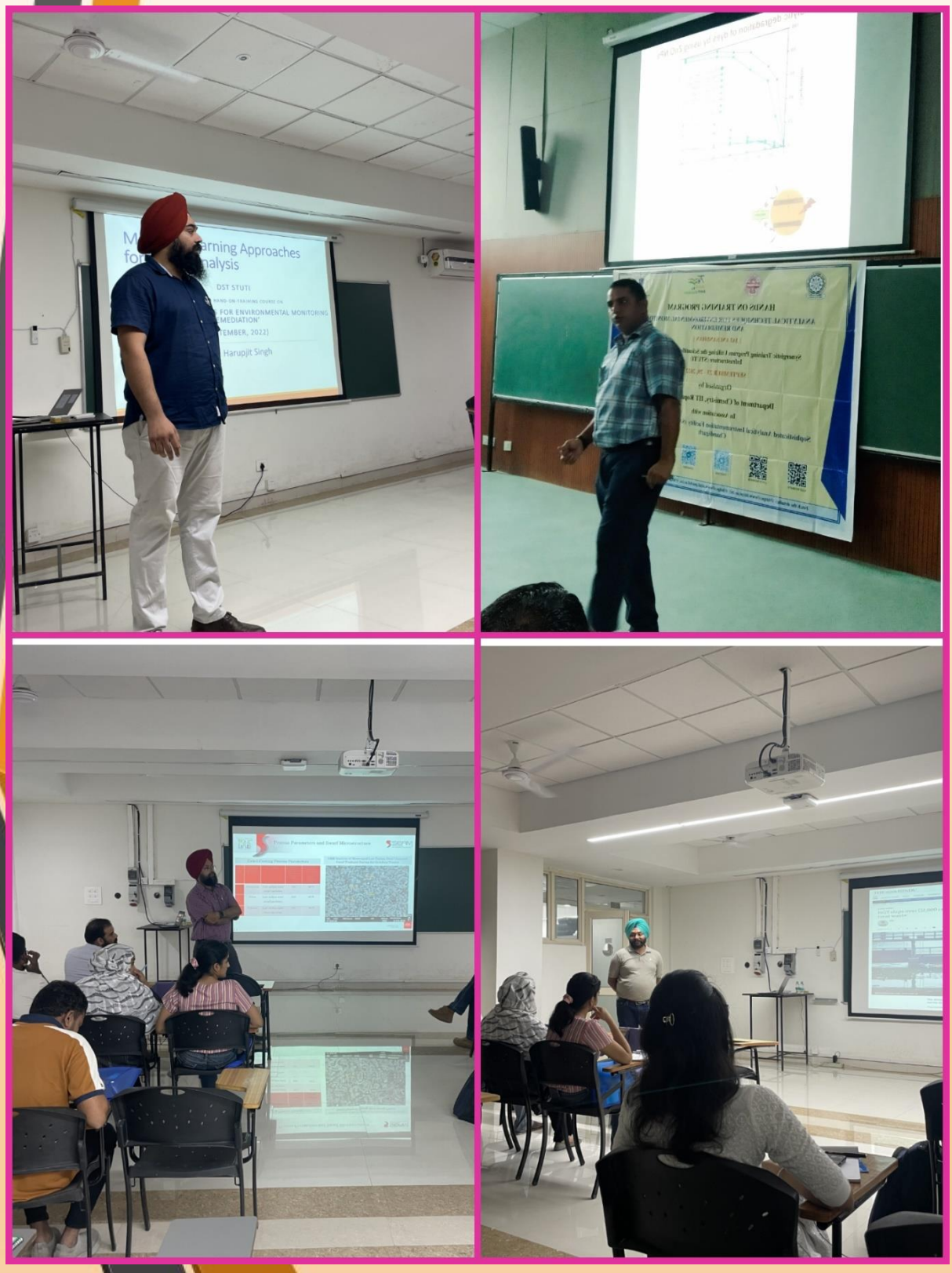
Participants were thankful to the DST, Government of India, for creating platform where scientific knowledge and hands-on training of high-end instruments can be accessed easily.

GALLERY

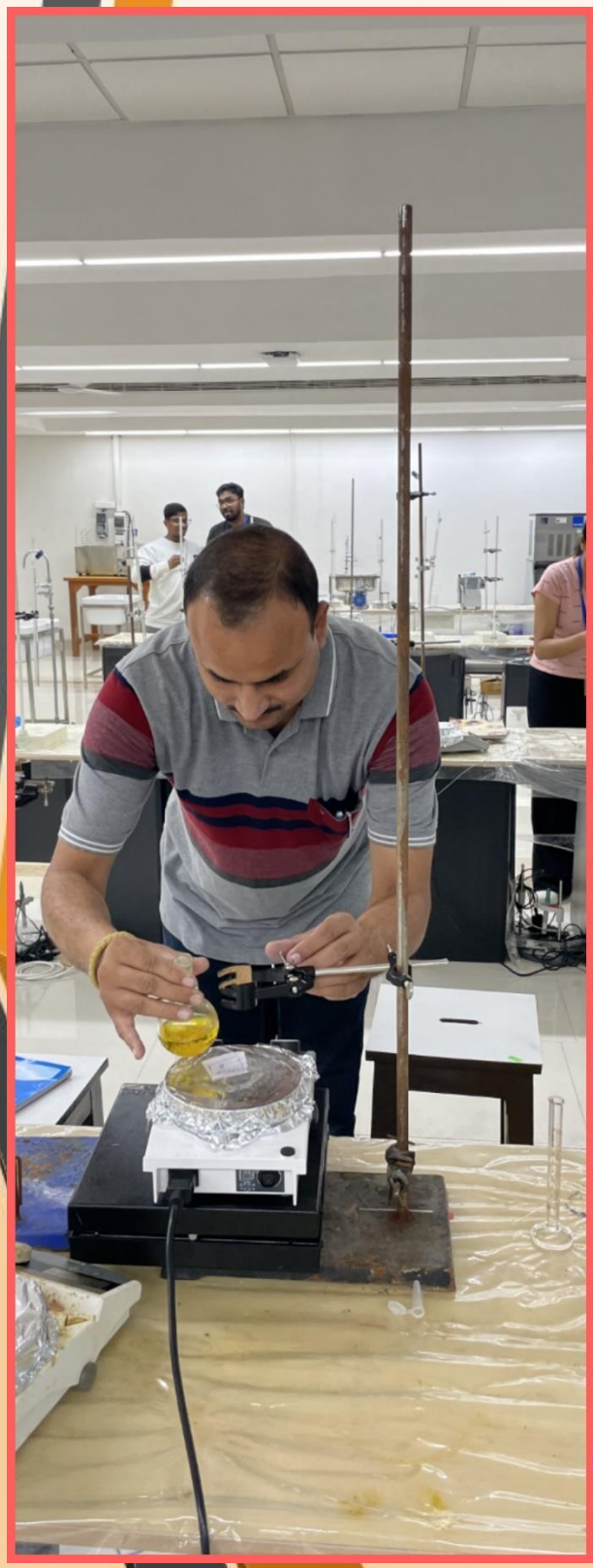
Inauguration

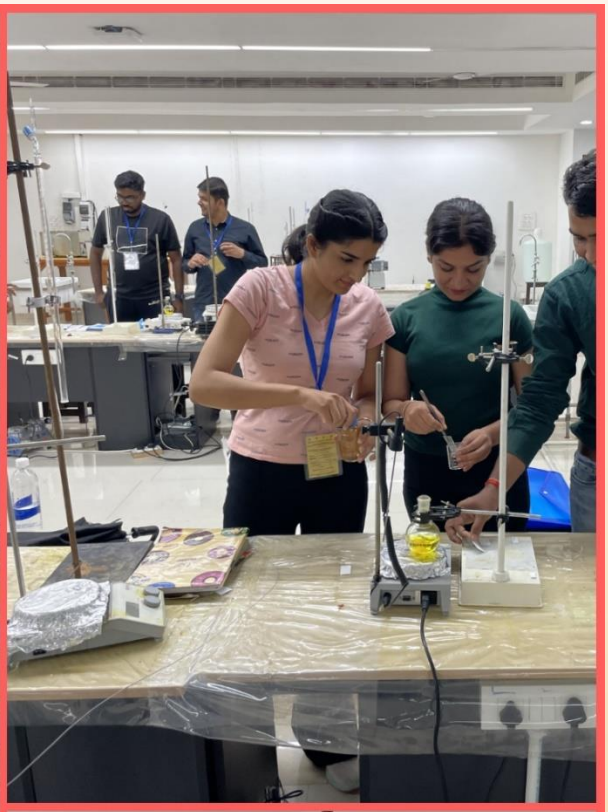


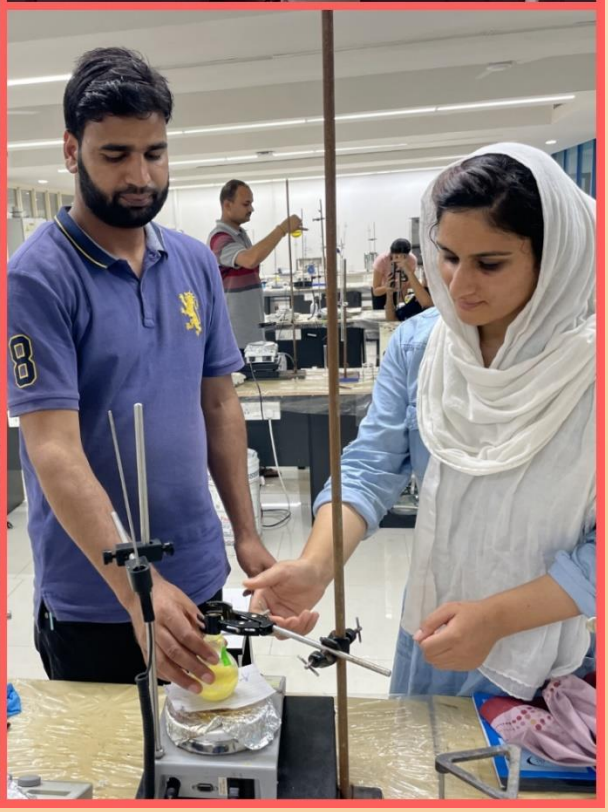
Lectures

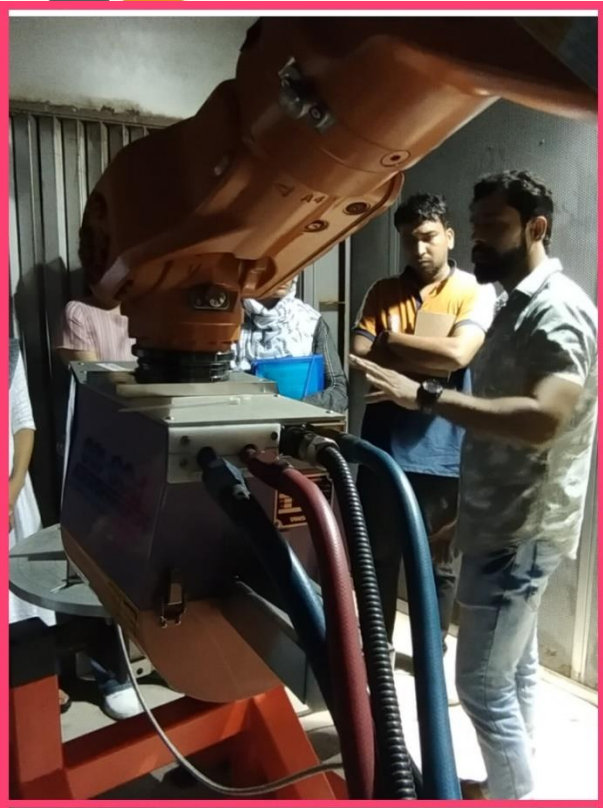


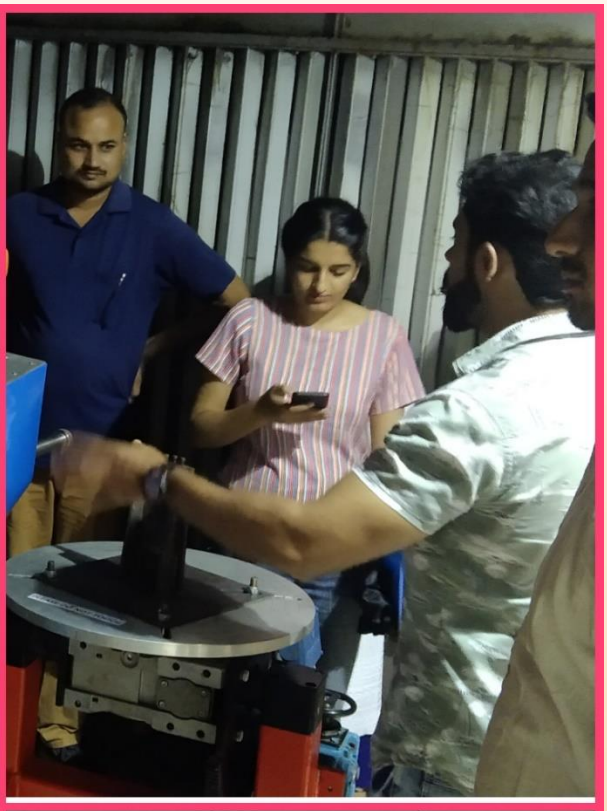
Hands-on Training

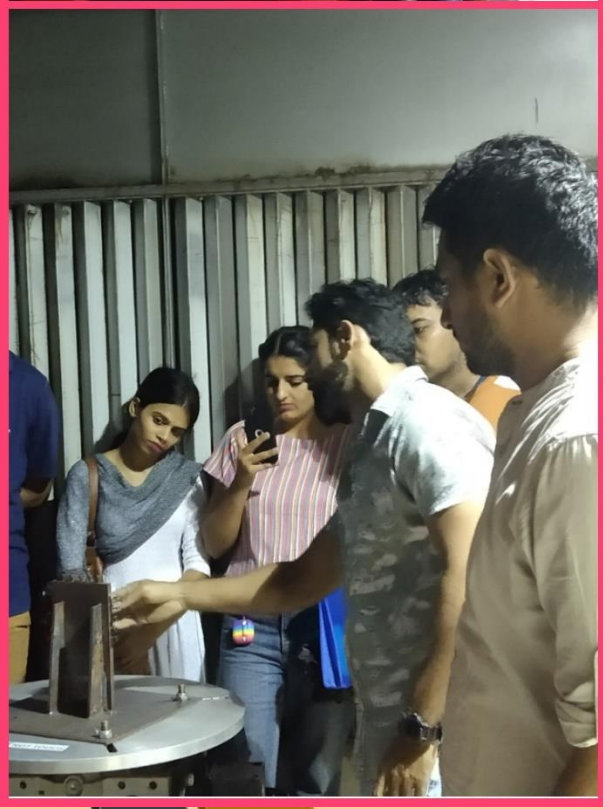


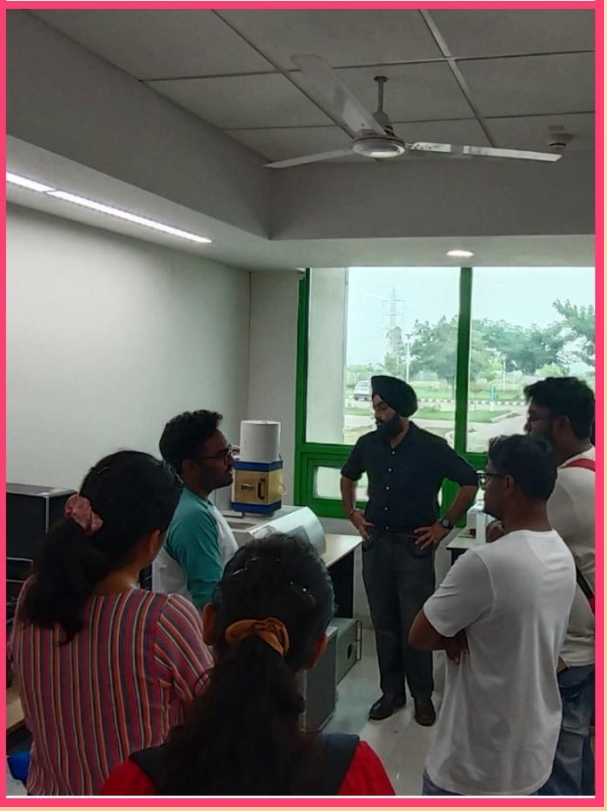






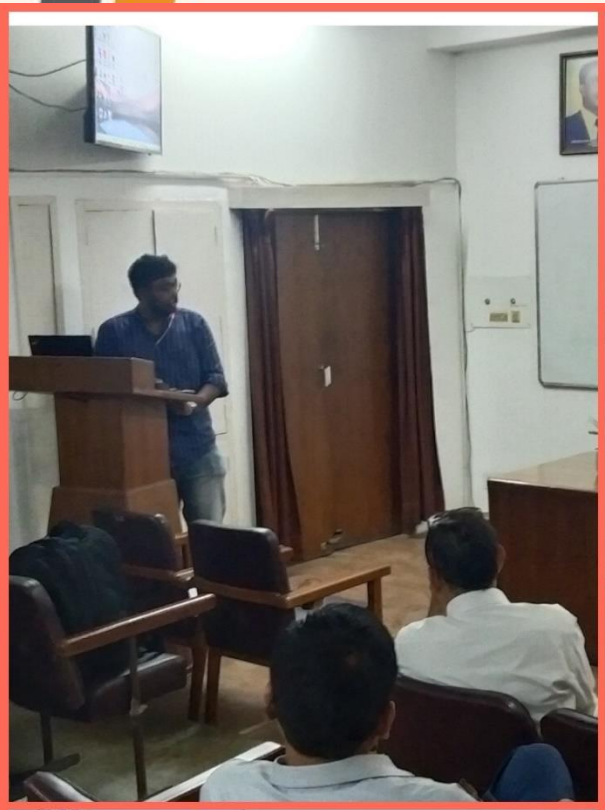


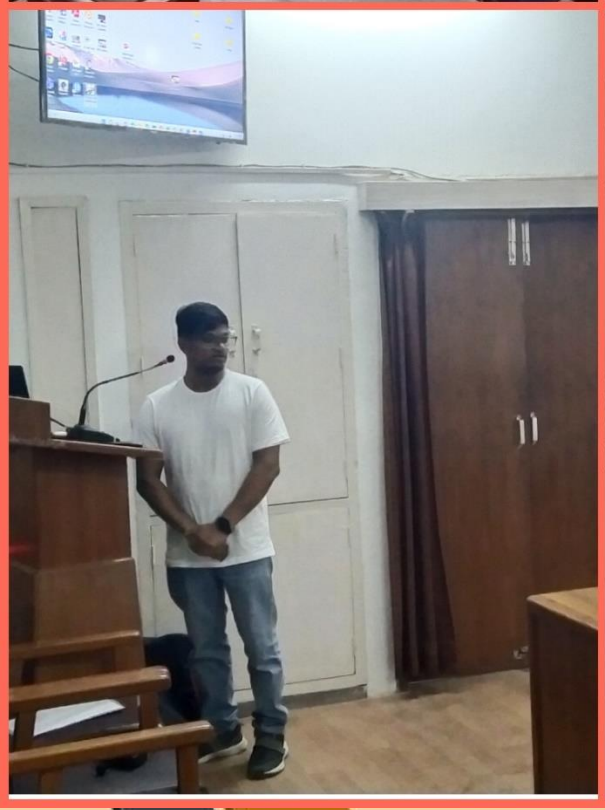


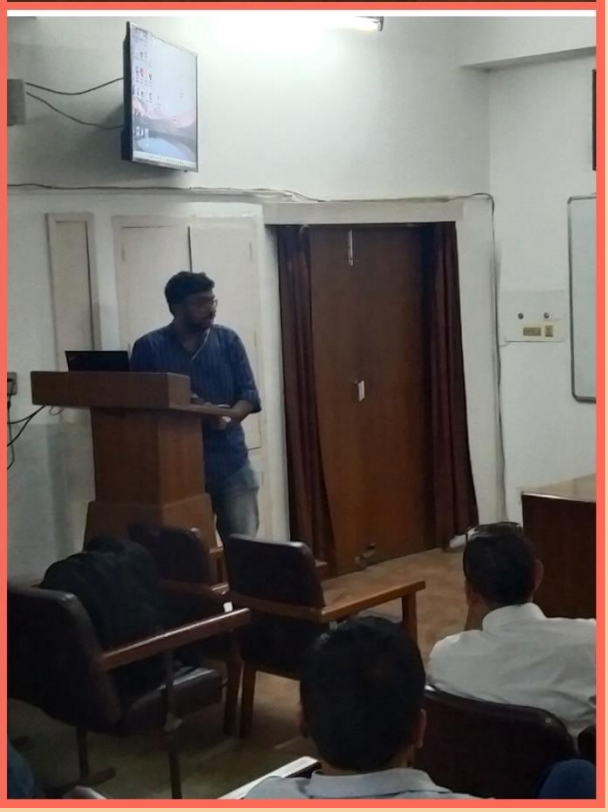


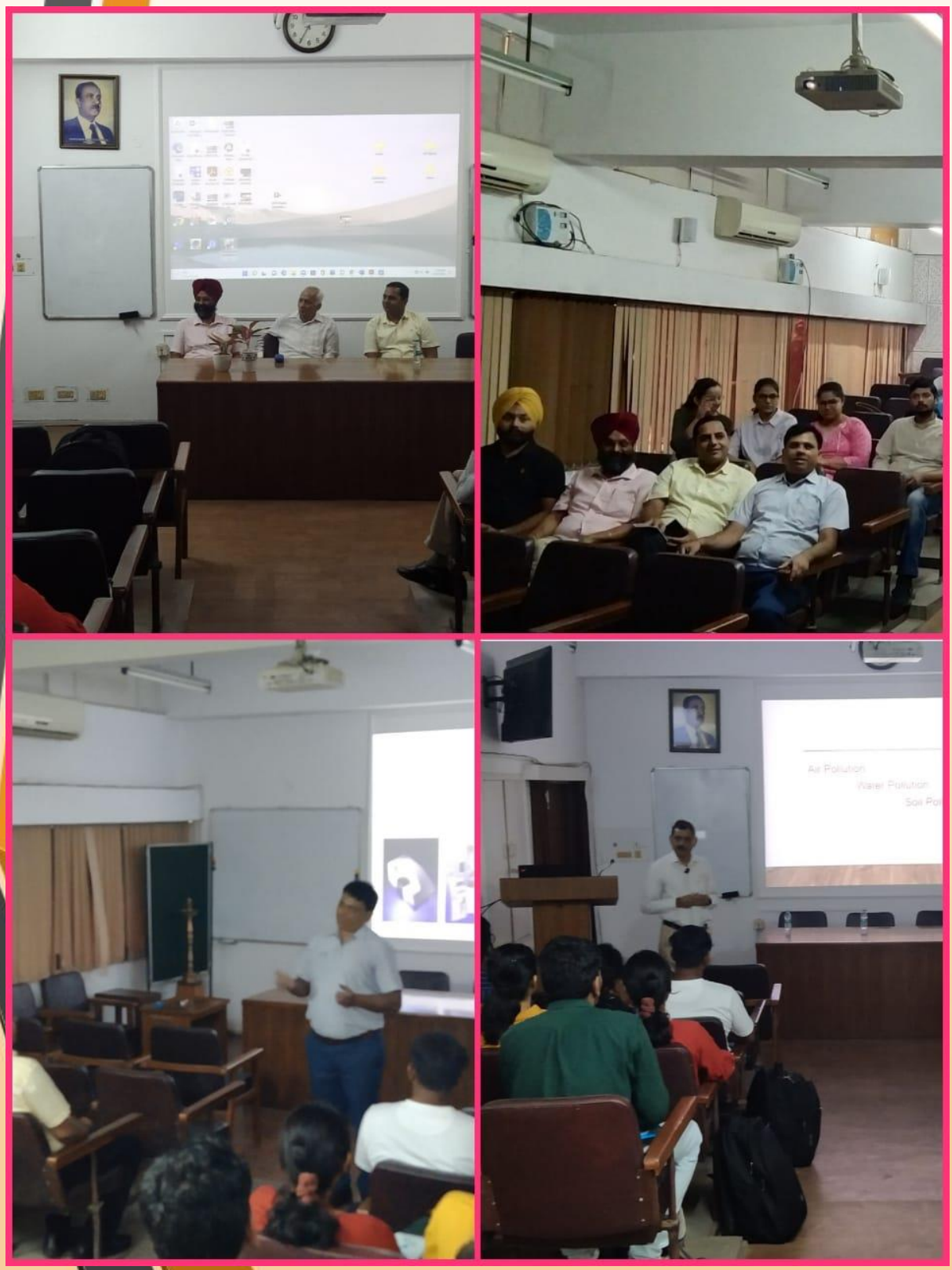
Field Visit (CETP, Baddi)

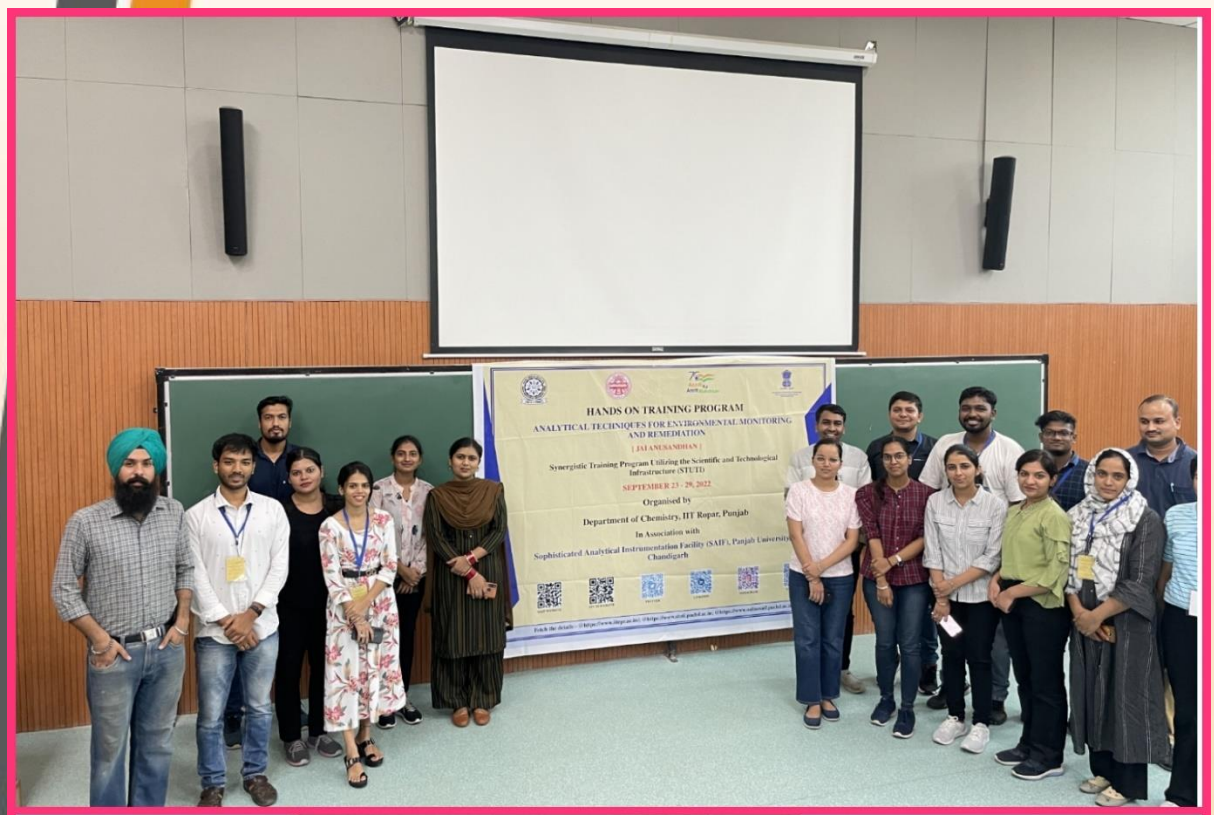
Valediction and Feedback








Air Pollution
Water Pollution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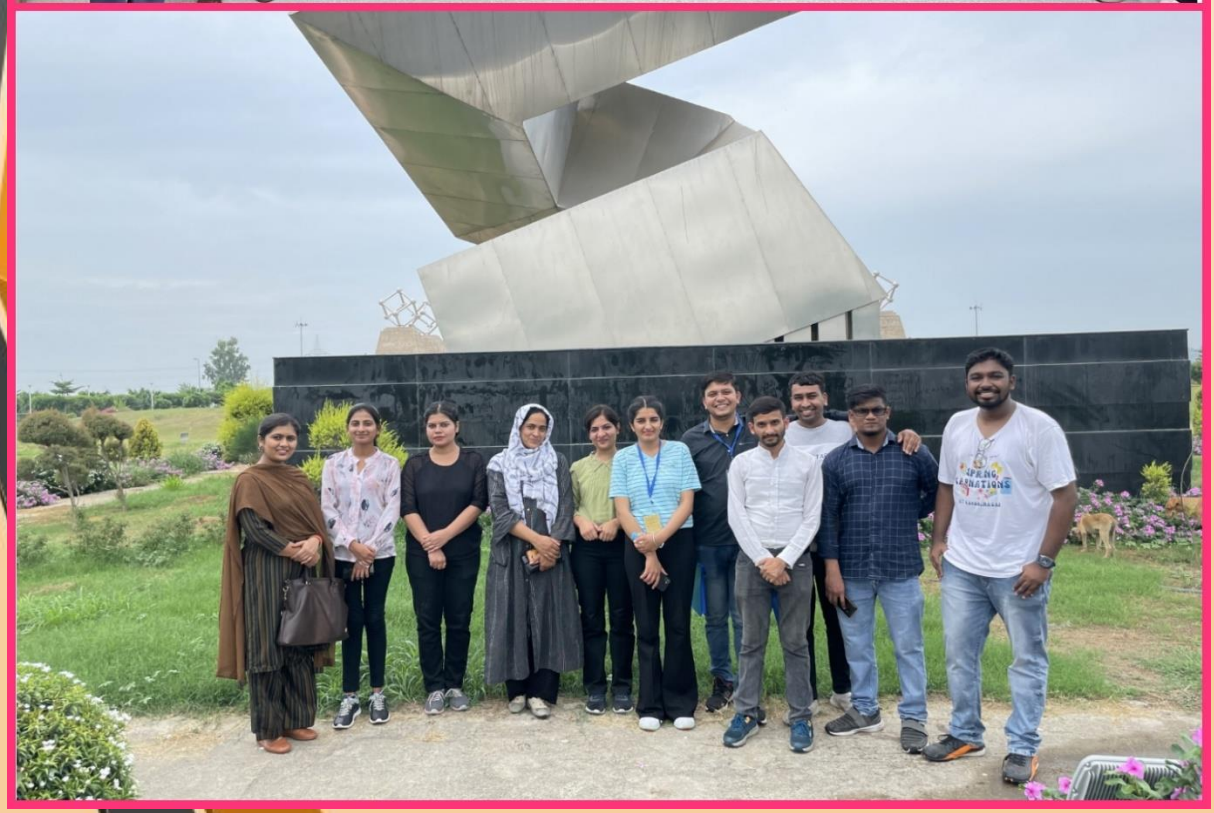

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