Govt. V.Y.T. PG. Autonomous College
Durg, C.G., India, 491001

(Erstwhile: Govt. Arts & Science College, Durg)

Reaccredited Grade "A+" by NAAC College with potential for excellence

CPE Phase-III by UGC Awarded Star College by DBT, New Delhi

Report On
Educational Tour
To

"NIT Raipur (C.G.), Energy Park Raipur (C.G.)
And
Regional Science Centre Raipur (C.G.)"

14 February 2025

Organized By

Department of Mathematics

(Session 2024-25)

ACKNOWLEDGMENT

We would like to express our sincere gratitude to all those who made our educational tour a success. Educational trips play a pivotal role in enhancing our cognitive skills and fostering a deeper interest in research. In today's context, theoretical knowledge alone is often insufficient, and practical experiences provide valuable insights that further enrich our learning.

First and foremost, we are grateful to the Principal of our college, Dr. Ajay Singh, for granting us permission to undertake this educational tour.
We also extend our heartfelt thanks to Dr. Padmavati, Head of the Department of Mathematics, for her unwavering support and prompt approval of this trip to the National Institute of Technology, Raipur. This visit broadened our understanding of various emerging research fields.

A special acknowledgment goes to Dr. Rakesh Tiwari, Professor, Department of Mathematics, for his coordination with the officials at NIT Raipur and for making all the necessary arrangements in a short time.

We would like to express our deep appreciation to the humble Vice Chancellor of NIT Raipur, who graciously provided us with the opportunity to visit the institute. We are also thankful to the teaching and non-teaching staff of the Department of Mathematics at NIT Raipur for their warm hospitality.

Our sincere thanks also go to Pratik Singh Sir and Deepak Dhirhe Ma'am, who accompanied us on this tour. Their care, patience, and guidance were integral to the success of the trip.

In addition to our visit to NIT Raipur, we also had the privilege of exploring the Science Centre Raipur and Energy Park. This trip has been an enriching and memorable experience for all of us.

We are truly grateful for all the support and experiences that made this educational tour possible.

Participants

S.N.	NAME OF STUDENT	GROUP
1.	AFFARA KHAN	GROUP A { L}
2.	DIVYA VERMA	GROUP A
3.	YAMINEE DEWANGAN	GROUP A
4.	RISHABH DADSENA	GROUP A
5.	HARSH NIRMALKAR	GROUP A
6.	NIKHIL	GROUP A
7.	SANSKAR TIWARI	GROUP B { L}
8.	ADITYA PANDEY	GROUP B
9.	SHOBHARANI	GROUP B
10.	TANNU VERMA	GROUP B
11.	DAMINI SAHU	GROUP B
12.	SANJANA	GROUP B
13.	MRIDUL NIRMAL	GROUP C { L}
14.	AJAY SAHU	GROUP C
15.	AAYUSHI MISHRA	GROUP C
16.	HEENA SAHU	GROUP C
17.	ANJANI	GROUP C
18.	AKANKSHA	GROUP C
19.	GAURAV PARATE	GROUP D { L}
20.	ANNUPAMA EKKA	GROUP D
21.	ABHIT	GROUP D
22.	NEHA NISHAD	GROUP D
23.	KHUSHBOO SAHU	GROUP D
24.	CHOVARAM	GROUP D
25.	MANISH SAHU	GROUP E { L}
26.	SEEMA BAGHEL	GROUP E
27.	KIRAN DEWANGAN	GROUP E
28.	RITA	GROUP E
29.	RUKHMANI MANDAVI	GROUP E
30.	NISHA SAHU	GROUP E

Educational Tour Report

Organized by: Department of Mathematics, Govt. V.Y.T. PG. Autonomous College

Date: 14 February 2025

Destinations:

1. **National Institute of Technology (NIT) Raipur, C.G.**
2. **Regional Science Centre Raipur, C.G.**
3. **Energy Park Raipur, C.G.**

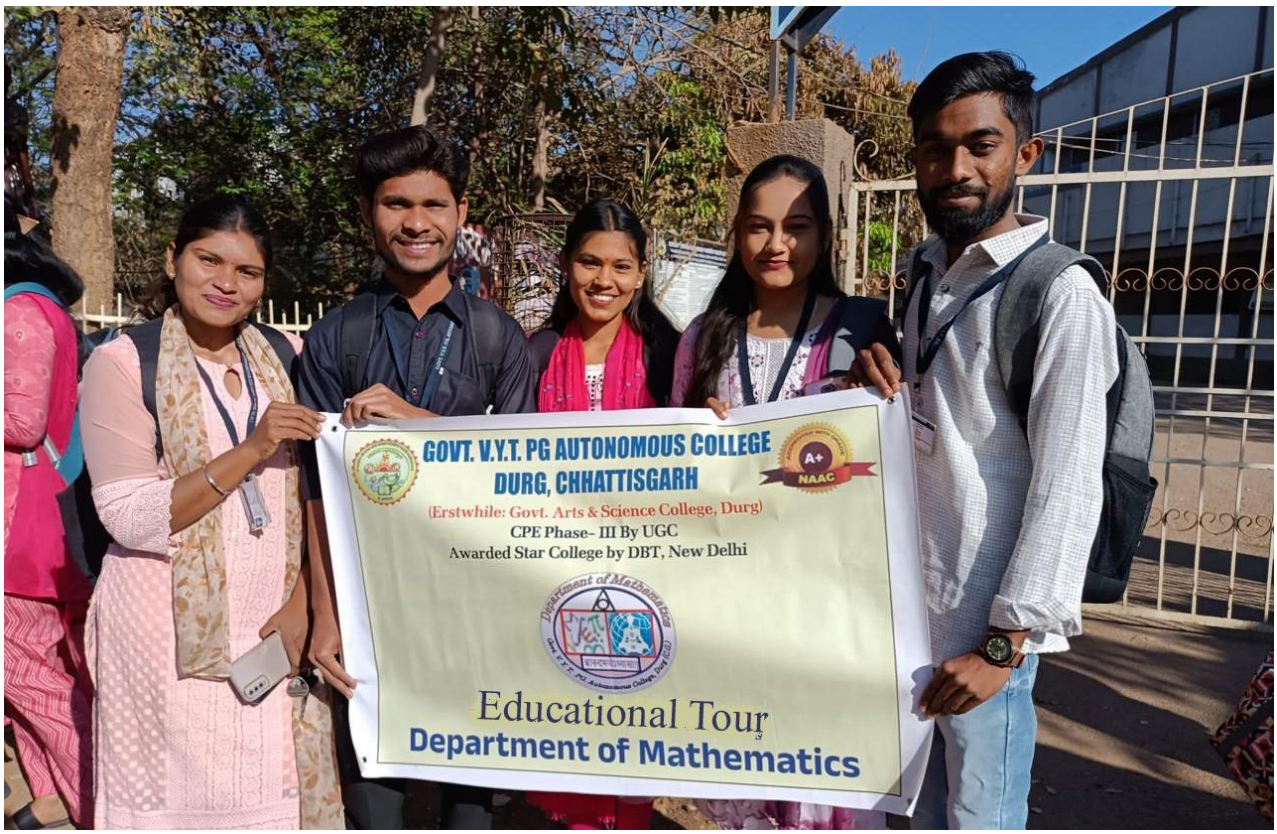
Participants: M.Sc. Fourth Sem. Mathematics Students (Session 2024-25)

Introduction

The Department of Mathematics, Govt. VYTPG Autonomous College, organized a one-day educational tour for M.Sc. fourth-semester students of the 2024-25 session. The primary objective was to foster a comfortable environment between students and faculty, enhancing their motivation towards academics and research. This tour aimed to provide students with exposure to research opportunities, scientific demonstrations, and group activities.

Objectives of the Tour

1. To create awareness about research opportunities after an M.Sc. in Mathematics.
2. To interact with professors and gain insights into academic and research career paths.
3. To observe and understand scientific models and theories through live demonstrations.
4. To engage in group activities that promote teamwork and collaboration.



Tour Itinerary

1. Visit to National Institute of Technology (NIT), Raipur

About NIT Raipur

National Institute of Technology (NIT) Raipur, formerly known as Government Engineering College (GEC) Raipur, is located in the capital city of Chhattisgarh, India. Over the years, the institute has carved out a distinguished identity in the field of technical education, contributing significantly to the development of high-quality human resources and knowledge in diverse areas of technology.

NIT Raipur was declared a "National Institute of Technology" by the Government of India on December 1, 2005, and later recognized as an "Institute of National Importance" in May 2007 under the National Institute of Technology Act 2007. With over six decades of rich history as a premier institution in technical education, NIT Raipur has built a legacy of academic excellence and innovation.

The institute offers a wide range of academic programs, including 12 undergraduate (UG) and 11 postgraduate (PG) programs. In addition to these, NIT Raipur also offers Ph.D. programs in 18 disciplines of science and technology, further emphasizing its commitment to fostering research and advancing knowledge across various fields.

About Mathematics Department

The Department of Mathematics at the National Institute of Technology (NIT), Raipur, was established in 1956, originally as part of the Government College of Engineering and Technology. Since its inception, the department has evolved into one of the most prominent and emerging departments within the institute.

The department is actively engaged in a wide array of research and teaching endeavors, covering various specialized fields of mathematics. These include Algebra, Linear Algebra, Optimization, Mathematical Ecology and Biology, Fluid Dynamics, Cryptography, and Statistics. Through these areas, the department contributes significantly to both theoretical advancements and practical applications of mathematics.

In addition to its academic excellence, the department provides a dynamic and supportive research environment, fostering innovation and collaboration among faculty, students, and researchers. This environment has proven to be conducive to the pursuit of knowledge and the development of cutting-edge research in mathematics.

The first destination was NIT Raipur, where students interacted with esteemed professors from the Mathematics Department. The discussion revolved around research opportunities, higher education prospects, and career pathways in mathematics. Professors shared their experiences, providing a roadmap for students to pursue research and development in their field. The session was insightful and encouraged students to explore academic excellence beyond their coursework.

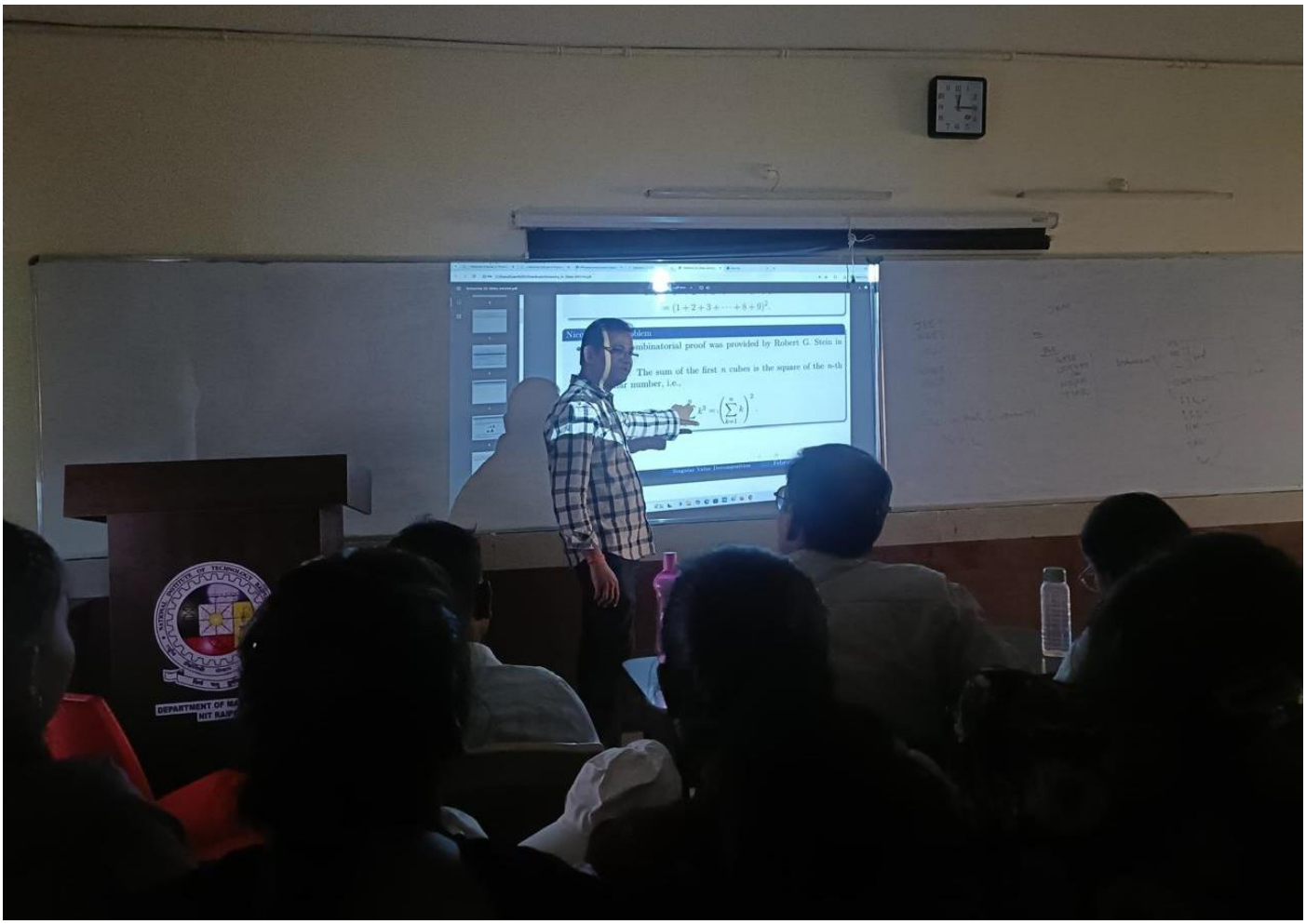
NIT RAIPUR

Interaction with Research Scholars at NIT Raipur

Introductory Speech by Dr. Nilesh Kumar Thakur, Associate Professor, NIT Raipur

Speech by Dr. Rakesh Tiwari at NIT Raipur


JAM
JEE
NEET
NLU
MSc
PhD
GATE
CSIR NET
NBHM
TIFR
Interview
IITs
Unis
IISER/NIS
IISc
ISI
IIM
TIFR



Faculty of NIT Raipur:

- Dr. Arvind Kumar Sinha
- Dr. Deepmala Sharma
- Dr. R.K. Das
- Dr. S.N. Raw
- Dr. D. Mishra
- Dr. N.K. Thakur

Faculty of Govt. V.Y.T. PG. Auto. College, Durg:

Dr. Rakesh Tiwari, Asstt. Prof.
Ms Deepak Dhihre, Guest Lecturer
Mr. Pratik Singh Thakur, Research Scholar

2. Visit to Regional Science Centre, Raipur

The Chhatisgarh Regional Science Centre, Raipur

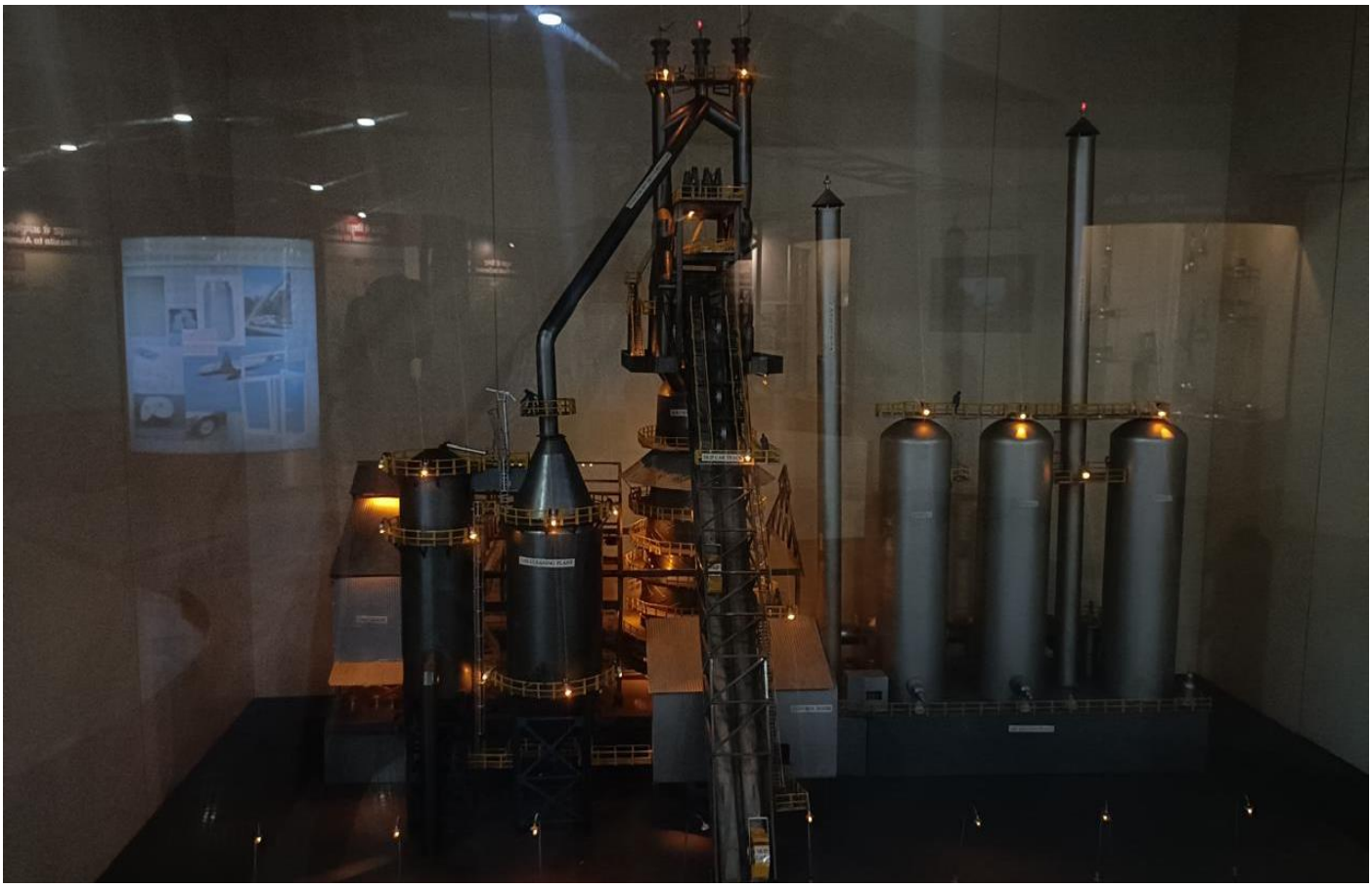
The Chhattisgarh Regional Science Centre (CRSC), under the Department of Science & Technology, Government of Chhattisgarh, is the first Science Museum of the state. It was established on July 13, 2012, with the collaboration of the Department of Science & Technology, Government of Chhattisgarh, and the National Council of Science Museums, Kolkata.

The primary mission of CRSC is to popularize and promote science, especially among the youth, throughout the year. The centre achieves this goal through various interactive models, educational programs, and engaging activities. The exhibits and facilities at CRSC are carefully designed to enhance the knowledge base of students and visitors, focusing not only on fundamental subjects such as physics, geology, and forestry, but also on current topics in science and technology, along with important social issues.

Through its innovative approach, the Chhattisgarh Regional Science Centre aims to inspire curiosity, foster critical thinking, and spark a deeper interest in scientific exploration among the youth, thus contributing to the overall development of scientific knowledge and awareness in the region.

Following the visit to NIT Raipur, students proceeded to the Regional Science Centre. Here, they observed various working models that demonstrated fundamental and advanced scientific theories. These models provided practical insights into mathematical and physical concepts, making abstract ideas more tangible and easier to comprehend. This interactive session reinforced theoretical knowledge through real-world applications.

Regional Science Centre Raipur



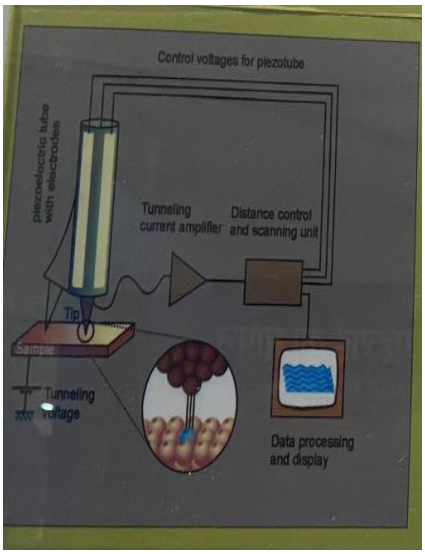
Modern Furnace

Scanning Tunnelling Microscope (STM)

The Scanning Tunnelling Microscope (STM) is a powerful technique used to visualize and study surfaces at the atomic level. The STM operates by utilizing a sharp conductive tip (stylus) that scans the surface at a fixed distance from it. When the stylus is brought very close to the surface, a bias voltage applied between the surface and the tip allows electrons to tunnel through the vacuum between them. This phenomenon, known as quantum tunnelling, occurs because of the wave-like properties of electrons, which allow them to pass through barriers that would be insurmountable in classical physics.

The tunnelling current generated by the flow of electrons is measured and recorded, providing valuable information about the surface's atomic structure. The data gathered from the tunnelling current is used to construct a three-dimensional profile of the surface, revealing the arrangement of atoms and features at a nanoscale level. From this profile, a computer-generated contour map of the surface is produced, allowing researchers to study the surface in great detail.

STM has proven to be an invaluable tool in fields such as material science, nanotechnology, and surface chemistry, providing insights into the structure and behavior of materials at the atomic scale.



Taramandal Show

Farming

Team Activity

Team A

Team B

Team C

Team D

Team E

3. Visit to Energy Park, Raipur

The final stop was Energy Park, where students participated in group activities aimed at fostering teamwork and collaboration. The park provided a relaxing yet engaging environment, allowing students to interact with their peers and faculty members in an informal setting. This helped in strengthening their trust towards the department and enhancing their enthusiasm for academic pursuits.

Energy Park

Conclusion

The educational tour was highly beneficial for the students. It not only provided exposure to academic and research opportunities but also created an engaging learning environment beyond the classroom. The interactions with professors and hands-on experiences at the science centre helped in renewing their interest in mathematics. Additionally, group activities at Energy Park strengthened peer relationships and faculty-student bonds.

Overall, the tour successfully achieved its objective of motivating students towards their curriculum and research aspirations, making it a fruitful and memorable experience for all participants.