



# Report on

## THREE DAYS COMPACT COURSE ON ALGEBRA

27-29 SEP, 2024

Supported by Professor R. Balakrishnan Endowment Trust (RBET) and  
The Indian Mathematics Consortium (TMC)

The PG Department of Mathematics, Bhadrak Autonomous College, Bhadrak, organized a three days “Compact course on Algebra” under the aegis of The Professor R. Balakrishnan Endowment Trust (RBET) and The Indian Mathematics Consortium (TMC) during Sep 27-29, 2024. The Professor R. Balakrishnan Endowment Trust (RBET) was established with a singular vision: to inspire young students to pursue advanced studies and research in mathematics. Named in honor of Professor R. Balakrishnan, a senior mathematician and educator, the trust is dedicated to continuing his interest in promoting mathematics at all levels. The Mathematics Consortium promotes mathematics by organizing joint events and regional programs in collaboration with various Mathematical Societies and Institutions in India and SAARC countries. Dr. Alok Kumar Sahoo, the local coordinator and all other faculty members of PG Department of Mathematics played a vital role in hosting the programme.

The whole mathematics student community of the college embraced the initiative by joining in a huge number. Total 124 number of students from Bhadrak Autonomous College attended the programme. In addition to that 23 students from six different colleges also attended. These colleges are (1) B.J.B. Autonomous College, Bhubaneswar, (2) Biranchi Narayan Madhab Arjun College, Paliabindha, (3) Charampa Mahavidyalaya, Bhadrak (4) Jambeswar Degree Mahavidyalaya, Gadsang, Balasore, (5) Khaira Mahavidyalaya, Khaira, and (6) U.N. College, Soro. A special provision was made by the local organizer to support the other college participants by providing meals.

Details of the day wise activities are given below:

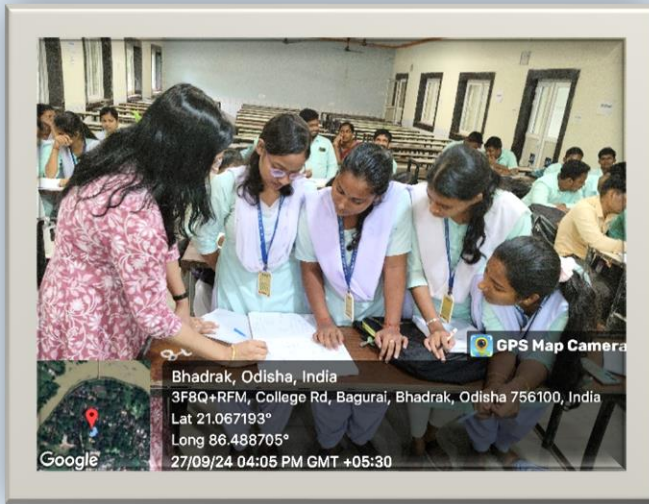
### **Day 1**

The programme was inaugurated on September 27, 2024, at 10:45 a.m. in the Conference Hall of Bhadrak Autonomous College, Bhadrak. The occasion was graced by Dr. Durga Sankar Das, Principal, Bhadrak Auto. College, Dr. Dinesh Chandra Dash, Admin Bursar, Dr. Ajit Kumar Das, Head of PG Dept. of Mathematics, Prof. Sasmita Barik, RBET Regional Coordinator, Prof. Tarakanta Nayak, IIT Bhubaneswar and Dr. Alok Kumar Sahoo, Local Coordinator. The Principal, Dr. Das, greeted all participants and guests and also thanked the RBET and TMC for the programme at

Bhadrak Autonomous College, Bhadrak. Speaking on the importance of Mathematics, Dr. Dash, encouraged pupils to learn mathematics and seek careers in higher mathematics. As the world is experiencing a surge in artificial intelligence, he encouraged attendees to understand the relationship between AI and mathematics. Head of the Dept., Dr. Das, in his address, extended a warm welcome to all attendees, guests, and resource persons. Prof. Sasmita Barik, Regional Coordinator (RBET), discussed RBET and TMC's vision for this initiative. Dr. Sahoo, welcomed the guests and introduced them to the audience. At the end, Miss. Sraddha Sangita Mohapatra, a volunteer, offered the vote of gratitude.

The 1st session of the Day1 included two lectures. Prof. Barik, gave the opening talk on “matrices and graph theory”. She began her discussion by inspiring students with geometric interpretations of eigenvalues and eigenvectors. Prof. Nayak, delivered the second talk. He discussed an important concept in analysis, namely the limit and continuity. His talk was titled "What happens ultimately: Epsilon, Delta, and Others?". In the afternoon session, they both continued to engage students by discussing a variety of interesting problems and clarifying their queries. Finally, they interacted with the participants and encouraged them to pursue mathematics.





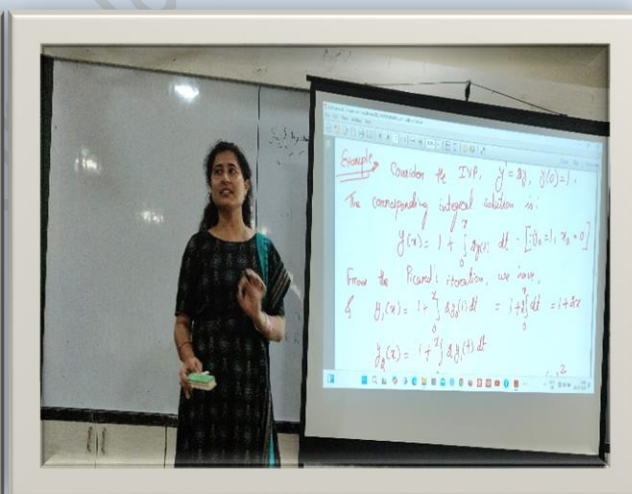
## Day 2

The first talk of the second day was by Dr. Ajit Kumar Das, Bhadrak Auto. College, Bhadrak. He gave a talk on number theory. He discussed various functions, like the Euler-Phi function to count the number of positive integers relatively prime to a particular natural number. Then the talk proceeded into various applications and relationships between other functions. The second speaker was Prof. Brundaban Sahu, NISER Bhubaneswar. He began the talk by discussing the symmetries of various mathematical objects. Then he introduced the dihedral group and the symmetric group. In addition, he discussed the theory of finite groups. In the post-lunch session, he took a very interactive problem session. And, the second day ended with informal discussion and some cultural performances by participants.



### Day 3

On the last day of the programme, the first talk was on Group theory by Prof. Sahu. He continued his talk and discussed many classification results in finite Groups. The second talk was on various analytical ways solving a “Initial value problem (IVP)” in differential equations. The talk was by Dr. Akasmika Panda, Asst. Prof., Sailabala Women’s Auto. College, Cuttack. She presented different types of solutions associated with a differential equation. Also, she addressed the question, “Does every IVP have a solution?”. In the afternoon session, they both took a problem session. Finally, the programme ended with a closing remark by the Head of Department.





### **Conclusion:**

Overall, it was a tremendous success for us. This event was a wonderful source of knowledge for all the attendees. Thanks to honourable Principal Dr. Durga Sankar Das, HOD Dr. Ajit Kumar Das for their support and encouragement. And, also thanks to other faculty members Mr. Prasanna Kumar Nath, Dr. Debasish Das, Dr. Nirmal Ch. Rout, Dr. Parbati Sahoo of Dept. of mathematics, for their coordination. We, PG Department of Mathematics, Bhadrak Auto. College, Bhadrak, would like to extend our gratitude to the Professor R. Balakrishnan Endowment Trust (RBET) and The Indian Mathematics Consortium (TMC) for giving the opportunity to host the programme.