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PRESS-RELEASE

Inauguration of Five-Day GIAN Course on New Trends in Coloring in Graphs at IIT (ISM) Dhanbad

The inaugural function of the five-day GIAN course on *New Trends in Coloring in Graphs*, organized by the Department of Mathematics and Computing, IIT (ISM) Dhanbad, was held today at the Executive Development Centre-Lounge of the institute. The event was graced by the esteemed presence of **Prof. Sukumar Mishra, Director, IIT (ISM)**, as the Chief Guest.

The course, scheduled from **March 24-28, 2025**, features **Prof. Riste Škrekovski** from the Faculty of Mathematics and Physics, University of Ljubljana, Slovenia, as the Foreign Faculty. Also present at the inaugural function were **Prof. S.P. Tiwari, Head of the Department of Mathematics and Computing, IIT (ISM)**, and **Prof. Dinabandhu Pradhan**, the course coordinator from the same department.

The program aims to delve into fundamental and advanced concepts in graph coloring, including **vertex coloring, edge coloring, face coloring, critical graphs, list coloring, odd coloring, and conflict-free coloring**. The course will also explore classical theorems such as the **Four Color Theorem and Brooks' Theorem**, along with modern developments and unsolved problems in the field.

Speaking at the event, **Prof. Dinabandhu Pradhan** highlighted the significance of the course, stating, *"Through a combination of theoretical exploration and practical problem-solving, students will gain a comprehensive understanding of graph coloring and its applications."* He further elaborated on the learning outcomes, explaining that by the end of the course, students will be able to:

- Define and explain key concepts of graph coloring, including **chromatic number and chromatic index**.
- Apply **classical theorems and algorithms** to solve graph coloring problems.
- Analyze and critique **various graph coloring strategies** and their efficiency.
- Explore real-world applications of graph coloring in **scheduling, resource allocation, and network design**.
- Investigate current research trends and open problems in the field, preparing for advanced study or research.
- Develop and present solutions to complex graph coloring problems, enhancing mathematical communication and problem-solving skills.

The course promises to be a valuable learning opportunity for students and researchers, equipping them with deep insights into graph theory and its broad range of applications.

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