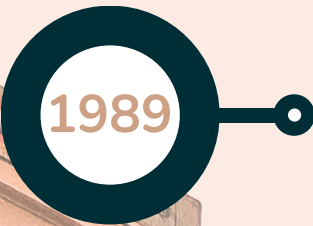# DEPARTMENT OF MATHEMATICS AND COMPUTING

Over the last three decades, the department has demonstrated its expertise and competence in teaching and research in the core areas of Mathematics and its allied disciplines such as Statistics and Computing. The Department provides an outstanding research environment complemented by excellent teaching for its students to flourish in different arena of academics and industry as well.

1:4 Faculty Student Ratio

1:4 Gender Strength Ratio

1989 Department of Mathematics and Computing was established

Courses	Strength
Integrated Master of Technology	60
Master of Science	50
Master of Technology	45

DOMAINS OF STUDY

- Data Structures and Algorithms
- Operating System
- Algebra
- Software Engineering
- Graph Theory and Algorithms
- Mathematical Analysis
- Probability and Statistics
- Numerical Methods
- Computer Science
- Mathematical Modeling and Applications
- Cryptography and Security
- Data Science and Analysis
- Advanced Optimization Techniques
- Nonlinear Programming
- Advance Sampling Theory

LABORATORIES - UG, PG

- Computer Organization and Architecture Lab
- GPU Computing Lab
- Neural Networks and Deep Learning Lab
- Database Management Systems Lab
- Data Structures And Algorithms Lab
- Computer-Oriented Numerical Methods Lab

PLACEMENTS & INTERNSHIPS

50+ LPA
Max. CTC

30+ LPA
Median CTC

1.25L/ mo
Median Stipend during Internship

Companies:

Google

Microsoft

sprinklr

Flipkart

salesforce

ORACLE

Uber

zepto

PhonePe

Goldman Sachs

amazon

m.

updated data from 23-24'

IIT (ISM) DHANBAD

Meet our Head of Department

PROFESSOR. RANJIT KUMAR UPADHYAY

(Professor)
25.10.2021- Present

ranjit@iitism.ac.in

Academic Background:
• Ph.D. in Mathematics (2000), IIT Delhi
• M.Sc. in Mathematics (1992), IIT Kanpur
• B.Sc. Mathematics Honors, Bhagalpur University

Primary Areas of Research
Differential Equations, Mathematical Modeling, Chaotic Dynamics And Dynamical System Theory

Foreign University Experience
• Visiting Research Fellow under Indo-Hungarian Educational exchange programme in Eötvös Lorand University Faculty of Science, Institute of Biology, Department of Plant Taxonomy and Ecology
• Visiting Fellow to Isaac Newton Institute for Mathematical Sciences, Cambridge.

Achievements
- Fast track Young Scientists Research Award 2001-02, Department of Science & Technology Delhi, Government of India.
- Participated in Global Innovation Initiative: UK-US-India joint research proposal submitted by University of Sussex, UK.
  Reviewer for the many reputed International journals.

Departmental Research and Development Activities

- Research on **Coloring graphs with at most Δ-1 Colors** is being conducted at the **National Board for Higher Mathematics (NBHM), Department of Atomic Energy, Mumbai** and has received a total funding of **16+ lakh Rs**.

- At the **Science and Engineering Research Board** (SERB), New Delhi, Research delves into **The Game of Cops and Robbers and its Variations: Theory and Bounds**. This research initiative has garnered significant financial support totaling **27+ lakh Rs.**

- At the **DRDO**, research investigations are underway on **Design And Analysis of Code Based Public-Key Cryptosystems**. This pivotal research endeavor has been endowed with substantial funding amounting to **50+ lakh Rs.**

- Research into **Machine Learning Algorithms And Models For Anomaly Detection In High-Dimensional Longitudinal Data** is underway at **DST-SERB, New Delhi**. The project has been awarded a substantial funding grant of **10+ lakh Rs.**

- Research into **Geometric Facility Optimization Problems In Imprecise Domain** is underway at **DST-SERB, New Delhi.** The project has been awarded a substantial funding grant of **15+ lakh Rs.**

- At the **National Board for Higher Mathematics (Department of Atomic Energy)**, Research delves into **Discontinuous Galerkin Finite Elements for Load Gerneration Mechanism in Titled pad Slider Bearing Lubrication**. This research initiative has garnered significant financial support totaling **17+ lakh Rs.**

- Research into **Development of Classification, Identification And Feature Extraction Algorithms Using Machine Learning And Artificial Intelligence Techniques For Genome Classification, Protein Classification And Medical Image Analysis** is underway at **DST-SERB, New Delhi**. The project has been awarded a substantial funding grant of **25+ lakh Rs.**

Active Student Run Societies

Society for Industrial and Applied Mathematics (SIAM):
- SIAM focuses on Competitive Programming, Machine Learning, and, notably, Quantitative Analysis.

Achievements
- ICPC Asia West Finalist 2023
- Two teams from IIT(ISM) Dhanbad have qualified for the Championship World Finals at Kaggle Days, a global series of offline non-profit events for data scientists and fellow Kagglers.
- ICPC regional selections in multiple zones 2023
- Winner of Myntra Codeathon 2023
- Morgan Stanley's Code to Give Hackathon 2023 Finalist
- FLiPR Hackathon XVI Winners 2023
- National winners of Smart India Hackathon 2022
- Finished 3rd in Amazon ML Challenge 2023
- Winner of Amazon ML Challenge 2021
- Runner-up team in the Information Security division of Flipkart Grid 2.0
- Cisco Code-A-Thon: Code With Cisco finalists
- 3 papers accepted in top ML conferences
- The year of 2024-25 witnessed selection of 6 students from Mathematics and Computing Department for Google Summer Of Code (GSoC)

Alumni Network
- Aditya Mudgil - Senior Software Engineer at D. E. Shaw Group
- Archit - SDE 1 at Jio Platforms Limited (JPL)
- Ajeet Singh - Senior Software Engineer at AMD
- Nikhil Sagar - Senior Quantitative Researcher at Edelweiss Tokio Life Insurance
- Aryan Gaurav - SDE1@Limeroad, ex- Flipkart
- Puja Kushwaha- Senior Data Management Analyst at Wells Fargo
- Eshita Khakharia- Database Management System(DBMS) developer at Microsoft R&D

Foreign University and Industrial Collaborations