

# Department of Mathematics & Statistics INDIAN INSTITUTE OF TECHNOLOGY KANPUR



**Mathematics & Scientific** 

Computing

The Recruiter's Guide Students' Placement <u>Office</u>

Visit Us:

Department of Mathematics

<u>& Statistics</u>



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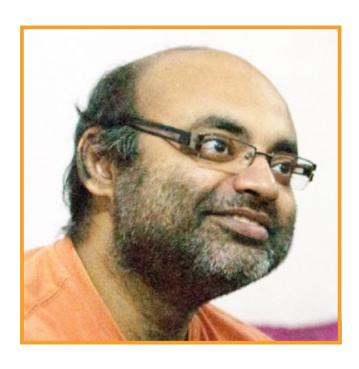
## **About Us**

IIT Kanpur was established on November 2, 1959, with Professor P. K. Kelkar as the founding director. The first batch of Bachelor's students was admitted in August 1960. It was the first institute in India to introduce a science-based engineering curriculum at the undergraduate level. From the beginning, IIT Kanpur established independent engineering and departments, including the science Department of Mathematics, which started in 1960 with two faculty members. In 2004, it was renamed as the Department of Mathematics and Statistics. The department has since become one of the premier departments in the country, contributing significantly to producing well-trained statisticians. In the 2024 QS World University Rankings, IIT Kanpur is among the top two in India for statistics and data science, with research spanning interdisciplinary areas of science and technology.





# Welcome Message



#### **Prof. Akash Anand**

Head of The Department

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The Department of Mathematics and Statistics at IIT Kanpur, established in 1960, has grown into one of the nation's premier centers for mathematical and statistical education and research. Consistently ranked among India's top two programs in mathematics and data science by the 2024 QS World University Rankings, our department follows only Computer Science & Engineering in JEE Advanced opening and closing ranks, with admissions in 2025 closing between AIR 593 and 1023. We offer a four-year B.S. in Mathematics and Scientific Computing, integrated B.S.-M.S. tracks (Mathematics & Scientific Computing), two-year M.Sc. degrees (Mathematics), and Ph.D. programs in both disciplines. Guided by faculty who are internationally recognized experts, our students acquire the analytical rigor and creative problemsolving skills needed for success in both academia and industry—an outcome well evidenced by our strong placement record and the accomplishments of our alumni worldwide. Our vibrant community of students, faculty, and visiting scholars comes together through seminars, workshops, and collaborative research to foster critical thinking and innovation. We share IIT Kanpur's vision of teaching and research excellence, and we warmly welcome prospective employers to recruit from our accomplished graduates.

# Major Programmes

### BS (4year)/BS-MS (5Year)

### Hire Industry-Ready Talent from IIT Kanpur's Mathematics & Scientific Computing Program

IIT Kanpur's four-year B.S. in Mathematics and Scientific Computing, launched in 2011, is designed to produce analytically strong, technically skilled graduates who can contribute from day one. Top students may opt for a five-year B.S.–M.S. dual degree, deepening their expertise even further. The program also offers minors in high-demand domains like Computer Science, Economics, Engineering, and Management.

#### **What Sets Our Graduates Apart**

Our curriculum is built on a solid foundation in mathematics, statistics, and computation, sharpening problem-solving, logical reasoning, and analytical thinking. Just as necessary, we ensure practical readiness through:

- Hands-on training in computation labs and software development
- Exposure to real-world datasets and challenges
- Industry-led lectures, projects, and internships tailored to current market needs

Whether you're hiring for roles in **Quantitative Research**, **Software Engineering**, **ML**, **Data Science**, **Analytics**, or **Finance**, our students bring the ideal combination of theoretical depth and applied skills to accelerate innovation in your organization.

#### **M.Sc.** (2 Year)

This is a two-year postgraduate program offered by the Department of Mathematics and Statistics, with admissions through the Joint Admission Test for M.Sc. (JAM). The program has two streams: **Mathematics and Statistics.** The curriculum offers in-depth training in **logical reasoning, analytical thinking**, and **abstract problem-solving skills**, which are highly valued across various industries. Students are also trained in **mathematical computing, programming**, and **modeling**, making them well-prepared for roles in data science, quantitative research, analytics, finance, software development, and other math-intensive domains. They also emerge as strong candidates for roles in **Ed-Tech**, where a blend of mathematical depth, teaching clarity, and technical proficiency is in high demand. While the program lays a solid academic foundation for research, its primary strength lies in developing versatile, industry-ready graduates equipped to contribute meaningfully in both technical and analytical roles.

## Notable Alumni

Over the past few years, our department's alumni have been playing leadership roles in leading companies and institutions worldwide. These include distinguished personalities such as Chairman Emeritus of a major IT company, Chairman of prominent airlines, former Presidents of multinational corporations, Directors of research institutes, Vice-Chairmen of pharmaceutical companies, and late Professors at prestigious universities like Stanford. Recent batch students are working in quantitative firms (Goldman Sachs, Morgan Stanley, Optiver, Quantbox, Graviton Research, Quadeye), top MNCs (Google, Atlassian, Adobe, OpenAI), and fintech/AI startups (Cure.fit, Endure Air) in roles as data scientists, quantitative analysts, research scientists, and director-level positions. Many students have also secured PhD and faculty positions at world-renowned universities— Stanford, Berkeley, Columbia, IISc, and TIFR. These successful examples clearly demonstrate that our programs prepare students for excellence in both industry and research.



## **Distinguished Faculty**

The department takes pride in its distinguished faculty, whose expertise spans theoretical and applied areas of mathematics, statistics, and computation. With 51 professors, associate professors, and assistant professors, the faculty actively drives research, fosters interdisciplinary collaboration, and mentors students through hands-on, technology-driven learning, ensuring graduates are equipped to solve real-world problems with mathematical rigor and computational precision.

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## **Courses Offered**

#### **Department Courses**

- Linear Algebra
- Set Theory & Mathematical Logic
- Abstract Algebra
- Real Analysis
- Probability & Statistics
- Numerical Analysis & Scientific Computing

- Ordinary Differential Equations
- Partial Differential Equations
- Single Variable Calculus
- Several Variable Calculus & Differential Geometry
- Topology
- Complex Analysis

#### **Department Electives**

- Game Theory
- Nonlinear Regression
- Econometrics
- Statistical Decision Theory
- Theory of Computation
- Computational Financial Mathematics
- Probability Theory
- Sampling Theory
- Measure Theory
- Sobolev Space & Applications
- Statistical Pattern Recognition
- Time Series Analysis: Forecasting and Control
- Fuctional Analysis

- Regression Analysis
- Markov Chain Monte Carlo
- Algebraic Number Theory
- Order Statistics
- Algebraic Geometry
- Statistical Simulation and Data Analysis
- Non-Parametric Inference
- Mathematical Modelling
- Spatial Statistics
- Graph Theory
- Techniques in Combinatorics
- Computer Programming and Data Structures
- Commutative Algebra

### **Courses Offered**

#### **Open Electives**

- Blockchain Technology
- Computer Vision and Image Processing
- Computer Networks
- Introduction to Machine Learning
- Probabilistic Machine Learning
- Statistical Natural Language Processing
- Parallel Computing
- Modern Cryptology
- Generative Artificial Intelligence
- Computational Number Theory
- Compiler Design
- Computer Architecture
- Computer Organisation
- Randomised Algorithms
- Advanced Algorithms
- Operating Systems
- Embedding and Cyber-Physical Systems
- Advanced Topics in Machine Learning
- Optimization for Big Data

- Machine Learning for Signal
- Processing
- Computational Intelligence for Machine Vision, Automation, and Control
- Speech Signal Processing
- Software Development and Operations
- Principles of Database Systems
- Linux Kernel Programming
- Advances in DBMS
- VLSI Design for Parallel Architectures
- IoT System Design
- Quantum Computing
- Data Mining
- Human Al Interaction
- Deep Reinforcement Learning
- Large Language Models (LLMS)
- Algorithms for Bayesian Networks and Causality
- Parallel Programming
- Computational Complexity
- Functional Programming
- Machine Translation

## **Technical Skills**

























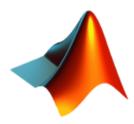






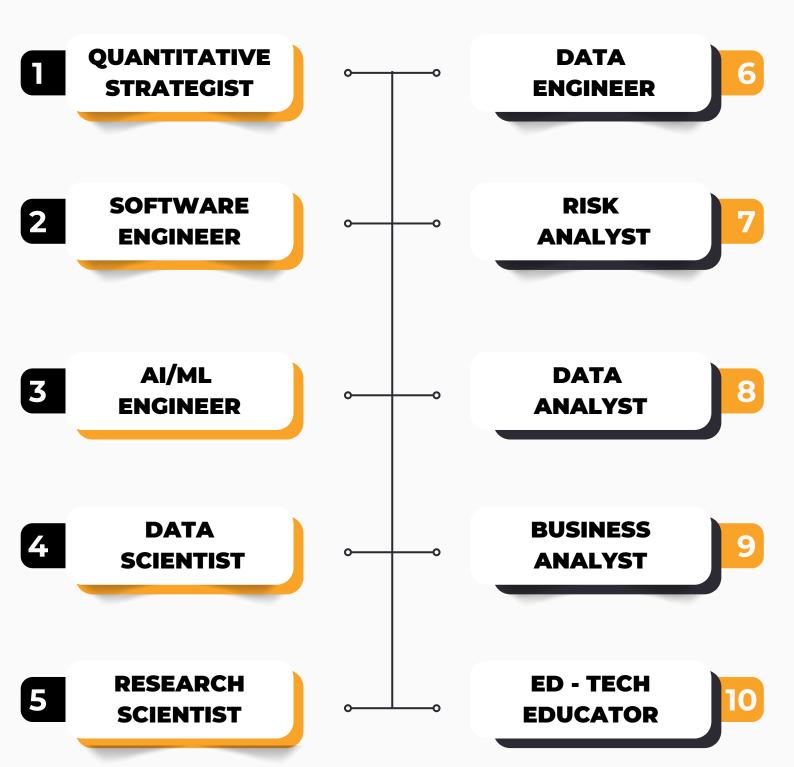








## **Profiles Offered**



### **Past Recruiters**





Morgan Stanley







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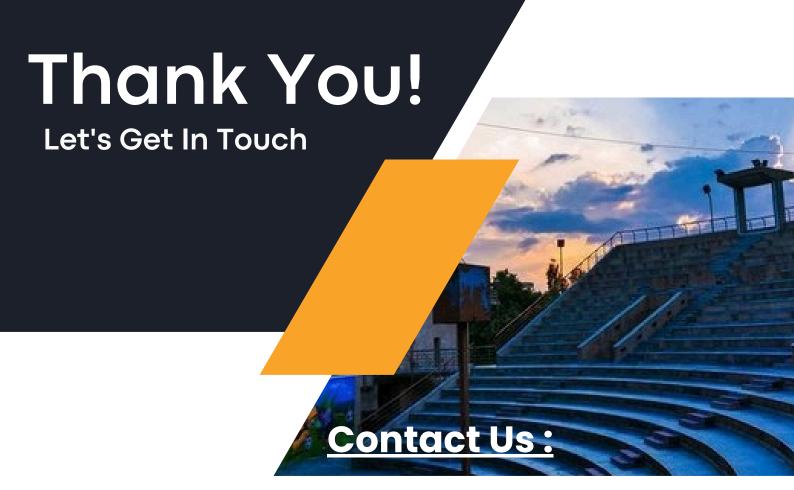














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