

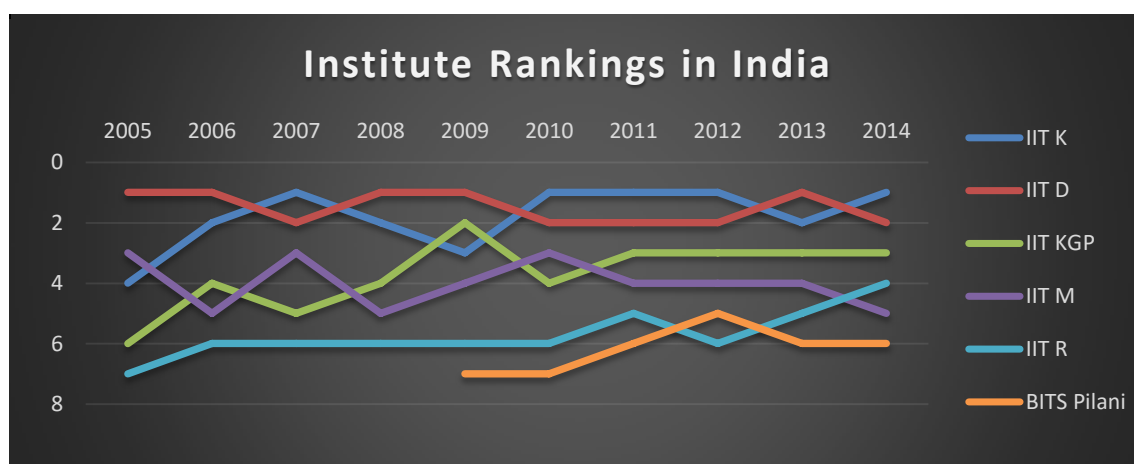


Department of Mathematics and Statistics

Message from the Faculty

Established in 1959 as one of the first Indian Institutes of Technology, the institute was created with the assistance of a consortium of nine leading US research universities as part of the Kanpur Indo-American Programme (KIAP).

The Department of Mathematics, since its inception in 1959, has emerged as a national center for excellence in mathematics and allied areas, in terms of research, teaching and mentoring of students. It is one of the oldest research hubs for mathematics in the country. The department has churned out batches of motivated and dedicated students with the commitment and competence to pursue careers in academia and industry in the areas of mathematics, computer science and finance.



Data: The Annual Survey for India Today and Nielsen Company

The rigor of pure mathematics coupled with the most flexible elective driven structure in the institute gives the students an ample opportunity to their skill in varied fields of interests ranging from data analytics, computational mathematics, optimization, parallel computing to statistics, finance and other applied fields.

The courses offered here are taken by professors who are leading researchers in that field. The courses being based on pragmatism, utility and function, not only enrich the theoretical knowledge but introduces them to practical aspects through course projects which are often done in groups forging team spirit.

With a strong focus on research, through Undergraduate Project (For BS Students) and MS Project (For BS-MS dual degree students), the students are encouraged to tackle theoretical as well as industrial problems transforming them into motivated individuals who can be great asset for any organization, be it academic, R&D, software, analytics or finance.



Programmes Offered

Bachelor of Sciences (BS)

A 4-years programme started from 2011 which allows admission through the Joint Entrance Examination (JEE). It focuses directly on the departmental courses enabling students to concentrate on the theory and applications of mathematics and statistics. The enrolled students also have an option to do a minor in any other department like Economics, MBA or Computer Sciences.

Bachelor of Sciences-Master of Sciences (BS-MS) Dual Degree

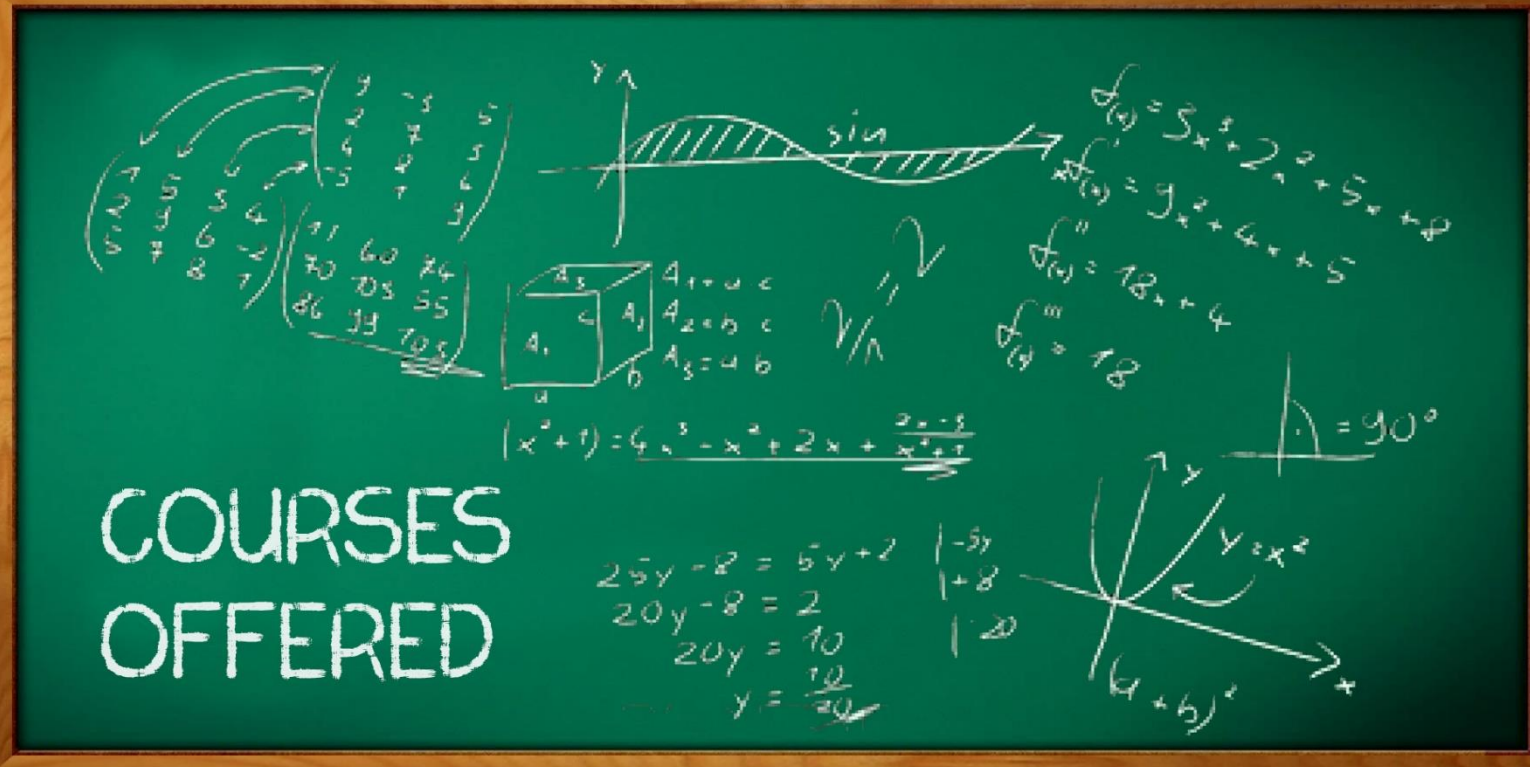
The 4-years BS programme in Mathematics and Scientific Computing has replaced the 5 year integrated Msc program which was running since 1960's. However, for a more thorough knowledge, the students have an option to do masters also which will result in 5-year BS-MS dual programme. Apart from their main degree, they also have an option to do a minor in another field or department of their interest.

Master of Sciences (MSc) 2 Year

This 2 year course takes admission from Joint Admission Test for MSc (JAM) in two separate streams of Mathematics and Statistics. This programme focuses more on the pure subjects of the streams and lays a good foundation for doing impactful PHD's from abroad.

“ The professors are experienced and accessible. They try to give additional help outside the classroom which really helps the students in getting hold of the subjects.”

- Prof. Amit Mitra, Department of Mathematics and Statistics, IIT Kanpur



Mathematics

Real Analysis
Complex Analysis
Differential Equations

Linear Algebra
Abstract Algebra
Probability Theory

Discrete Mathematics
Numerical Computation
Optimization

Applied Statistics

Probability and Statistics
Applied Stochastic Processes
Time Series Analysis
Design of Experiment

Mathematical Modelling
Regression Analysis
Analysis of Variance
Sample Survey

Statistical Inference
Statistical Simulation and Data Analysis
Robust Statistical Methods
Matrix Theory and Linear Estimates

Computer Sciences

C Programming Language
Data Structures and Algorithms
Design and Analysis of Algorithms

Artificial Intelligence
Computer Networks
Principles of Database System

Data Mining
Computational Algebra and Number Theory
Theory of Computation

Economics and Finance

Microeconomics
Macroeconomics
Econometrics

Mathematical Finance
Financial Economics
International Economics

Money and Banking
Financial Management
Securities, Derivatives and Portfolio Management

Inter-disciplinary Courses

Quantitative Decision Models
International Business Management
Intellectual Property Management

Game Theory
Combinatorial Optimization
Cost and Financial Accounting

Manufacturing Strategy
Operations Research and Management
Management of Risk in Financial Systems

Internships

Over the summers, students undertake internships, either in the industry or in leading academic institutions. This takes education outside the classroom into the offices of corporate or the rooms of the research labs. The graduating batch of 2016 has done internships in a lot of diverse organizations and fields which has helped them gain a lot of academic as well as corporate experience.

Internship profiles of students, of graduating batch of 2016, from Department of Mathematics and Statistics:

Foreign Universities

Alpen Adria University, Austria
Carneige Mellon University, USA
Chinese University of Hong Kong
EPFL, Switzerland
Graz Universty of Technology, Austria
Leibnitz Institute of Genetics and Biometry, Germany
National Chaio Tung University, Taiwan
Princeton University, USA
Tokyo Metropolitan University, Japan
Technische Universitat Dresden , Germany
Tsinghua University, Beijing, China
University of Duisburg-Essen, Germany
University of British Columbia, Canada
University of Greifswald, Germany
University of Hong Kong, Hong Kong
University of British Columbia, Canada
University of Tokyo, Japan

Companies

Adobe, Noida
Amazon, Hyderabad
Barclays, Bangalore
Avanti Fellows, Kanpur
Cognilytics, Gurgaon
Credit Suisse, Mumbai
Deloitte US India, Mumbai
Deutsche Bank, Mumbai
Edelweiss, Mumbai
Fidelity Investments, Bangalore
Flashdoor, Bangalore
Fuzzy Logix, Bangalore
Goldman Sachs, Bangalore
Google, Hyderabad
IBM Research Lab, Delhi
iRage Capital, Mumbai
mPaani, Mumbai
Paytm, Delhi
Pervazive, Bangalore
Purple, Mumbai
Samsung R&D, Bangalore
Trimble, Chennai

Internship Fields

AI and Statistical Intelligence
Algorithmic Trading
Anisotropy Models
App Development
Bayesian and Sequential Statistics
Bio-Informatics
Business Intelligence
Coding Theory
Consulting
Credit Risk Management
Cryptography
Data Analytics
Decision Tree Complexity
Economic and Policy Research
Financial Mathematics
Financial Risk Management
Finite Difference Methods for Pricing
Fractals and Financial Time Series
Graph Theory
High Frequency Trading
High Performance Analytics
Image Processing
Information Systems Modelling
Logical and Theoretical Computer Science
Machine Learning
Mathematical Modelling
Operations Research
Portfolio Optimization
Quantitative Finance
Regression Analysis
Software Development
Text Analytics
Trading and Finance
Web Development

Indian Institutions

IIM, Bangalore
IISC, Bangalore
IIT Guwahati
IIT Mandi
ISI Kolkata
TIFR, Mumbai

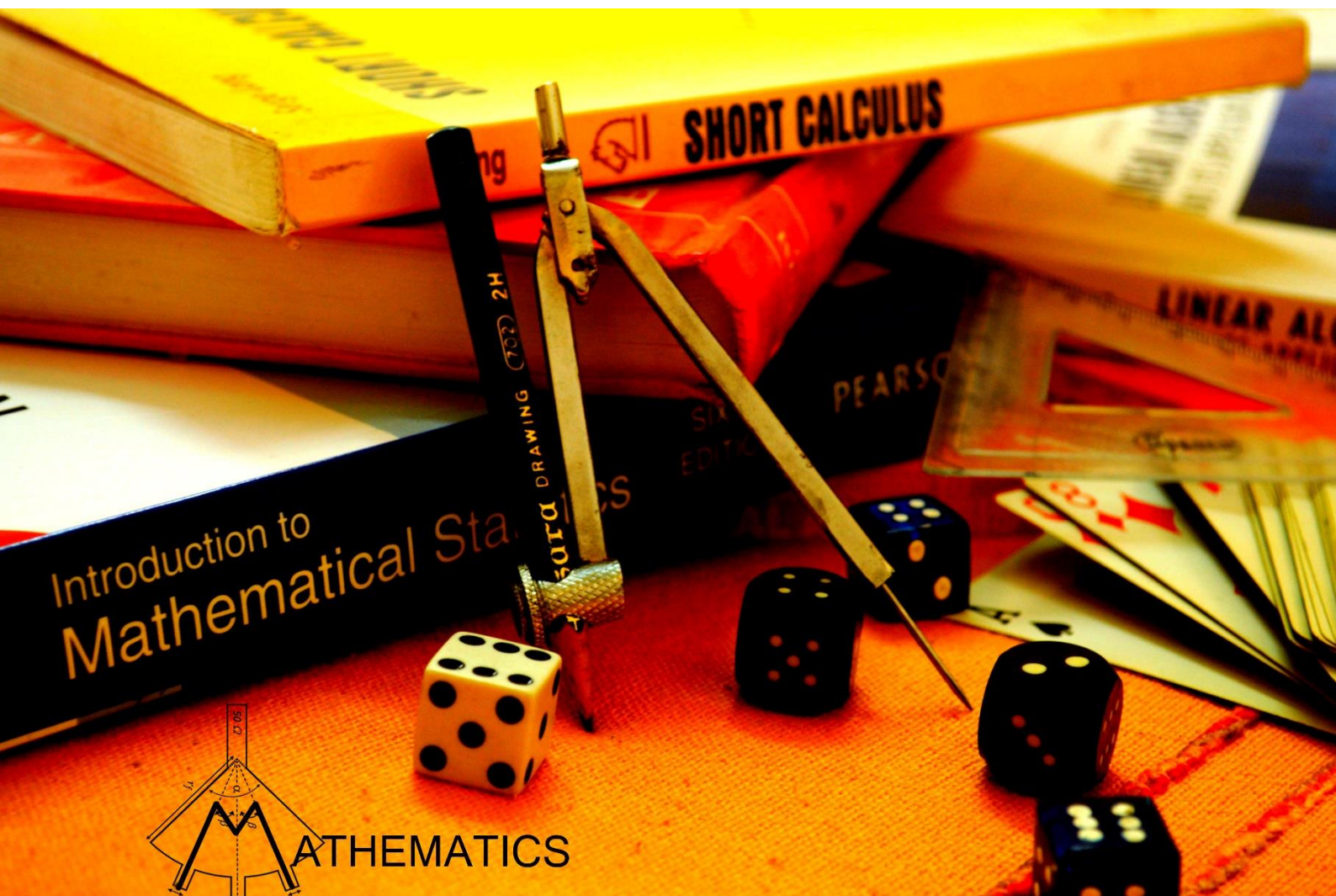
Distinguished Faculty

The department takes pride of the distinguished faculty that enriches the deep roots of education in the institute. There are a total of 39 Professors, Associate Professors and Assistant Professors whose research interests provide a lot of diversity in pure as well as applied Mathematics and Statistics. Moreover the **Faculty : Student Ratio is 0.9:1** for every batch.

Prof Amit Mitra	Visiting Faculty at	Uppsala University, Sweden University of New Castle, Australia
Prof Debasis Kundu	Asst. Adviser, Statistical Analysis and Computer Services, Reserve Bank of India, Mumbai	
Prof M. K. Kadalbajoo	Ph.D., Pennsylvania State University	
Prof Neeraj Mishra	C.L Chandana award in Mathematics research and Teaching.	
	Visiting Faculty at	Katholieke University, Belgium Marquette University, USA West Virginia University, USA
Prof Peeyush Chandra	Past President IMS & ISTAM	
Prof Prawal Sinha	Visiting Faculty at	University of Alberta, Canada National University of Singapore
Prof R. K. S. Rathore	D. Sc., Delft University of Technology	
Prof S. Ghorai	Ph.D. and Post-Doctoral Research, University of Leeds	
Prof Shalabh	Post-Doctoral Research, Ludwig Maximillians University and University of Pittsburgh	
Prof Sharmistha Mitra	Visiting Faculty at	Uppsala University, Sweeden

Awards and Recognitions

Boycast Fellowship	Prof S. Ghorai and Prof Shalabh
Fellow, Royal Statistical Society, London	Prof Shalabh and Prof Debasis Kundu
Humboldt Felowship	Prof Shalabh
INSA Young Scientist Medal	Prof R. K. S.. Rathore and Prof. Mohua Banerjee
Jacob Wolfowitz Award	Prof I. D. Dhariyal, Prof R. K. S. Rathore and Prof Neeraj Mishra
Mahalanobis Memorial Medal	Prof Shalabh
President, Indian Mathematical Society	Prof Peeyush Chandra
Prof C N R Rao National Award for Young Statisticians	Prof Shalabh
Shanti Swaroop Bhatnagar Award	Prof U. B. Tewari and Prof. J. B. Shukla



Contact Us

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