INFINITY INSIGHT

Quarterly Newsletter

Department of Mathematics & Statistics
School of Basic Sciences
Faculty of Science

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INSIDE THIS ISSUE....

VISION & MISSION OF THE DEPARTMENT

VISION

To be a global hub for academic excellence, innovation, and human development in mathematics

MISSION

- Develop competent professionals in mathematics and statistics.

- Foster interdisciplinary collaboration for holistic problem-solving.

- Instill good human values for ethical and responsible research.

- Contribute to societal well-being through data-driven solutions.

- Cultivate leaders with a strong sense of social responsibility.

Message

A newsletter reminds staff and students of their former fervor for doing remarkable things, which instills inspiration and motivation in them both. It gives me immense pleasure to note that the Newsletter of the Department of Mathematics and Statistics, MUJ is being released. Bravo to the editorial board. With the release of this newsletter, the Management will be able to showcase our department's academic accomplishments to the competitive world. This is a vibrant new initiative. I'm blown away by the support we got from the faculty members, Research scholars and students to make this newsletter feasible. I wish that this number may grow in the years to come.

Dr. Kalpna Sharma
Head, Dept of Mathematics & Statistics
Manipal University Jaipur

Editorial Note

"GO DOWN DEEP ENOUGH INTO ANYTHING AND YOU WILL FIND MATHEMATICS"
- DEAN SCHLICTER

"A Newsletter is like a mirror that reflects the clear picture of all sorts of activities undertaken by a department and develops writing skills among students in particular and teaching faculty in general".

Welcome to the second edition of **Infinity Insight** - a quarterly newsletter of the Department of Mathematics & Statistics. This edition captures a highlight of the last three months' remarkable activities & accomplishments of our students and faculty members. Besides, it provides an opportunity to share departmental important updates and upcoming events.

As we want the newsletter to be as inclusive as can be, we encourage all of you to share your ideas, articles, and feedback with the editorial team. We value your input and look forward to hearing from you.

We hope going through this newsletter is as enjoyable for you as it is for us bringing it to you.

Happy Reading…!

Dr. Reema Jain

Use the following link to access the first edition (Infinity Insight_1.0):
https://flipbookpdf.net/web/site/d1fabb836f9aebc3f930a3afa58b8b1ccadb6120202403.pdf.html

Workshop/ Conference	Title	Organized by	Date
International Conference	Recent Advances in Material Science and Computational Techniques (RAMSACT) -2024	Faculty of Science in collaboration with Department of Biotechnology & Chemical Engineering **Convener:** Dr Anamika Jain **Organizing Secretary:** Dr Ankur Kumar Jain	April 4-6, 2024
Workshop	Statistical Tools and Techniques in Research **Resource Person:** Dr Jyoti Thanvi School of Mathematics, University of Birmingham, Dubai	**Convener:** Dr Garima Agrawal	April 12, 2024
International Conference	Mathematical Modelling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2024)	Manipal University Jaipur in association with University of Barcelona, Spain, Barcelona, & Forum for interdisciplinary Mathematics **Convener:** Dr Ram Naresh Saraswat **Co-Convener:** Dr Mohd. Rizwanullah, Dr Laxmi Poonia	May 29-31, 2024

STUDENT PUBLICATIONS

Q1 Journal Publications				
S. No.	Name of Scholar	Name of Supervisor	Title of Publication	Journal	Month of Publication
1	Pooja Soni	Dr Kalpna Sharma	MHD radiative Gr-Ag-TiO 2 /H 2 O ternary hybrid nanofluid flow upon a permeable movable wedge with irreversibility analysis	International Journal of Modelling and simulation (Taylor & Francis)	March-2024
2	Vijay Singh Maan	Dr Ashish Kumar	Markov modelling and adaptive neuro fuzzy inference system computing of hydroelectric power plant	International Journal of Information Technology (Springer Nature)	April-2024
3	K. Loganathan	Dr Reema Jain	Analytical and numerical study of water-based silver nanofluid (Ag) across a Riga plate with nonlinear radiation and viscous dissipation: A three-dimensional study	Partial Differential Equations in Applied Mathematics (Elsevier)	May-2024
4	K. Loganathan	Dr Reema Jain	Numerical study of Carreau fuzzy nanofluid across a stretching cylinder using a modified version of Buongiorno's nanofluid model	Alexandria Engineering Journal (Elsevier)	May-2024
5	K. Loganathan	Dr Reema Jain	Computational Study of Carreau Nanofluid across a Stretching Cylinder by Homogeneous-Heterogeneous Responses: A frame work of Modified Buongiorno's Nanofluid Model	Partial Differential Equations in Applied Mathematics (Elsevier)	June-2024

			Other Publications		
S. No.	**Name of Scholar**	**Name of Supervisor**	**Title of Publication**	**Journal**	**Month of Publication**
1	K. Loganathan	Dr Reema Jain	Mass-Based Hybrid Nanofluid Model for Thermal Radiation Analysis of MHD Flow over a Wedge Embedded in Porous Medium	Journal of Engineering	May-2024
2	K. Loganathan	Dr Reema Jain	Numerical study of blood-based MHD tangent hyperbolic hybrid nanofluid flow over a permeable stretching sheet with variable thermal conductivity and cross-diffusion	Open Physics	May-2024

FACULTY PUBLICATIONS

Q1 Journal Publications				
S. No.	**Name of Faculty**	**Title of Publication**	**Journal**	**Month of Publication**
1	Dr Anil Ahlawat	Entropy optimization of lid-driven micropolar hybrid nanofluid flow in a partially porous hexagonal-shaped cavity with relevance to energy efficient storage processes	Scientific Reports, (Nature Publishing Group)	April-2024
2	Dr Ram Naresh Saraswat	Decision making using novel Fermatean fuzzy divergence measure and weighted aggregation operators	Journal of Ambient Intelligence and Humanized Computing	April-2024
3	Dr Giriraj Methi	Application of generalized haar wavelet technique on simultaneous delay differential equations	Journal of Computational and Applied Mathematics	May-2024
4	Dr Reema Jain	Analytical and numerical study of water-based silver nanofluid (Ag) across a Riga plate with nonlinear radiation and viscous dissipation: A three-dimensional study	Partial Differential Equations in Applied Mathematics (Elsevier)	May-2024
5	Dr Anamika Jain	Reliability analysis in multiple breakdown with controllable phase repair machining system	International Journal of Information and Technology (Springer)	June-2024
6	Dr Bijender Singh	Solving integral and differential equations via fixed point results involving F-contractions	Journal of Inequalities and Applications (Springer)	June-2024

Other Publications

S. No.	Name of Faculty	Title of Publication	Journal	Month of Publication
1	Dr Mohd. Rizwanullah	Optimization of multi-objective, multi-stage stochastic transportations problem using goal programming approach	Global and Stochastic Analysis	March-2024
2	Dr Riya Jain	HDG Method for Nonlinear Parabolic Integro-Differential Equations	Computational Methods in Applied Mathematics	April-2024
3	Dr Sunil Joshi	Variational Iteration Method for n-Dimensional Time-Fractional Navier-Stokes Equation	Applied Mathematics in Science and Engineering	March-2024
4	Dr Sunil Joshi	A New Extended Multivariable Horn Function	International Journal of Mathematics for Industry	May-2024
5	Dr Reema Jain	Modelling Blood Flow in a Stenosed Artery under the Interaction of a Moving Particle and Thermal Radiation	Journal of Advanced Research in Fluid Mechanics and Thermal Sciences	June-2024

PAPER PRESENTATION

S. No.	Name of Scholar	Name of Supervisor	Title	Conference	Date
1	Rakhi Mathur	Dr Laxmi Poonia	Bianchi Type-II Inflationary Space Time Model in Presence of Flat Potential	4th International Conference on Recent Advances in Material Science and Computational Techniques (RAMSACT-2024), MUJ	April 4-6, 2024
2	Vijay Singh Maan	Dr Ashish Kumar	An analysis of crystallization system of sugar manufacturing plant by using RAMD approach	4th International Conference on Recent Advances in Material Science and Computational Techniques (RAMSACT-2024), MUJ	April 4-6, 2024
3	Vijay Singh Maan	Dr Ashish Kumar	Reliability and Availability Investigation of micro-processor system using markovian approach	4th International Conference on Innovations in Computational Intelligence and 4Computer Vision (ICICV-2024), MUJ	April 10-11, 2024
4	Jay Chandra Yadav	Dr Mohd. Rizwanullah	Optimization of Chinese Postman Problem using Fuzzy-based Priority Weighted Graph	4th International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2024), MUJ	May 29-31, 2024
5	Pooja Agarwal	Dr Reema Jain	Analysis of Activation Energy andThermodiffusion in Magnetohydrodynamic Flow of Powell Eyring Fluid	4th International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2024), MUJ	May 29-31, 2024
6	Saloni		Study of Data Envelopment Analysis (DEA) of Efficiency of small finance banks using LINGO Modeling	4th International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2024), MUJ	May 29-31, 2024

INNOVATION / IPR

S.No.	Title of Invention	Published/ Granted	Inventor	Published in/Granted by	Date
1	Novel Divergence Measure Under Neutrosophic Environment And Its Utility In Various Problems of decision Making	Published	Dr Ram Naresh Saraswat	Government of India	May 31, 2024
2	A method for analysing and evaluating interruption due to phase service in Markovian arrival process	Published	Dr Anamika Jain, Sonali Thakur, Dr Anjali Ahuja	Government of India	June 07, 2024

AWARDS & ACHIEVEMENTS

Ph.D. AWARDED

S.No.	Name of Research Scholar	Name of Supervisor	Title of Thesis	Date of Award
1	Lokesh Kumar Bhuranda	Dr Mohd. Rizwanullah	Study of Combinatorial Optimization in Stochastic Networks and Its Applications	June 10, 2024

PG PROJECT

S. No.	Name of Student	Program	Title of Project	Date
1	Saloni	M.Sc. IV Sem	Data Envelopment analysis(DEA) of efficiency of small finance bank using LINGO Modeling	May 20, 2024

FACULTY AWARDS

S. No.	Name of Faculty	Award	Society	Date
1	Dr Reema Jain	National Inspiring Academician Award 2024 in Mathematics	International Multidisciplinary Research Foundation	April 26, 2024
2	Dr Kalpna Sharma	Guest of Honour in National Conference on Application of Basic Science and Communication in Engineering (NCASCE 2.0)	Jaipur Engineering College & Research Centre, Jaipur	June 10-11, 2024

UPCOMING EVENTS

S. No.	Event	Organized by
1	2nd International Conference on Recent Advances in Fluid Mechanics & Nanoelectronics (ICRAFMN-2024), July 10-12, 2024 Conference website: https://www.icrafmn2024.com/	Department of Mathematics and Statistics, Manipal University Jaipur in association with Manipal Institute of Technology Bengaluru and the National Institute of Technology Uttarakhand.
2	STC on Applied Mathematics with MATHEMATICA In ICT mode with MUJ as remote centre, July 15-19, 2024 Website: https://fdp.nitttrchd.ac.in/backingup	Manipal University Jaipur in association with NITTTR Chandigarh, MUJ-TEC & IQAC-TEC

NATIONAL STATISTICS DAY 2024: HONORING PROFESSOR P. C. MAHALANOBIS

In 2007, the Government of India designated June 29th as National Statistics Day to celebrate the life and work of Professor Prasanta Chandra Mahalanobis along with the objective of creation of public awareness, especially among the younger generation, on the role and importance of statistics in socio-economic planning and policy formulation for development of the country. Since then, every June 29th, India observes National Statistics Day.

Professor Mahalanobis, often referred to as the "father of Indian Statistics," is recognized for his pivotal role in shaping India's statistical infrastructure. One of his most recognized contributions is developing the statistical measure known as the Mahalanobis distance, which determines the distance between a point and a distribution. His revolutionary work in sample surveys was instrumental in shaping India's national planning strategies post-independence, providing empirical data crucial for policy formulation.

Born in 1893, Professor Mahalanobis was a visionary statistician whose influence extended far beyond academia. His most enduring legacy lies in the establishment of the Indian Statistical Institute (ISI) in 1931, an institution dedicated to research, teaching, and application of statistics. Mahalanobis's advocacy led to creation of Central Statistical Office and establishment of National Sample Survey Office (NSSO) which play a crucial role in data collection on various socio-economic aspects for development and planning.

In today's era, the relevance of Statistics cannot be overstated. As the volume and complexity of data continue to grow exponentially, statistics serves as the foundation for extracting meaningful insights and making informed decisions across various domains such as Business, Health Care, Social Sectors and Technology.

In commemorating Statistics Day, we honor the achievements India made in official statistics as we look back and embrace the ongoing quest to harness the power of data for the greater good of society.

Dr Ayush Tripathi

Life Through the Eyes of a Mathematician

Mathematics is in every aspect of our lives; from a mother-child relationship to a person's every need. The emotional distance between a mother-child can be minimized, i.e. there exists a **Delta** > 0 for which we have **Epsilon** > 0. A mother always tends to a child, who is a limit to her. Every person has ∞ desires to fulfill despite knowing the fact that ∞ is not a real number. Human beings generally behave like a modulus function as they react positively or negatively according to the circumstances or people around them; whenever a person is looking forward to a positive outcome from a situation, he takes the positive values otherwise he chooses to remain indifferent by taking the negative values. Friends are like limitless functions separately but together they become a constant function. College students resemble 'unlike terms' of algebra, that is, until the lunch break. The Cafeteria then becomes their limit point of enjoyment as there exists a lot of points in that interval of time. A group of friends is like an integral domain because of the absence of zero divisors which implies there exists two friends such that (1st friend x 2nd friend) $= 0$ as their friendship for each other makes them an identity together. Teachers are synonymous with integration as they increase the capabilities of a constant student with their knowledge and magnify a student's capabilities. The most important lesson Mathematics teaches us is the will to never give up as every problem has a solution.

Dr Reema Jain