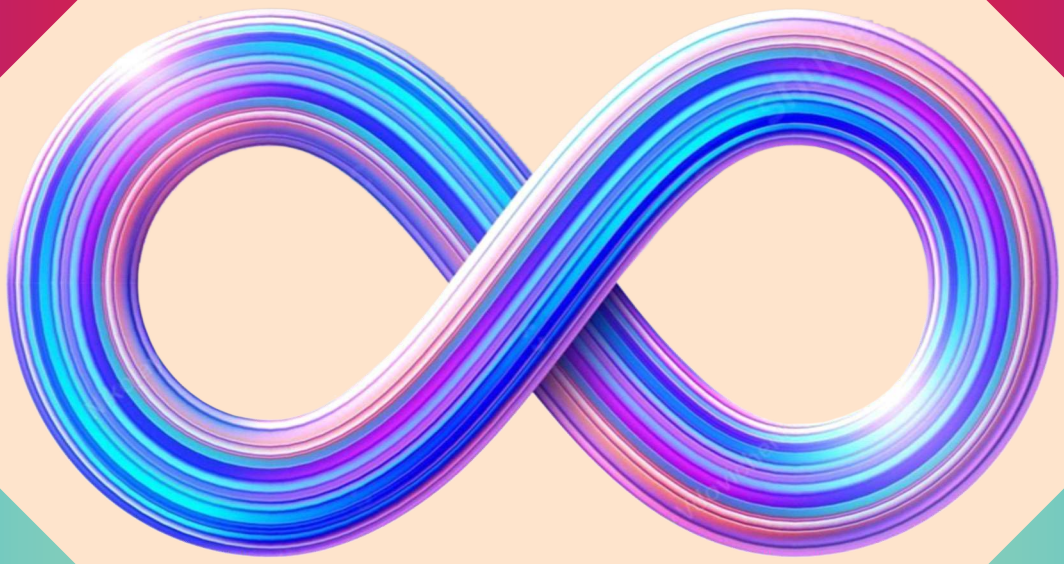
MANIPAL UNIVERSITY
JAIPUR

July-September 2025
Issue 2.3

INFINITY INSIGHT

Quarterly Newsletter



Department of Mathematics and Statistics
School of Physical and Biological Sciences
Faculty of Science, Technology and Architecture

https://jaipur.manipal.edu/fos/department-of-maths.php

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Editorial Note...

"LIGHT THE LAMP OF KNOWLEDGE, DISPEL THE DARKNESS OF IGNORANCE, AND SPREAD THE GLOW OF WISDOM ALL AROUND"

Dear Readers,

As we celebrate the festival of lights, Diwali, we extend our warmest greetings to all our readers. May this festive season bring joy, prosperity, and renewed enthusiasm to illuminate every path of learning and growth.

This **Seventh Edition (July–September 2025)** of our newsletter ***Infinity Insight*** captures the highlights of recent academic activities, achievements, and collaborative initiatives undertaken by the department. It reflects our continuous commitment to excellence, innovation, and collective progress.

This issue also comes at a time of transition in leadership within the department. We take this opportunity to express gratitude for the dedicated service rendered so far and extend our best wishes for continued success and growth under the new leadership.

May this festive season and new beginning infuse us all with renewed energy, purpose, and a spirit of togetherness.

Wishing everyone a bright, joyous, and prosperous Diwali !

Best Regards,

Dr Reema Jain

EDITORIAL BOARD

ACCESS PREVIOUS EDITIONS

Infinity Insight_1.1	*https://flipbookpdf.net/web/site/d1fabb836f9aebc3f930a3afa58b8b1ccadb6120202403.pdf.html*
Infinity Insight_1.2	*https://www.flipbookpdf.net/web/site/0f818b331ddb9cc3b5872d810a1873afc9be3456202407.pdf.html*
Infinity Insight_1.3	*https://www.flipbookpdf.net/web/site/18001b7e91a276f2954c6440442add71ab8db845202410.pdf.html*
Infinity Insight_1.4	*https://flipbookpdf.net/web/site/1291387cc05140c981716883fe60ef9f8be07b0f202501.pdf.html*
Infinity Insight_2.1	*https://flipbookpdf.net/web/site/178e4067c744b725d0629dff6ec6a3304f9c41ec202504.pdf.html*
Infinity Insight_2.2	*https://flipbookpdf.net/web/site/24642dae53c351ec3aa9f703cd634e7df3b6da4f202507.pdf.html*

VISION & MISSION

VISION

To be a global hub for academic excellence, innovation, and human development inmathematical sciences

MISSION

- Groom students' abilities to embrace newly developing fields in statistics and mathematics.
- Emphasize the interdisciplinary collaboration for holistic problem- solving inreal-world scenarios.
- Enhance good human values for ethical and responsible research.
- Develop competent professionals in mathematics and statistics.
- Contribute to societal well-being through data-driven solutions.

EVENTS ORGANIZED

TEACHERS' DAY CELEBRATION 2025

On September 05, 2025, the students of Physics, Chemistry, Mathematics and Statistics, came together to honour and appreciate the guiding lights of academia through a heartfelt Teachers' Day Celebration. The celebration began with a delightful cake-cutting ceremony, symbolizing gratitude and admiration for the invaluable role teachers play in shaping lives. The room was filled with smiles and applause as students expressed their appreciation for their mentors' unwavering dedication and inspiration.

The celebration also included motivational speech by teachers, where they shared their wisdom, experiences, and guidance, inspiring students to strive for excellence while embracing resilience and curiosity in their academic journeys. These words of encouragement left a lasting impact, reinforcing the timeless bond between teachers and learners.

The Teachers' Day Celebration concluded with heartfelt gratitude and admiration for the teachers, who continue to be the pillars of knowledge and inspiration. The event beautifully captured the essence of respect, joy, and togetherness, making it a memorable tribute to those who dedicate their lives to nurturing future generations.

Happy Teachers' Day—to our mentors, guides, and lifelong inspirations!

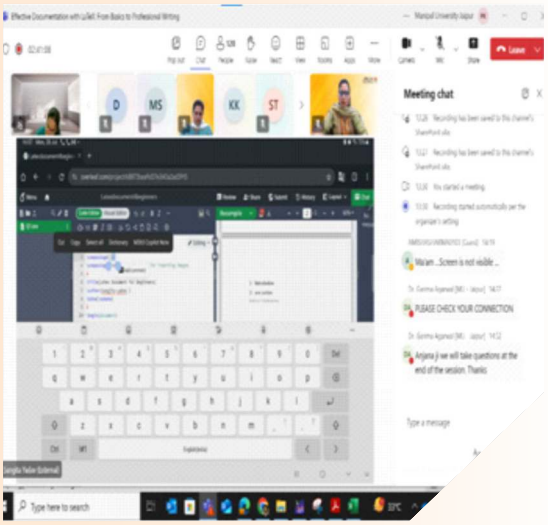
FACULTY DEVELOPMENT PROGRAM

Five-Day FDP
on
Effective Documentation with LaTeX: From Basics to Professional Writing

(July 28 - August 01, 2025)

The Department of Mathematics and Statistics organized a Five-Day online FDP titled "Effective Documentation with LaTeX: From Basics to Professional Writing"in collaboration with the Directorate of Research and MUJ-TEC. The external resource persons were Prof. Sangita Yadav from BITS Pilani and Dr. Satyandra from VIT-AP. A total of 237 participants attended this event out of which 101 were from outside MUJ.

Convener : **Dr Garima Agarwal**
Dr Parvin Kumari



One Week FDP

on

Academic Leadership Program

(August 18-22, 2025)

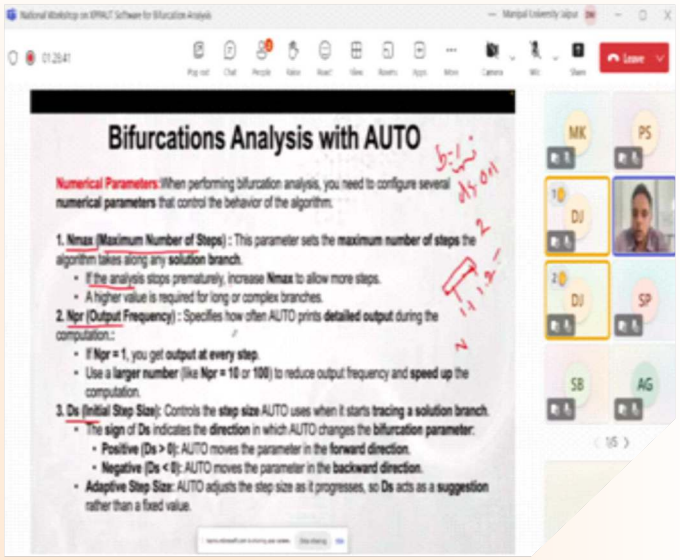
The Faculty Development Program (FDP) titled "Academic Leadership Development" was collaboratively organized by MUJ-TEC, Department of Biosciences and Department of Mathematics and Statistics at the School of Physical and Biological Sciences (SoPBS), from August 18-22, 2025. This event was conducted by NITTTR, Chandigarh in association with Manipal University Jaipur as a remote centre. This course comes under the Sustainable Development Goal (SDG4: Quality Education).

Convener : **Dr Ruchika Mehta**

NATIONAL WORKSHOP

National Workshop
on
XPPAUT Software for
Bifurcation Analysis
(July 31-August 01, 2025)

Convener : **Dr Giriraj Methi**



EXPERT LECTURE

Expert Lecture
on
An Introduction to
Tomography Applications to
Medicine, other subjects and
Ray/Radon Transforms
(August 07, 2025)

Convener : **Dr Giriraj Methi**

RESEARCH VISIBILITY

FACULTY PUBLICATIONS

Q1 Journal Publications				
S. No.	**Name of Faculty**	**Title of Publication**	**Journal**	**Month of Publication**
1	Dr Reema Jain & Dr Loganathan Karuppusamy	Entropy Optimization and Multiple Slip Impacts of Thermally Radiative Flow of Sutterby Nanofluid past a Riga Plate with Microbial Activity and Heat Consumption	Journal of Thermal Analysis and Calorimetry	July, 2025
2	Dr Kalpna Sharma	Modeling And Analysis of Entropy in MHD Unsteady Flow of Water-Based Nanofluids with Carbon Nanoparticles	Discover Applied Sciences	July, 2025
3	Dr Anil Ahlawat & Dr Shilpa Chaudhary	Machine Learning Analysis of Thermo-Bioconvection in a Micropolar Hybrid Nanofluid-Filled Square Cavity with Oxytactic Microorganisms	Nanotechnology Reviews	July, 2025
4	Dr Anil Ahlawat & Dr Shilpa Chaudhary	Impact of Variable Thermal Conductivity on Plane Waves Between a Magneto-Thermoelastic Medium with Hall Current, Voids and a Magneto-Thermoelastic Medium with Hall Current	Physics of Fluids	July, 2025
5	Dr Anil Ahlawat & Dr Shilpa Chaudhary	Magneto-Convection and Irreversibility Insights of Micropolar Hybrid Nanofluid Flow in a Wavy T-Shaped Enclosure for Energy-Efficient Applications	Journal of Taibah University for Science	July, 2025
6	Dr Anil Ahlawat	Analysis of Thermal Efficiency of Micropolar Hybrid Nanofluids in a Partially Porous Enclosure with Heat Flux	Journal of Thermal Analysis and Calorimetry	July, 2025
7	Dr Kalpna Sharma	Darcy-Forchheimer MHD Flow driven by Membrane Pumping: Perturbation Solution	Chinese Journal of Physics	August, 2025
8	Dr Ruchika Mehta	Computational Study of Magnetohydrodynamics Williamson Fluid Flow Over Stretching Surface with Soret and Dufour Effects Using Machine Learning	Physics of Fluids	August, 2025
9	Dr Ruchika Mehta	Numerical Study of Water-Based Casson Fluid Flow with Ternary Nanoparticles Over an Inclined Shrinking Sheet in Presence of Radiation	Journal of Thermal Analysis and Calorimetry	August, 2025

10	Dr Sunil Joshi	An Enhanced Artificial Neural Network Approach for Solving Nonlinear Fractional-Order Differential Equations	Partial Differential Equations in Applied Mathematics	September, 2025
11	Dr Kalpna Sharma	Steady Flow of Jeffery-Hamel Casson Hybrid Nanofluid for Thermal Enhancement with Impacts of Soret-Dufour	Physics of Fluids	September, 2025
12	Dr Giriraj Methi	Application of Elzaki Fractional Variational Iteration Method for Solving Fractional Delay Differential Equations	Journal of Nonlinear and Convex Analysis	September, 2025
13	Dr Ruchika Mehta	Numerical Study of MHD Williamson Hybrid Nanofluid Flow Over Incessantly Moving Thin Needle in Presence of Soret & Dufour Effect	Partial Differential Equations in Applied Mathematics	September, 2025
14	Dr Ruchika Mehta	Computational Analysis of Thermophoresis and Brownian Motion Effects in Bioconvective MHD Casson Hybrid Nanofluid (Ag-Al_2O_3/H_2O) Flow Past a Moving Slender Needle	Results in Engineering	September, 2025
15	Dr Ashish Kumar & Dr Monika Saini	Efficient Stochastic Framework for Availability Improvement of Stone Door Frame Manufacturing Plants Using Artificial Neural Networks and Regression Analysis	Egyptian Informatics Journal	September, 2025

Other Journal Publications

S. No.	Name of Faculty	Title of Publication	Journal	Month of Publication
1	Dr Sunil Joshi	Some Novel Inequalities Via Tempered Fractional Integral Operator and Their Applications	Palestine Journal of Mathematics	July, 2025

PAPER PRESENTATION

S. No.	Name of Scholar	Name of Supervisor	Title	Conference	Date
1	Kartik Kumar	Dr Ankur Kumar Jain	Effect of Delay in the Growth of Pseudomonas Putida IsoF bacteria and it's Pattern formation	11th International Conference & 27th Annual Conference on Gwalior Academy of Mathematical Sciences (ICGAMS-2K25)	September 25-27, 2025
2	Prerna Jain	Dr Ankur Kumar Jain	Mathematical model of COVID-19 spread with Environmental factors	11th International Conference & 27th Annual Conference on Gwalior Academy of Mathematical Sciences (ICGAMS-2K25)	September 25-27, 2025

ACTIVITY UNDER MoU

JOINT RESEARCH PUBLICATION

S. No.	Name of Faculty	Title of Publication	Journal	Month of Publication
1	Dr Reema Jain & Dr Verdiana Grace Masanja (NM-AIST)	Modelling the Distribution and Transport of Heavy Metals on Water and Soil: A Systematic Review	International Journal of Environmental Science and Technology (SCOPUS indexed & Q1)	October 2025

INNOVATION/ IPR

S. No.	Title of Invention	Published /Granted	Inventor	Published in/Granted by	Date
1	A Novel Technique for Numerical Solution of Fractional Delay Differential Equations	Published	Sandeep Kumar Yadav & Dr Giriraj Methi	Govt. of India	July 25, 2025
2	A System for Enhancing Thermal and Mass Transport Using Bioconvective WaltersBNanofluids over Electromagnetic Actuators and Method Thereof	Published	Dr Reema Jain & Dr Loganathan Karuppusamy	Govt. of India	August 01, 2025

AWARDS & ACHIEVEMENTS

STUDENTS ACHIEVEMENTS

S. No.	Name of Student	Program	Achievement	Date
1	Navya Negi	III Sem. B.Sc. (Hons.) Mathematics	Completed the online course *"Tools for Data Science"* offered by IBM through Coursera	July 02, 2025
2	Navya Negi	III Sem. B.Sc. (Hons.) Mathematics	Completed the online course *"Python for Data Science, AI & Development"* offered by IBM through Coursera	August 05, 2025
3	Navya Negi	III Sem. B.Sc. (Hons.) Mathematics	Completed the online course *"Python Project for Data Science"* offered by IBM through Coursera	August 20, 2025
4	Navya Negi	III Sem. B.Sc. (Hons.) Mathematics	Cleared Round 1 and advanced to Round 2 of the *"International Innovation Challenge 2.0"* organized by the Department of IoT and Intelligent Systems, Manipal University Jaipur	September 08 09, 2025
5	Vikas Choudhary	V Sem. B.Sc. (Hons.) Mathematics	Selected for pre-incubation at Manipal University Jaipur through *"Vichar se Vikas Idea2IPR Ideathon"* for incubation of his startup entitled *"Infinity Mind"*	September 18, 2025
6	Atreya Ghoshal	V Sem. B.Sc. (Hons.) Mathematics	Received *"Dr TMA Pai Merit Scholarship 2025-26"* consecutively for the third time.	September 17, 2025
7	Caleb DSouza	III Sem. B.Sc. (Hons.) Mathematics	Received *"Dr TMA Pai Merit Scholarship 2025-26"*	September 17, 2025

EXTRACURRICULAR INVOLVEMENT

S. No.	Name of Faculty	Event	Organized by	Date
1	Dr Ankur Kumar Jain	Independence Day Celebration	Manipal University Jaipur	August 15, 2025
2	Dr Ankur Kumar Jain	Krishna Janmashtami Celebration	Manipal University Jaipur	August 16, 2025
3	Dr Ankur Kumar Jain	MUJ Excellence Awards 2025	Manipal University Jaipur	September 17, 2025
4	Dr Ankur Kumar Jain	4^{th} Convocation of Online Education	Manipal University Jaipur	September 20, 2025

COMMUNITY ENGAGEMENT

Atreya Ghoshal, Navya Negi, and Harjot Singh Sandhu volunteered for a cleanliness drive on September 14, 2025 under the Gram Asha Club. Students came together to clean the surroundings, collect waste, and contribute to a cleaner and heal thier environment.

This initiative, held under Swacchta Pakhwada, reflects our commitment towards the Swachh Bharat Abhiyan and building a more responsible community.

FRESHERS' DAY CELEBRATION 2025

On September 10, 2025, the departments of Physics, Chemistry, Mathematics, and Statistics at Manipal University Jaipur jointly hosted a vibrant and memorable Freshers' Celebration. The event was filled with excitement, joy, and enthusiasm as students and faculty joined hands to welcome the new batch with warmth and cheer.

The program began with a graceful Ganesha Vandana followed by a heartfelt welcome speech, setting the tone for the celebration. Soon after, the Heads of Departments extended their greetings through a thoughtful address, followed by the Associate Dean's words of encouragement. Their messages emphasized not only academic excellence but also the importance of unity, creativity, and growth during the university journey. The cultural segment began with a lively jamming session by second-year students, which created an energetic atmosphere in the auditorium. One of the highlights of the evening was the Ramp Show by the freshers, where the newcomers walked the stage with confidence and charm, symbolizing the beginning of their exciting journey at MUJ.

This celebration was more than just an event; it was a warm embrace for the new students as they stepped into university life. With a blend of tradition, talent, and togetherness, the day marked the beginning of countless new friendships, experiences, and memories that will shape the journey ahead.

Welcome, freshers—your story at MUJ has just begun, and it promises to be nothing short of extraordinary!

ANNOUNCEMENTS

WELCOME ANNOUNCEMENT

New Head of Department

We are pleased to announce that **Dr Reema Jain** has assumed charge as the Head of the Department of Mathematics and Statistics, School of Physical and Biological Sciences, FoSTA, Manipal University Jaipur, effective from July 17, 2025. She is an accomplished academician and researcher with rich experience in teaching, research, and academic administration. Her scholarly contributions and leadership vision are expected to further strengthen the department's commitment to academic excellence, interdisciplinary collaboration, and research innovation.

We extend our heartfelt welcome and best wishes to Dr Jain for a productive and successful tenure ahead.

We also express our sincere gratitude to Dr Kalpna Sharma for her dedicated service and valuable contributions during her tenure as Head of the Department.

New Faculty Members

Dr Vijaypal Poonia joined the Department of Mathematics and Statistics as an Assistant Professor on July 28, 2025. He has earned his Ph.D. in Mathematics from Birla Institute of Technology and Science, Pilani (BITS Pilani), Pilani Campus after completing M.Sc. in Mathematics from the Banaras Hindu University, Varanasi, India and B.Sc. from University of Rajasthan, Jaipur. His research interest lies in the mathematical modelling of the circular economy.

Dr Deepika Rajoriya joined the Department of Mathematics and Statistics as an Assistant Professor on August 07, 2025. She has earned her Ph.D. in Mathematics and Statistics from Dr. Hari Singh Gour Central University, Sagar Madhya Pradesh, after completing her M.Sc. in Mathematics and B.Sc. (Mathematics, Statistics, Economics) from the same university. Her research interests lie in Graph Sampling and Optimization.

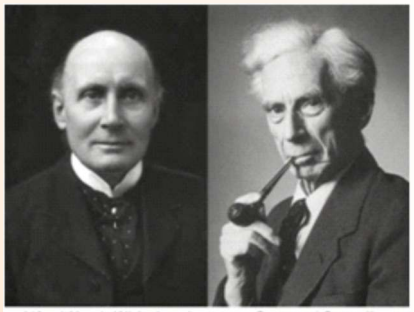
Dr Vipin Kumar joined the Department of Mathematics and Statistics as an Assistant Professor on August 18, 2025. He earned his Ph.D. in Mathematics and Scientific Computing from the National Institute of Technology (NIT) Hamirpur, after completing M.Sc. in Mathematics from Deenbandhu Chhotu Ram University of Science and Technology (DCRUST), Murthal and B.Sc. from Maharshi Dayanand University (MDU), Rohtak. His research interests include cryptography and network security, authentication schemes, and blockchain technology.

We extend a warm welcome to all three faculty members and wish them great success in their academic journey with us.

ARTICLES

A FORBIDDEN BOOK TO PARADISE

- By Harjot Singh Sadhu



Alfred North Whitehead (1861-1947) Bertrand Russell (1872-1970)

In mathematics, the quest for absolute certainty has been a basic principle for many years. In pursuit of it, axiomatic systems came to be developed—organized systems where truths follow from a base set of foundational axioms using logic. The ultimate aim was to have an entire and consistent basis for mathematical truths. One of the most ambitious projects of this sort was undertaken by Bertrand Russell and Alfred North Whitehead in their magnum opus, Principia Mathematica, appearing from 1910 to 1913. They aimed to reduce all mathematics to a defined set of logical axioms and rules of inference. The intensity of their process is evidenced by the fact that it took them almost 700 pages to reach the proof of a seemingly straightforward arithmetic fact: $1 + 1 = 2$.

Principia Mathematica was not a book—it was a groundbreaking effort to solve three titanic questions at the center of mathematical logic:

Consistency: Can we be sure that there are no contradictions from the axioms?

Completeness: Can all mathematical truths be proved in this system?

Decidability: Can a machine decide on the truth or falsehood of any mathematical statement?

And yet this vision of an independent mathematical heaven was soon challenged—if not demolished—by a low-key, revolutionary intellect. In 1931, Austrian logician Kurt Gödel announced his incompleteness theorems and effectively redirected the course of mathematical history.

Gödel demonstrated that within any sufficiently rich axiomatic system:

There are true statements that cannot be proven within the system (First Incompleteness Theorem).

The system cannot prove its own consistency (Second Incompleteness Theorem).

Gödel's conclusions were catastrophic for the hopes of Principia Mathematica. They implied that regardless of how extensive or well-formed a system may be, there will always exist truths that it cannot reach. The vision of a closed, complete, and faultless system of mathematics, a utopia of pure logic, was no longer achievable.

In this context, Principia Mathematica is a forbidden book—a lovely and sad remnant of an ideal that reason in itself could release all truths. And in the shadow of Gödel, we are left not with a paradise, but with a broad and open plain—unresolved, unfinished, and very human.

References

1. Russell, B., & Whitehead, A. N. (1910–1913). Principia Mathematica (Vols. 1–3). Cambridge University Press.
2. Gödel, K. (1931). Über formal unentscheidbare Sätze der Principia Mathematica und verwandter Systeme I [On formally undecidable propositions of Principia Mathematica and related systems I]. Monatshefte für Mathematik und Physik, 38, 173–198. https://doi.org/10.1007/BF01700692

THE NEXT GAUSS MAY NOT BE BORN — THEY MAY BE SPUN UP IN THE CLOUD

- By Dr Ankur Kumar Jain

What was once genius — appearing only once every few centuries — may soon become a question of infrastructure and compute.

Just as Go players discovered new and richer strategies after playing against AlphaGo, mathematicians and scientists may find their horizons widened by collaborating with AI systems. Rather than replacing human ingenuity, these tools could uncover overlooked approaches, inspire novel conjectures, and expose unexpected connections across disciplines. The outcome would be a deep enrichment of the landscape of human knowledge — opening new ways of seeing, reasoning, and creating at a pace that feels both unprecedented and almost unimaginable from the vantage point of our pre-singularity world today.

PHOTO GALLERY

Department of Mathematics and Statistics

Internal Academic Audit

Diwali Celebration

Student Achievement

MUJ Excellence Awards

INSPIRED BY LIFE

Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur-303007 (Raj.) | Phone: 0141 399 9100
http://3.108.105.201/manipal-jaipur/university/index.php