Conference Report

International Conference on Innovative Trends in Mathematics and Intelligent Systems (ITMIS-2026): *Viksit Bharat@2047*

Date: 26-27 February, 2026 **Venue: Multi-Purpose Hall(MPH), SLC**

DAY-1

Inaugural Ceremony

The inaugural ceremony of the event **"International Conference on Innovative Trends in Mathematics and Intelligent Systems (ITMIS)"** was organized by the **Department of Mathematics, Shyam Lal College (SLC), University of Delhi**, in collaboration with **IQAC**, and sponsored by **DRDO (Defence Research & Development Organisation) and ANRF (Anusandhan National Research Foundation)**. The ceremony was held in the **Multi-Purpose Hall (MPH) of SLC, University of Delhi**, in the presence of distinguished guests, faculty members, students, and participants.

The ceremony was graced by eminent guests **Prof. Tarun Das, Head of the Department of Mathematics**, and **Dr. Ajay Kumar, Scientist F, DRDO**. Their presence added great significance to the occasion and provided an opportunity for students and researchers to gain insights from experienced academicians and scientists.

The program began with the traditional lamp lighting ceremony, which symbolizes the removal of darkness and the spread of knowledge. The ceremonial lamp was lit by the respected guests **Prof. Tarun Das** and **Dr. Ajay Kumar**, along with the **principal, Prof. Rabi Narayan Kar**. This auspicious beginning set a positive and inspiring tone for the event.

The inaugural session was hosted by Dr. Seema Guglani from the Department of Mathematics. She warmly welcomed the guests, faculty members, participants, and students present in the hall. In her welcome address, she briefly introduced the dignitaries and highlighted the objectives and significance of organizing such an academic event. Her words emphasized the importance of collaboration between academia and research organizations in advancing knowledge and innovation.

Following the welcome address, the principal, Prof. Rabi Narayan Kar, felicitated the distinguished guests as a token of appreciation and respect for their valuable presence. Subsequently, the faculty members of the Department of Mathematics felicitated the principal**,** acknowledging his constant encouragement and support for academic initiatives and research-oriented activities in the college.

After the felicitation ceremony, the guests, along with all the dignitaries present on the stage, also formally released the Abstract Book of the Conference, marking the official

commencement of the academic proceedings. Then, the distinguished guests were invited to address the gathering**.** Prof. Tarun Das shared his thoughts on the importance of mathematics in solving real-world problems and encouraged students to pursue research with curiosity and dedication. He emphasized that mathematical thinking plays a crucial role in scientific and technological development.

Following this, Dr. Ajay Kumar**,** Scientist F at DRDO, delivered an insightful address highlighting the role of mathematics and advanced technologies in modern scientific research and national development. He motivated the students to actively participate in research activities and explore innovative ideas that could contribute to technological advancements.

After the guest lectures, the principal, Prof. Rabi Narayan Kar, was invited to address the audience. In his speech, he shared his views on the significance of academic gatherings such as seminars, workshops, and conferences. He appreciated the efforts of the Department of Mathematics for organizing the event and encouraged students to make the most of such opportunities for learning and intellectual growth. The Convener of ITMIS, Dr. Vinod Kumar, also addressed the gathering, shared a few words about his vision, objectives, and significance of organizing the conference.

The inaugural ceremony concluded with a Saraswati Vandana and the Kulgeet, which created a spiritual and cultural atmosphere in the hall. These performances marked a graceful conclusion to the formal proceedings of the inaugural session.

The ceremony was followed by high tea in the MPH corridor, where the guests, faculty members, and participants interacted with each other in an informal setting. This provided an excellent opportunity for networking, discussion, and exchange of ideas among students and scholars.

The inaugural ceremony successfully set a positive and inspiring tone for the event and marked the beginning of an intellectually enriching academic program.

Following the inaugural ceremony, the conference proceeded with a series of **online technical sessions** in which researchers, academicians, and scholars presented their work. In total, 1 offline session & 20 online technical sessions were conducted during the event, covering a wide range of interdisciplinary topics related to mathematics, information technology, and intelligent systems.

These sessions provided a platform for participants to present their research findings, exchange ideas, and engage in meaningful academic discussions. The presentations highlighted recent advancements and research challenges in areas such as **artificial intelligence, secure communication systems, quantum cryptography, mathematical modelling, data science, and emerging computational technologies**.

Each session was chaired by distinguished experts and faculty members who guided the discussions and provided valuable feedback to the presenters. The interactive nature of the sessions encouraged scholarly exchange and enhanced the learning experience for all participants.

In addition to the technical sessions, a series of invited talks were conducted in offline mode at the Multi-Purpose Hall (MPH), running parallel to some of the technical sessions. The invited talks of Day–1 proceeded in the following manner:

Talk-1 (12:00-12:30 PM):

Speaker: Dr. Prashant Kumar

Session Chair: Prof. Shiv Raj Singh

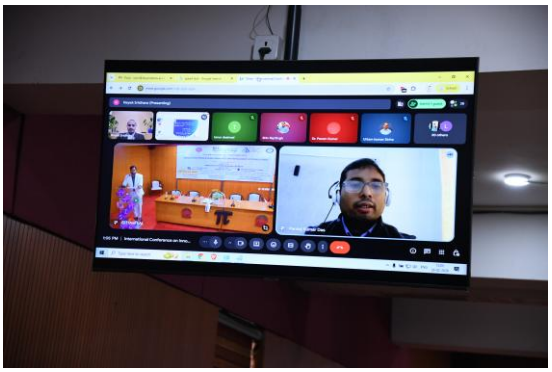
The first invited talk was delivered by **Dr. Prashant Kumar** from the **National Institute of Technology (NIT), Delhi**, on the topic *"**Predicting Extreme Storm Surge along the Indian Coastline Using a Physics-Informed Machine Learning Ensemble**"* In his lecture, he discussed the role of physics-informed machine learning models in predicting extreme storm surges and improving coastal disaster preparedness. The session was chaired by **Prof. Shiv Raj Singh** from **CCS University, Meerut**, who appreciated the insightful presentation and guided the discussion.

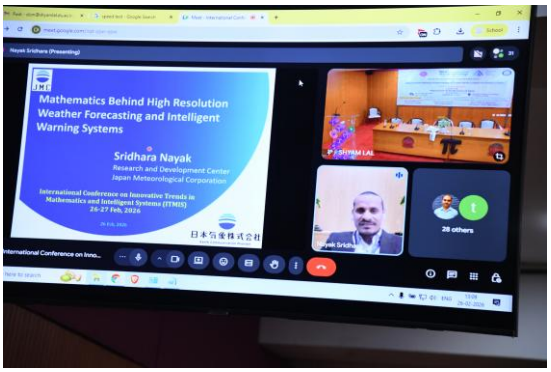
Talk-2 (12:30-1:00 PM):

Speaker: Prof. Sridhara Nayak

Session Chair: Prof. Pankaj Kumar Das

The second invited talk was delivered by **Prof. Sridhar Nayak** from the Japan Meteorological Corporation, Japan, on the topic *"Mathematics Behind High Resolution Weather Forecasting and Intelligent Warning Systems."* In his talk, he highlighted the mathematical models and computational techniques used in high-resolution weather forecasting and their role in developing intelligent early warning systems. The session was chaired by **Prof. Pankaj Kumar Das** from Tezpur University, who appreciated the informative presentation and emphasized the importance of mathematical approaches in modern meteorological research.



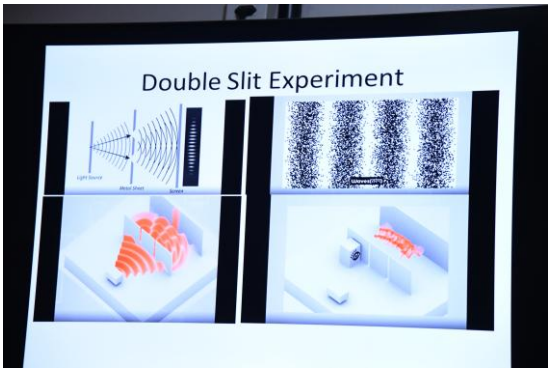


Talk-3(1:00-1:30 PM):

Speaker: Dr. Pankaj Kumar

Session Chair: Prof. M.Y. Abbasi

The third invited talk was delivered by **Dr. Pankaj Kumar** from the Central University of Himachal Pradesh, India, on the topic *"Basics of Quantum Computing: Concepts and Recent Developments."* In his talk, he introduced the fundamental principles of quantum computing, including key concepts and recent developments in the field. He also highlighted the potential applications of quantum computing in solving complex computational problems. The session was chaired by **Prof. M. Y. Abbasi** from Jamia Millia Islamia, India, who appreciated the informative presentation and encouraged further discussion on the emerging scope of quantum technologies.



After the successful completion of all the technical sessions and all invited talks, the conference concluded with the **Valedictory Ceremony**, marking the formal end of the academic event.

The technical sessions of the conference were organized as follows:

Session 1 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Innovation Plaza 1, Shyam Lal College

Number of participants = 10

Number of presenters = 7

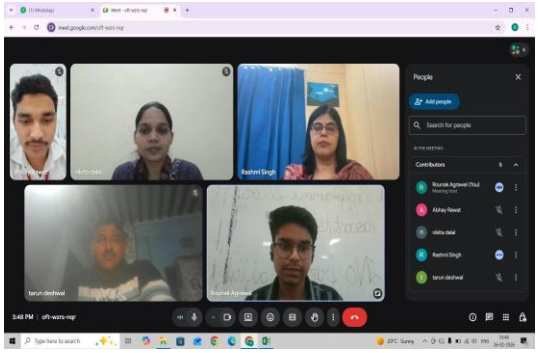
The parallel session 1 was organised by team member of ITMIS which was headed by Abhay Rawat and Rounak Agrawal the elegant student of B.Sc. (Hons) Mathematics. The session had begun under the guidance of session chair Prof. Kamal Kumar and Prof. Rashmi Singh.

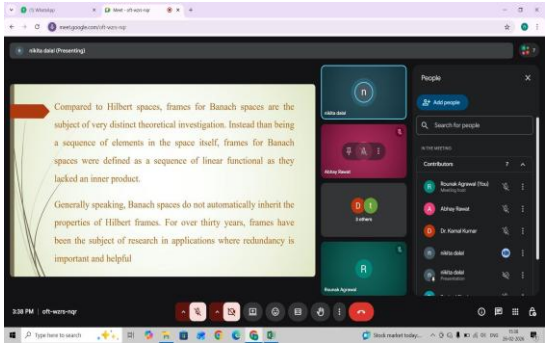
Prof. Kamal Kumar: Kamal Kumar is currently an Academician. He is also a Professor with the Department of Mathematics, Baba Mastnath University, Rohtak, India. He has been contributing for more than two decades in the field of higher education. He served for various reputed institutes of national importance in the field of mathematics. He has presented more than 20 research papers at national and international conferences. He wrote more than 50 research articles in peer-reviewed, UGC-listed, UGC-CARE List, Scopus, Web of Science, and SCI-indexed journals. He has published several books and book chapters. He is a Lifetime Member of the Operational Research Society of India, Meerut.

Prof. Rashmi Singh: Prof. (Dr.) Rashmi Singh is a Professor of Mathematics at Amity University Uttar Pradesh, affiliated with the Amity Institute of Applied Sciences. She specializes in Applied Mathematics and has been actively involved in teaching and academic research. With extensive experience in higher education, she has contributed to curriculum development, research guidance, and mentoring students in mathematical sciences. Her academic work reflects a strong commitment to advancing research and promoting excellence in mathematics education.

List of Participants:

1. Spatiotemporal Air Quality Index Modelling Using Classical and Quantum Support Vector Regression - Aryan Rana.
2. A Review of Stabilizer Quantum Error Correction Codes – Simran.
3. Vibration Study of Non-Homogeneous Orthotropic Parallelogram Plates Using the Rayleigh-Ritz Method – Sapna.
4. Common Fixed-Point Theorem for Two Mappings in b-Metric Space – Durgesh Kumar.
5. A Two-Warehouse Inventory Model for Deteriorating Items under Hybrid Demand and Inflation with Time-Dependent Holding Costs and Partial Backlogging – Tarun Deshwal.
6. Performance Evaluation of a Solar Water Pumping System for Agricultural Irrigation Using RAMD Modelling – Priyanka.
7. Frames Associated with Measurable in Hilbert and Banach Spaces - Nikita Dalal





Session 2 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 6

Session Chair: Dr. Vijay Kumar

Coordinators: Divanshu Jhajhria and Harsh

The session was chaired by Dr. Vijay Kumar, whose guidance and insightful remarks enriched the academic discussions throughout the session.

List of Participants:

1. Synchronization Analysis of Novel Fractional order Hyperchaotic Finance System via impulsive and Feedback Control – Meenu.
2. Approximation properties and theoretical analysis of integral-type operators – Kapil Kumar.
3. Some Sequences of Tricomplex Numbers - Mamta Amol Wagh.
4. Weak solvability of the Neumann Problem – Apeksha.
5. Methods for Solving Multi-Objective Optimization Problems - T Sithara Abbas.
6. Resolution Invariant Multivariate Forecasting via Hybrid Neural Operator - Sreeja Vimal V.

The session concluded with a brief discussion and appreciation from the chairperson. The smooth coordination by Divanshu Jhajhria and Harsh ensured that the virtual presentations proceeded without interruption, encouraging productive interaction among presenters and attendees. Overall, the session successfully showcased diverse research themes and contributed to the broader objectives of the ITMIS 2026.

Session 3 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 10

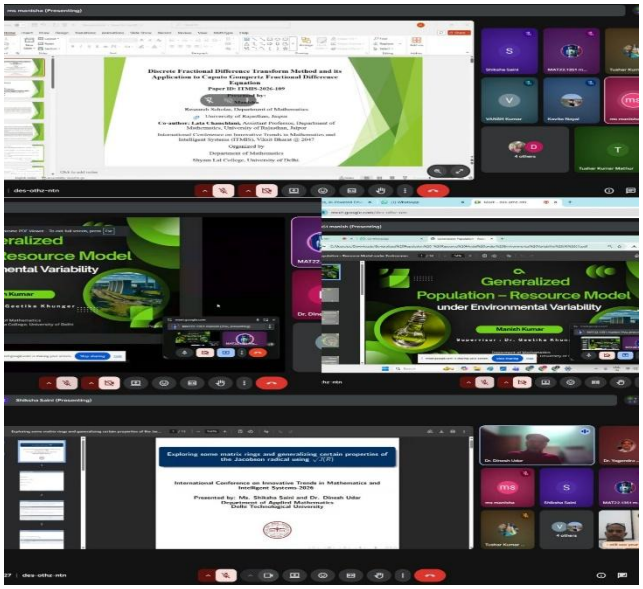
Session Chair: Dr. Yogendra Kumar Rajoria

Parallel Session–3 was conducted online on the first day of the conference from 2:00 PM to 3:40 PM. The session was chaired by Dr. Yogendra Kumar Rajoria and included several research presentations covering diverse topics in mathematics, computational methods, artificial intelligence, and applied sciences.

List of Participants:

1. Laminar Newtonian Aqueous humor flow in the human eye: A mathematical framework of Schlemm's canal – Kavita.
2. Pareto-based Intuitionistic Fuzzy Framework for System Reliability Assessment – Pooja.
3. An Approach to Strengthen Some Particular Numerical Iterative Methods - Kamble Prakash Namdeo.
4. Implementation of Fuzzy PID Controller for Biomedical Application - Sunil Namdeo Yadav.
5. Discrete Fractional Difference Transform Method and its Application to Caputo Gompertz Fractional Difference Equation – Manisha.
6. Exploring some matrix rings and generalizing certain properties of the Jacobson radical using √J(R) - Dinesh Udar.
7. Robust Engineering Design Optimization Using Self-Adaptive Variants of Differential Evolution – Pooja.
8. Generalized Population - Resource Model under Environmental Variability - Manish kumar.
9. Artificial Intelligence–Driven Transportation Solutions for Sustainable Smart Cities in India - Tarun Lata.
10. Securing the Digital Future: Cryptography and Emerging Technologies - Fauzia Hassan.

The session concluded with interactive discussions where participants asked questions and shared their perspectives. The session chair appreciated all presenters for their valuable contributions.



Session 4 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 10

Session Chair: Dr. Chandra Mohan

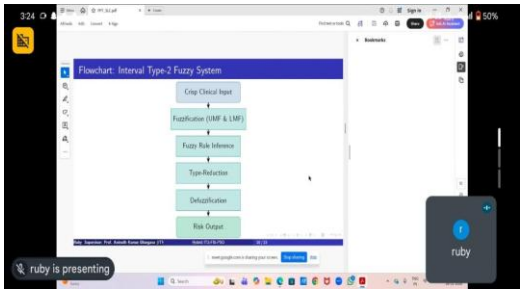
The session was chaired by Dr. Chandra Mohan and included a diverse set of research presentations spanning areas such as fuzzy systems, optimization, medical decision systems, topology, quantum security, and mathematical modeling.

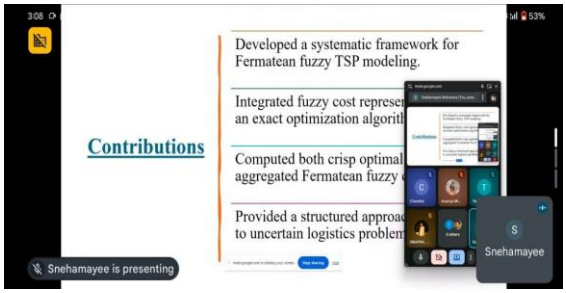
List of Participants:

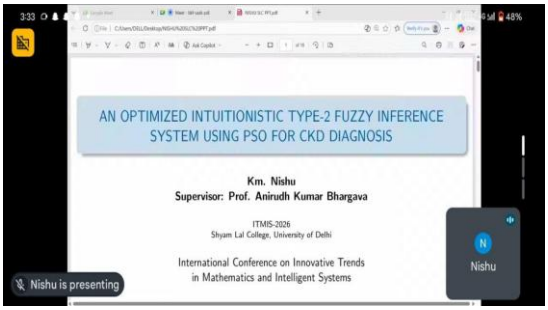
1. A Topological Approach to the Mixed Vector Equilibrium Problem - Ankush Kumar.
2. Modified Method for Evaluation of Mixed Integer Programming Problem with Fuzzy Parameters - Satyajit Sahu.
3. The Impact of a Vedic Mathematics Intervention on Computational Speed and Confidence: An Exploratory Pre-Post Study with First-Year Engineering Students - Sujata Jaywant Aher.
4. Modified approach for solving Transportation problems in an Uncertain Environment using Neutrosophic Theory - Ananya Mishra.
5. New method for solving Fermatean fuzzy travelling salesman problem under uncertain environment - Sneha Mayee Maharana.
6. A Quantum-Resilient Two-Party Authentication Framework for Mobile Environments - Nasheem Khan.
7. A Hybrid Type-2 Fuzzy–PSO Model for Multi-Criteria Medical Diagnosis under Uncertainty - Ruby.
8. Optimizing Antiplatelet Therapy in Post-PCI Patients Using Fuzzy Inference System - Ram Kishor.
9. An Optimized Intuitionistic Type-2 Fuzzy Inference System Using Particle Swarm Optimization for Enhanced Clinical Decision-Making in Chronic Disease Diagnosis - Km. Nishu.
10. Some Remarks on Frame in Hilbert Space - Mohit Gaur.

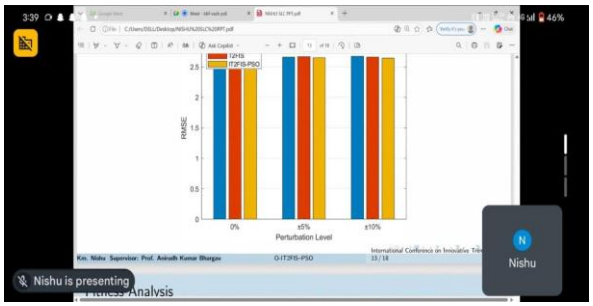
The session was efficiently coordinated by the session volunteers, Tanishka and Swapnil, who ensured smooth transitions between presentations and managed the session effectively.

Overall, the session featured engaging discussions and valuable interdisciplinary research contributions. The presentations concluded successfully within the allotted time and encouraged meaningful academic interaction among the participants.









Session 5 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 6

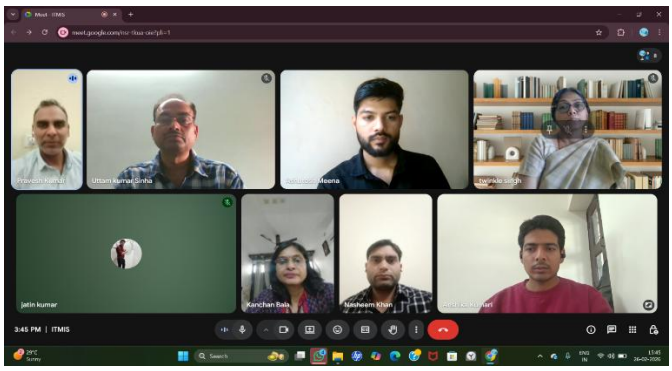
Session Chair: Dr. Pravesh Tomar

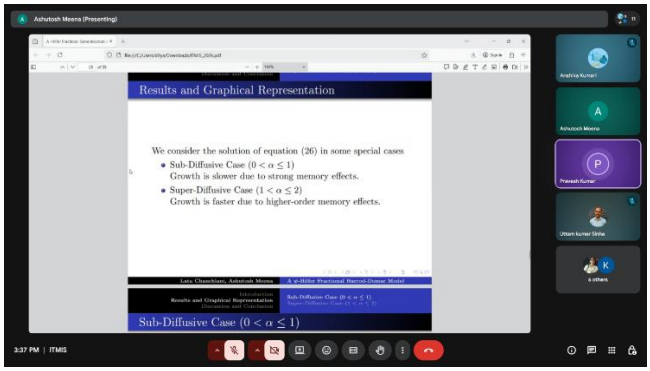
Dr. Pravesh tomar: He is currently an Assistant Professor and the Dean of Academics at Rajkiya Engineering College, Bijnor. To give you a brief background, he completed his PhD from IIT Roorkee and holds an ME in Software Engineering from Thapar University. Along with over a decade of teaching experience, he secured an All India Rank of 105 in GATE Mathematics and has represented his research internationally in Italy and Singapore.

List of Participants:

1. A Note on Operator Representation of Frames in Hilbert Spaces - Kanchan Bala.
2. An Efficient and Reliable Method for Solving Nonlinear Delay Differential Equations Using Method of Steps, Differential Transform, and Bell Polynomials - Jatin Kumar.
3. Review on Analytical methods with applications - Dr. Twinkle R. Singh.
4. Linear codes capable of locating the m-repeated solid burst errors - Uttam Kumar Sinha.
5. A ψ-Hilfer Fractional Generalization of the Harrod-Domar Economic Growth Model - Ashutosh Meena.
6. A Quantum Secure Authentication and Key Agreement Protocol for Vehicle to Grid Technology - Nasheem Khan.

Present Parallel Session 5 of Day 1 of the International Conference on Mathematics was successfully conducted online with active participation from most presenters. Despite a few absentees due to valid reasons, the session maintained academic quality and meaningful discussions.





Session 6 (2:00 PM – 3:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 6

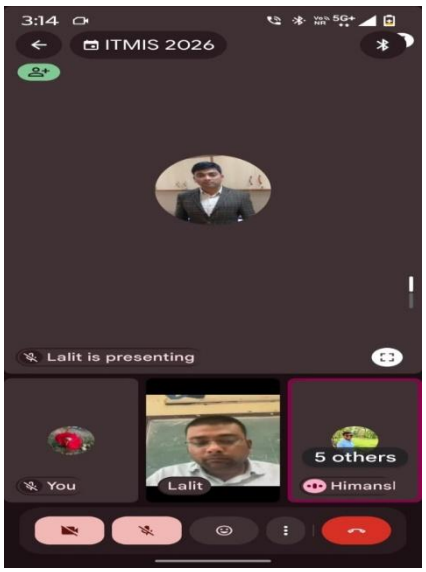
Session Chair: Dr. Rajjiv Kumar

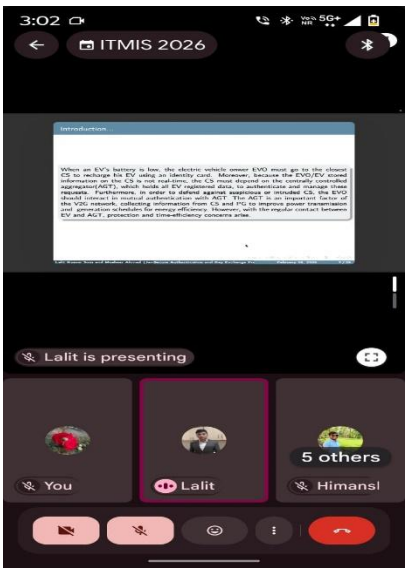
Parallel session 6 was conducted online as part of **ITMIS – 26 .** The session included research paper presentations from various scholars in different area of mathematics such as Algebra , DE etc.

List of Participants:

1. Quasi covered ideals of an ordered ternary semigroup – Shahnawaz.
2. Secure Authentication and Key Exchange Framework using ECC for IIOT - Lalit Kumar Som.
3. Mathematical Modelling in Epidemiology: Concepts, Techniques and Case Studies - Ruchi Kaur.
4. Fuzzy Lateral Ideals and Fuzzy Lateral Filters in *-Ternary Semigroups - Sabahat Ali Khan.
5. Stokes drag effect in the photo gravitational restricted four-body problem with variable mass - Krishan Pal.
6. The Restricted Four Body Problem with Isotropic Mass Variation of the Primaries – Sunita.

Parallel Session 6 of Day 1 of the International Conference on Mathematics was successfully conducted online with active participation from most presenters. Despite a few absentees due to valid reasons, the session maintained academic quality and meaningful discussions.





Session 7 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

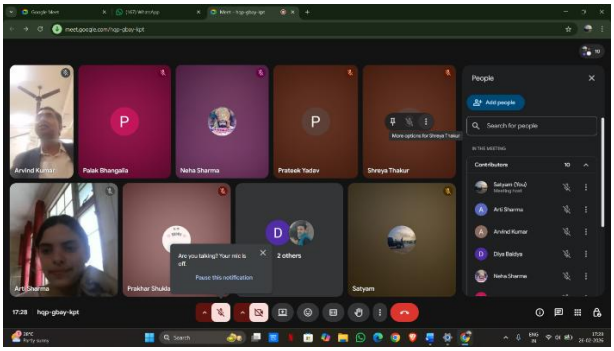
Number of presenters = 7

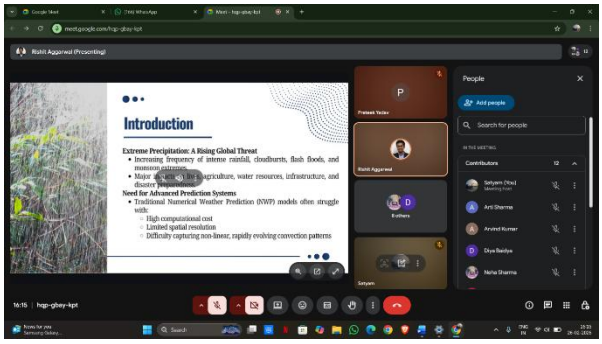
Session Chair: Dr. Arvind Kumar

The session was chaired by **Dr. Arvind Kumar**, Assistant Professor in the Department of Mathematics at Dyal Singh College, University of Delhi. He obtained his Ph.D. in Mathematical Programming from the University of Delhi in 2018, specializing in duality in multiobjective programming under generalized convexity. With over eleven years of teaching experience, his research interests include Operations Research, Optimization, and Mathematical Programming. Dr. Kumar has published several research papers in reputed journals and also holds a patent related to machine learning applications in manufacturing processes.

List of Participants:

1. A Deep Learning Approach for Enhancing ENSO and IOD Forecasting - Shweta Jain.
2. Control and Anti-Synchronization of Chaotic Tuberculosis Transmission Dynamics via Advanced Nonlinear Techniques - Diya Baidya.
3. Eigenvalue Decomposition and PCABased Portfolio Optimization: A Case Study on S&P 500 - Prakhar Shukla.
4. A Quantum-Assisted RFID Authentication Scheme for Secure Supply Chain Management - Arti Sharma.
5. A Hybrid Quantum-Based Authentication Scheme for Secure Satellite Communication - Shreya Thakur.
6. Quantum-Secure Authentication for Digital Twin-Empowered Satellite Communication - Palak Bhangalia.
7. A Novel Quantum Encryption based Secure Authentication Protocol for Transportation Systems – Neha.





Session 8 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 8

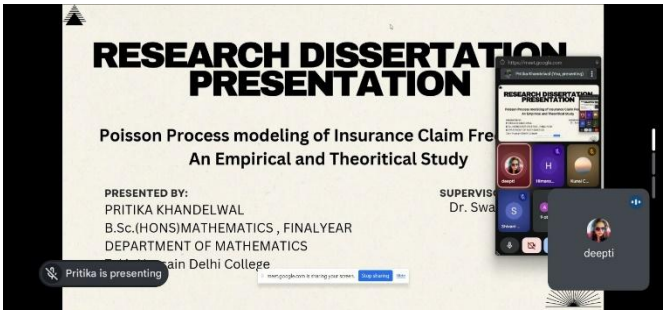
Session Chair: Dr. Deepti, Associate Professor, Shivaji College, University of Delhi

Parallel Session-8 of the ITMIS 2026 conference provided a robust platform for discussing the convergence of mathematical modeling and intelligent systems. Under the chairman- ship of Dr. Deepti, Associate Professor of Shivaji College, the session showcased eight high-quality presentations ranging from quantum cryptography to biological machine learning.

List of Participants:

1. Quantum-Based Authentication for Secure Electric Vehicle Communication in V2G Networks - Neerja Kashav.
2. Quantum-Assisted Identity Verification for Secure Metaverse Interaction - Divya Rana.
3. Quantum Communication and Security Paradigms for NextGeneration Wireless Sensor Networks: A Review - Shivani Choudhary.
4. A Review of Machine Learning and Quantum Machine Learning for Cancer Biomarker Discovery – Kunal.
5. Poisson Process Modelling of Insurance Claim Frequency: An empirical and theoretical study - Pritika Khandelwa.
6. Enhancing ATM PIN Security Using ECC with AI-Based Biometric Recognition - SHIVAM VERMA & RAJ MAURYA.
7. Bayesian vs Frequentist inference: A Theoretical Study - Himanshu Budhakoti.
8. Detection Of Naegleria Fowleri Through Machine Learning Approach. - Anukesh Kumar.

The coordination by Abinash and Vansh facilitated a seamless virtual experience, allowing for interactive Q&A sessions that fostered academic growth. The session suc- cessfully concluded within the scheduled timeframe, meeting all its primary objectives.



Session 9 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 9

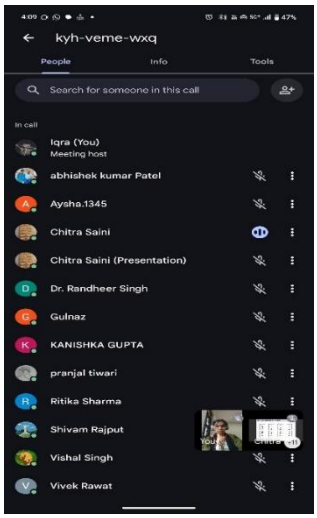
Session Chair: Dr. Randheer Singh

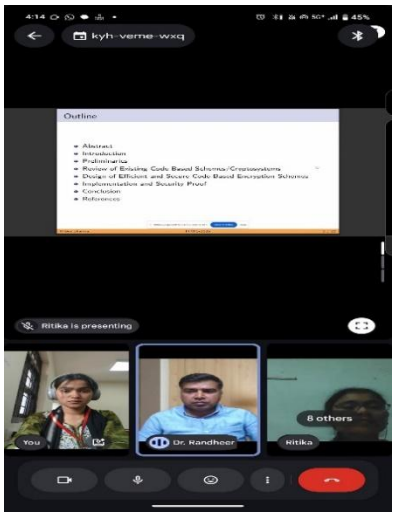
The session was chaired by Dr. Randheer Singh. The session included a total of ten research paper presentations from different participants covering diverse topics such as cryptography, algorithms, mathematics, statistics, and consumer behavior.

List of Participants:

1. Advanced Encryption Standard (AES): A Symmetric Post Quantum Algorithm - Chitra Saini.
2. A Comprehensive Study of Asymmetric Post Quantum Candidates - Ritika Sharma.
3. Application of Dijkstra's Algorithm for Shortest Route Analysis using Python - Pranjal Tiwari & Shivam Rajput.
4. Analytical Solutions of Nonlinear Fluid Problem by Tan-Cot Method - Kanishka Gupta.
5. Cryptanalysis of Developing a Provable Secure and Cloud-Centric Authentication Protocol for the eHealthcare System - Abhishek Kumar.
6. The Banach Contraction Principle and Its Extensions to C*-Algebra Valued Metric Spaces - Aysha Sabreen.
7. Fixed point theorem in C* algebra valued metric space - Vishal Singh.
8. Study of Some Aspects of NonLinear Wave Propagation - Vivek Kumar Rawat.
9. A Quantitative Statistical Analysis of Consumer Preferences towards ECommerce Subscription Models among the 18-25 Age Grou - Nakshata Agarwal.

Present Parallel Session 9 of Day 1 of the International Conference on Mathematics was successfully conducted online with active participation from most presenters. Despite a few absentees due to valid reasons, the session maintained academic quality and meaningful discussions.





Session 10 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

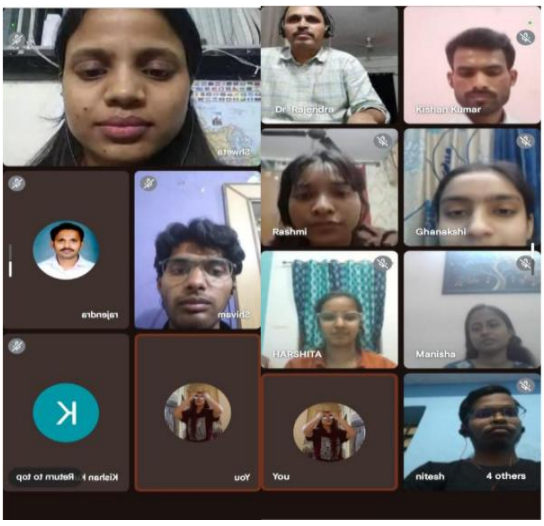
Number of presenters = 10

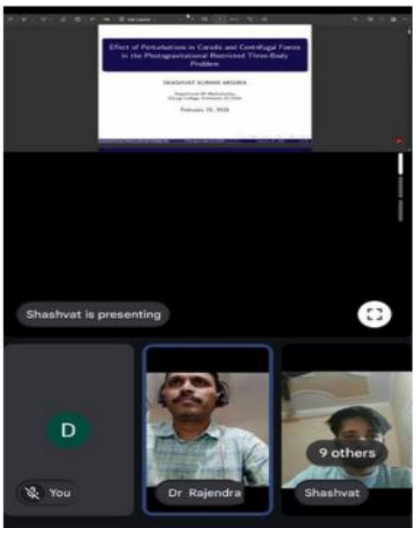
Session Chair: Dr. P Rajendra

Dr. P. Rajendra is a Professor of Mathematics specializing in Scientific Machine Learning (SciML). His work bridges rigorous mathematical foundations with emerging AI paradigms such as Agentic AI, PINNS, Neural Operators, Physical AI, and Quantum-Enhanced Systems.He has guided research scholars, contributed to peer-reviewed publications and patents, and promoted innovation-driven inquiry at the intersection of mathematics and intelligent systems.

List of Participants:

1. Effect of perturbations in coriolis and centrifugal forces in Photogravitational Restricted Three body problem - Shashvat Kumar Mishra.
2. IDENTIFICATION NUMBERS AND THEIR CHECK DIGIT SCHEMES - Nitesh Kumar.
3. Applications of the Banach Fixed Point Theorem and their generalizations in Machine Learning - Kishan Kumar Jha.
4. A hybrid Machine Learning - Enhanced SEIR model for regional COVID 19 - Shivam Pandey.
5. Mental Health Challenges Faced by School Students: An Exploratory Study - Shweta Verma.
6. Analyzing Stock Market Behavior Using Markov Chain with FII and DII Data - Piyush Mittal.
7. Linear Algebra for Machine Learning - Manisha Kumari.
8. Assessing HPV Vaccination Awareness, Uptake and Perception: A Statistical Study of University Students in the Delhi/NCR Region - HARSHITA BHARDWAJ.
9. A Weighted Graph Approach to Traffic Flow Modelling with External Disruptions - Ghanakshi Gautam.
10. Impacts of AI tool usage on cognitive abilities and learning outcomes among universities students in Delhi / NCR - Rashmi Singh.





Session 11 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 10

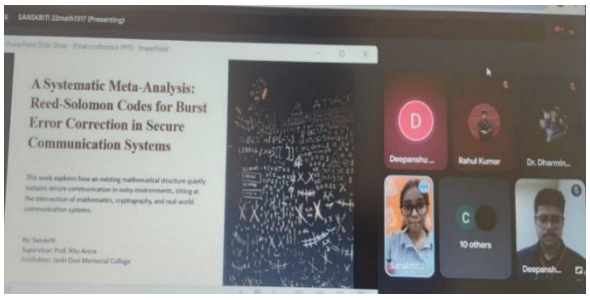
Session Chair: Dr. Dharminder Chaudhary

The session was chaired by Dr. Dharminder Chaudhary. The session included a total of ten research paper presentations from different participants covering diverse topics such as cryptography, heuristic algorithms, effect of gravity, effect of magnetic field and secure communication systems.

List of Participants:

1. Risk-Adjusted Performance Evaluation of Option Trading Strategies through Greek Sensitivities and Sharpe Ratio Metrics: A Time-Based Study on Nifty 50 Options - Sneha Bhardwaj.
2. Optimization of the academic timetable scheduling under NEP Framework using greedy heuristic algorithm - Palak Gupta.
3. Repeated Key Errors Correcting Codes - Arya Yadav.
4. Numerical Methods for Solving Fractional Differential Equations - Divyanshu Kandpal.
5. Rayleigh Waves at the Surface of Fiber-Reinforced Viscoelastic Medium under the Effect of Gravity - Shruti Garg.
6. Rayleigh waves at the surface of fiber reinforced viscoelastic medium under the effect of magnetic field – Chahak.
7. A Variational Iteration method to solve Singularly Perturbed Reaction Diffusion Equation with small shift - Anuj Kumar.
8. Study of Behavioral Changes in a Tri-trophic Food Chain due to Prey Refuge - Rahul Kumar.
9. A Systematic Meta-Analysis: ReedSolomon Codes for Burst Error Correction in Secure Communication Systems – Sanskriti.
10. Advancements in Fixed Point Theory and Its Applications - Sakshi Dwivedi.

Present Parallel Session 11 of Day 1 of the International Conference was successfully conducted online with active participation from all presenters. The session maintained academic quality and meaningful discussions.



Session 12 (4:00 PM – 5:40 PM):

Date: 26 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 10

Number of presenters = 9

Session Chair: Dr. Adesh Kumari, and Dr. Maan Singh

The session was organized in an online mode through Google Meet.

The session was chaired by Dr. Adesh Kumari, and Dr. Maan Singh, who guided the session and moderated the presentations and discussions.

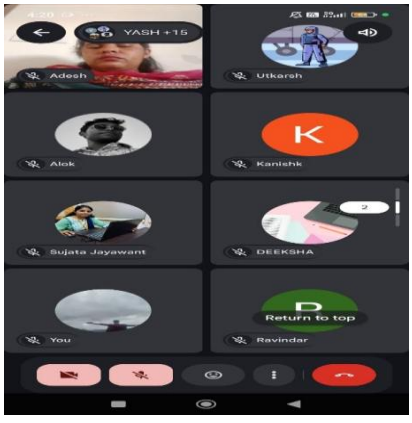
The technical session was student-led and coordinated by Alok and Aditya Singh Chauhan from the Department of Mathematics, Shyam Lal College.

List of Participants:

1. Study of nonlinear wave propagation - Yash Gupta.
2. Vedic Mathematics: A Comprehensive Review of Historical Origins, Mathematical Basics, And Interdisciplinary Applications – Ravindar.
3. Wave propagation in fiber-reinforced viscoelastic medium under the effect of magnetic field - Khushi Gupta.
4. Graphical Analysis of Complex Functions using Mathematica – Pooja.
5. Generalization of Metric Space - Ankit Kumar.
6. Compressible fluids and chaplygin gas - Anuj Kumar Dwivedi.
7. Finding the Inverse of matrices using vedic mathematics – Utkarsh.
8. User Awareness, Safety Protocols, and Scam Prevention in Digital Payment Environments among University Students of Delhi/NCR: A Statistical Analysis - Shruti Gaur.
9. Analysis of Resonance Curve in the Restricted Three-Body Problem Including the effect of Earth's Equatorial Ellipticity and Centrifugal force - Kanishk Singh.

The session witnessed active participation from presenters and attendees, with insightful discussions following the presentations. The chairpersons appreciated the quality of the research work presented and encouraged participants to continue contributing to the advancement of mathematical sciences.

The session concluded successfully within the scheduled time with a vote of thanks to the session chairs, presenters, and participants.



With the successful completion of the scheduled technical sessions, the first day of the conference came to an end. The sessions fostered meaningful discussions and provided valuable insights into contemporary research areas.

DAY-2

Date: 27 February, 2026 **Venue: Multi-Purpose Hall(MPH), SLC**

The second day of the conference commenced with a series of **parallel technical sessions conducted in the morning from 9:00 AM to 10:30 AM.** Researchers and scholars presented their work across diverse areas of mathematics, data science, optimization, machine learning, and mathematical modelling. These sessions provided an interactive platform for participants to discuss innovative ideas and recent developments in their respective research areas. Following the technical sessions, the conference continued with **invited talks from 10:30 AM onwards**, where eminent speakers shared their insights on contemporary research problems and emerging technologies.

The invited talks of Day–2 proceeded in the following manner:

Talk-4 (10:30-11:00 AM):

Speaker: Prof. Ruchika Verma

Session Chair: Prof. Sada Nand Prasad

The fourth invited talk was delivered by **Prof. Ruchika Verma** from the University of Delhi on the topic *"Rationalization of Toeplitz and Hankel Operators."* In her lecture, she discussed important aspects of Toeplitz and Hankel operators and their mathematical significance in operator theory. The session was chaired by **Prof. Sada Nand Prasad**, who appreciated the depth of the presentation and encouraged further discussion among the participants.

Talk-5 (11:00-11:30 AM):

Speaker: Dr. Sanjay Kumar

Session Chair: Dr. Ashok Kumar

The fifth invited talk was delivered by **Dr. Sanjay Kumar** from DRDO, Delhi, India, on the topic *"Reversible Data Hiding and Its Applications."* In his talk, he discussed the concept of reversible data hiding and its importance in secure data transmission, digital image processing, and information security. The session was chaired by **Dr. Ashok Kumar** from the University of Delhi, who appreciated the practical insights shared during the presentation and encouraged further discussion among the participants.

Talk-6 (12:00-12:30 PM):

Speaker: Dr. Odelu Vanga

Session Chair: Dr. Srinivas Jangirala

The sixth invited talk was delivered by **Dr. Odelu Vanga** from Mahindra University, Hyderabad, India, on the topic *"Detection of Adversarial Attacks: Challenges and*

Opportunities." In his talk, he discussed the challenges posed by adversarial attacks in machine learning systems and highlighted possible approaches for detecting and mitigating such attacks. The session was chaired by **Dr. Srinivas Jangirala** from O. P. Jindal Global University, Sonipat, India, who appreciated the insightful discussion on the security aspects of modern artificial intelligence systems.

Talk-7 (12:30-1:00 PM):

Speaker: Prof. Sanjay Kumar Tyagi

Session Chair: Prof. Pankaj Kumar Das

The seventh invited talk was delivered by **Prof. Sanjay Kumar Tyagi** from the Higher College of Technology, UAE, on the topic *"From Logic to Learning: AI's Journey and Its Revolutionary Impact on Contemporary Research."* In his talk, he discussed the evolution of artificial intelligence from logic-based systems to modern learning-based approaches and highlighted its transformative impact on contemporary research across various disciplines. The session was chaired by **Prof. Pankaj Kumar Das** from Tezpur University, who appreciated the insightful presentation and emphasized the growing role of AI in advancing scientific research.

After the invited talks, participants gathered for **high tea**, which was followed by **lunch at 1:00 PM**.

In the afternoon, the conference resumed with additional **parallel technical sessions (Sessions 17–21)** held from **2:00 PM to 3:30 PM**, where several research papers were presented and discussed. The sessions witnessed active participation from scholars and faculty members, encouraging meaningful academic discussions and knowledge exchange.

Session 13 (9:00 AM – 10:30 AM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 12

Number of presenters = 12

Session Chair: Dr.Dharmendra Yadav

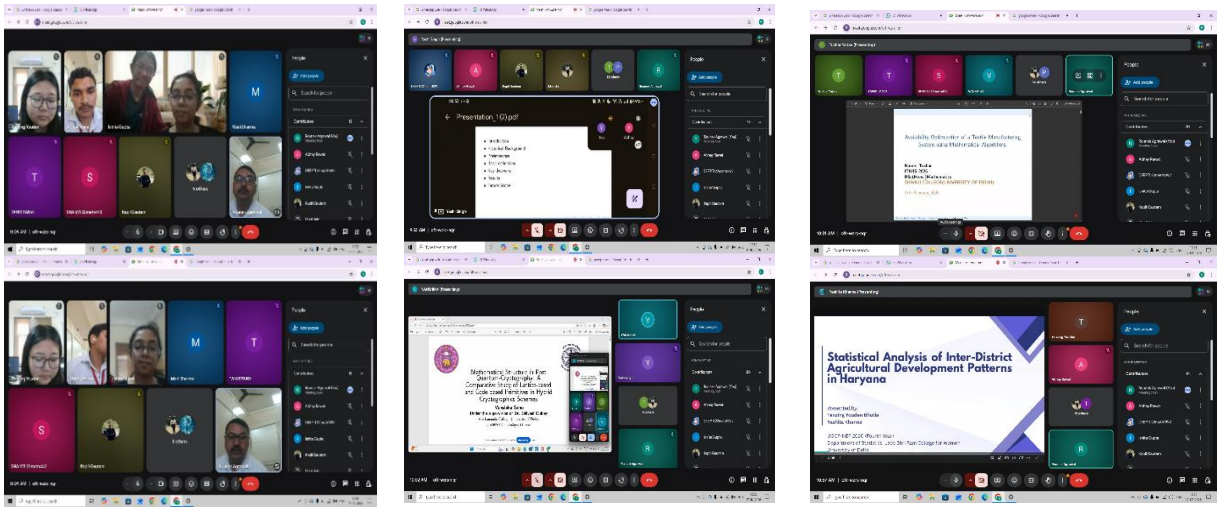
The parallel session 13 was headed by Abhay Rawat and Rounak Agrawal the elegant student of B.Sc. (Hons) Mathematics. The session had began under the guidance of session chair Dr.Dharmendra Yadav.

Dr. Dharmendra Yadav is currently serving as an Assistant Professor in the Department of Mathematics at Vardhaman College, Bijnor (Uttar Pradesh). Dr. Yadav has over a decade of teaching and research experience.

List of Participants:

1. The Mathematical Analysis of Dark Sector Interactions as a Resolution to the Coincidence Problem - Mahi Jain.

2. Optimization Model for Municipal Solid Waste Segregation and Allocation: A Case Study - Md Anas, Riya Joshi & Mohd Zaid.
3. Green Inventory Management: A Carbon Integrated Framework for Reducing Environmental Impact - Shivani Gautam.
4. A Study of Duality and Optimality in Bilevel Multiobjective Programming Using Convexifactor - Yashi Singh.
5. Inventory Supply Chain Management – Deepti.
6. Study of Lattice-Based and Code-Based Primitives in Hybrid Cryptographies Schemes - Vanshika Sahu.
7. The Influence of Disordered Eating Habits on Physical and Psychological Health Markers among University Students of Delhi/NCR: A Statistical Analysis – Shailvi.
8. Mathematical Programming Problem under Various Classes of Functions with Constraint Qualification – Tanvi.
9. Availability Optimization of a Textile Manufacturing System Using Mathematical Algorithms – Tushar.
10. Wave Propagation in Fiber Reinforced Viscoelastic Medium under the Effect of Gravity - Mani Sharma.
11. Statistical Exploration of Genetic Diversity and Trait Variability in Wheat Crop - Ishita Gupta & Panamoni Majhee.
12. Statistical Analysis of Inter-District Agricultural Development Patterns in Haryana - Tenzing Youden Bhutia & Yashita.



Session 14 (9:00 AM – 10:30 AM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 11

Number of presenters = 11

Session Chair: Dr. Anil Kumar Nishad

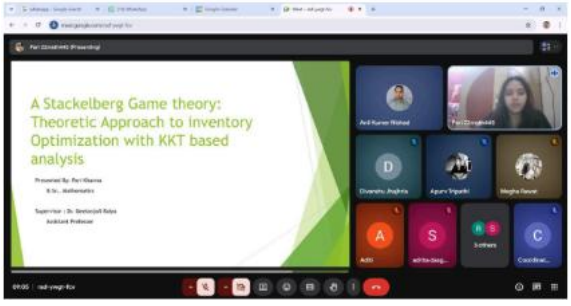
Parallel Session–14 of the ITMIS 2026 conference provided a diverse and interdisciplinary

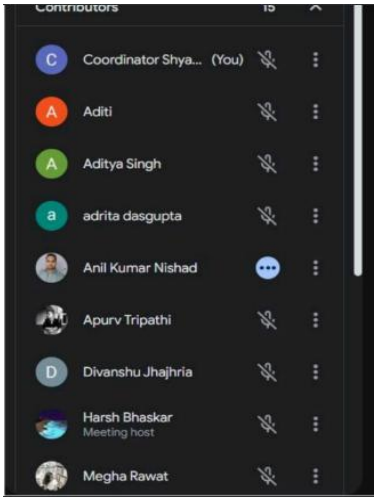
platform for presenting innovative research in mathematics, computational science, and intelligent systems. The session was chaired by Dr. Anil Kumar Nishad, who guided the proceedings and encouraged insightful academic discussions throughout the session.

List of Participants:

1. Exploring fractals theory and its types with computational visualization - Prerna Sharma.
2. A Stackelberg Game Theory: Theoretic Approach to Inventory Optimization with KKT Based Analysis - Pari Khanna.
3. The second viral coefficient - Kumar Manglam.
4. Neutrosophic Machine Learning Framework for Solar Energy Data Analysis and Sustainability - Megha Rawat.
5. Bouncing Universe Scenarios: A Mathematical Perspective Beyond the ΛCDM Big Bang Singularity - Adrita Dasgupta.
6. Mathematical Modelling of Dynamical Dark Energy as an Alternative to the Cosmological Constant -Sneha Tyagi.
7. Influence of fiber Orientation on wave propagation in fiber reinforced viscoelastic medium under the effect of gravity - Aditi.
8. Applications of the Hahn-Banach Theorem In Convex Optimization and Machine Learning - Apurv Tripathi.
9. Development of a conceptual framework for machine learning assisted structural health monitoring in complex composite structures - Ridhima Gupta.
10. A Sustainable One-Health Approach to Predicting Outbreaks: Climate-Driven Stochastic SEIR and Spillover in Changing Landscapes - Aditya.
11. Statistical Analysis of Genetic Diversity of Mustard Genotypes Presenters - Suhana Gupta and Siya Pruthi.

The session concluded successfully with engaging discussions and appreciation from the chairperson. The coordination by Divanshu Jhajhria and Harsh ensured the smooth management of presentations and interactive participation among attendees. Overall, the session contributed significantly to the academic objectives of ITMIS 2026 by showcasing interdisciplinary research and innovative methodologies.





Session 15 (9:00 AM – 10:30 AM):

Date: 27 February, 2026

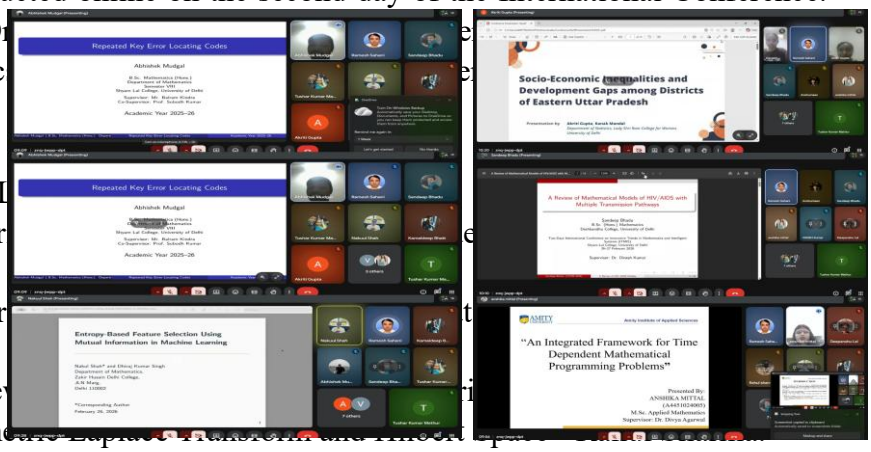
Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 11

Number of presenters = 9

Session Chair: Dr. Ramesh Sahani

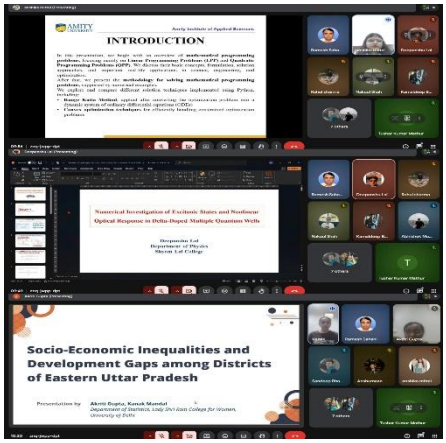
Parallel session-15 was conducted online on the second day of the International Conference. The session was chaired by Dr[illegible] different fields of mathematic[illegible]



List of Participants:

1. Repeated Key Errors I[illegible]
2. Application of Numer[illegible] Kamaldeep Bhatt.
3. Entropy-Based Featur[illegible] Nakul Shah
4. Studies on Non-Ne[illegible] Applications in Geome[illegible]
5. Numerical Investigation of Excitonic States and Nonlinear Optical Response in Delta-Doped Multiple Quantum Wells - Deepanshu.
6. An Integrated Framework for time dependent Mathematical Programming Problems - Anshika Mittal.
7. Information-Theoretic Foundations of Gradient Descent: From Exact Dynamics to Practical Scaling Laws - Anshumaa n Nath Choudhary.
8. A Review of Mathematical Modelling of AIDS with Multiple Transmission Pathways - Sandeep Bhadu.
9. Socio-Economic Inequalities and Development Gaps among Districts of Eastern Uttar Pradesh - Akriti Gupta & Kanak mandal.

The session concluded with interactive discussion and questions from participants. The session chair appreciated all presenters for their valuable contibutions.



Session 16 (9:00 AM – 10:30 AM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 12

Number of presenters = 9

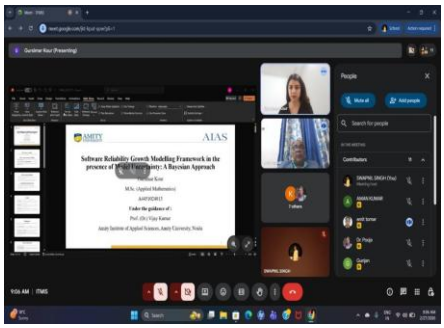
Session Chair: Dr. Amit Tomar & Dr. Pooja

The session was conducted online on **27 February 2026 from 9:00 A.M. to 10:40 A.M.** under the guidance of **Dr. Amit Tomar and Dr. Pooja, who served as the session chairs.**

List of Participants:

1. A Review of Dynamics and Stability in the Perturbed Restricted Three-Body Problem Ankit Kumar.
2. Linear Algebra in Computer Graphics - Sahil Yadav.
3. A Study on Trust, Privacy Concerns, and Perceived Risk in Online Purchases of Digital Products and Subscriptions Among College Students- srijan.
4. Propositional Logics in Artificial Intelligence - Nikita.
5. Software Reliability Growth Modelling Framework in the presence of Model Uncertainty: A Bayesian Approach - Gursimar Kour.
6. Enhancing Financial Forecasting Fidelity via Automated Dialectical Multi-Agent Debate, Prediction Algorithms and Consensus Scoring - Rohit Choudhary, Aman Kumar & Abhigyan Kumar.
7. Learning based Improved MRLDE Algorithm for Optimization - Kiran Devi.
8. Identification of factors and their impact on the multimorbidity pattern of aging population in India - Rekha, Kashika & Gunjan Kumari.
9. Scalarization for Vector Optimization Problems - Khushi Kumari.

Overall, the session featured a wide range of interdisciplinary research contributions and encouraged meaningful academic discussion among participants. The interactive question-and-answer segments further enriched the session, and the presentations were successfully completed within the allotted time.



Session 17 (2:00 PM – 3:30 PM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 11

Number of presenters = 7

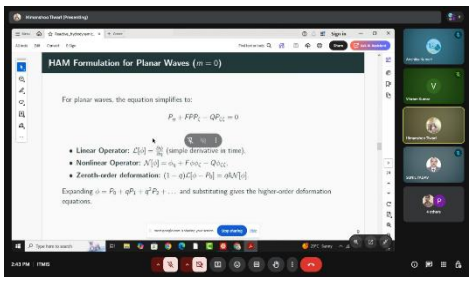
Session Chair: Dr. Sunil Kumar Yadav

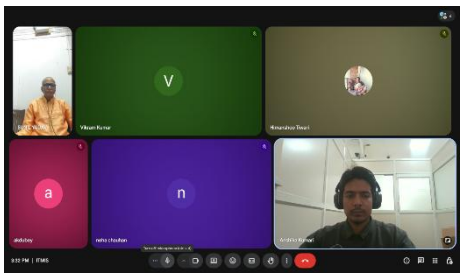
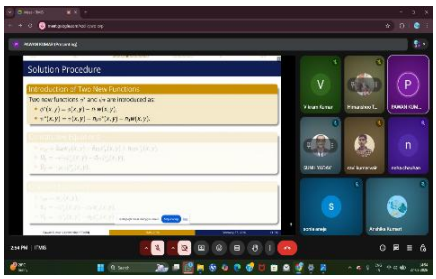
Dr. Sunil N. Yadav: Associate professor in Mathematics, Rajarambapu Institute of Technology, Sakharale Ishwarpur Sangli.

List of Participants:

1. Far-Field behaviour of Weak Shock Waves propagation in Reactive Hydrodynamics - Himanshoo Tiwar.
2. Fractional-Order Modeling of Buruli Ulcer Dynamics with Reinfection, Relapse, and Optimal Control - Ravi Kumar.
3. A Study of Fractional-Order Gompertz Model in the Framework of Caputo-Katugampola Derivative - Vikram Kumar.
4. Modified Induction zone models under Mode-III deformation for PEMstrip - Pawan Kumar.
5. Ramifications of Remanufacturing in a Three-Echelon Closed-Loop Supply Chain with Inflation, Returnable Products, and Variable Holding Costs - Neha Chauhan.
6. Exploring Perturbation Effects on Motion Properties in the Circular Restricted Three-Body Problem - Sonia Aneja.
7. Approximation Theory - Ashirwad.

Present Parallel Session 17 of Day 2of the International Conference on Mathematics was successfully conducted online with active participation from most presenters. Despite a few absentees due to valid reasons, the session maintained academic quality and meaningful discussions.



Session 18 (2:00 PM – 3:30 PM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 11

Number of presenters = 7

Session Chair: Dr. Sarika jain and Dr. Meena Yadav

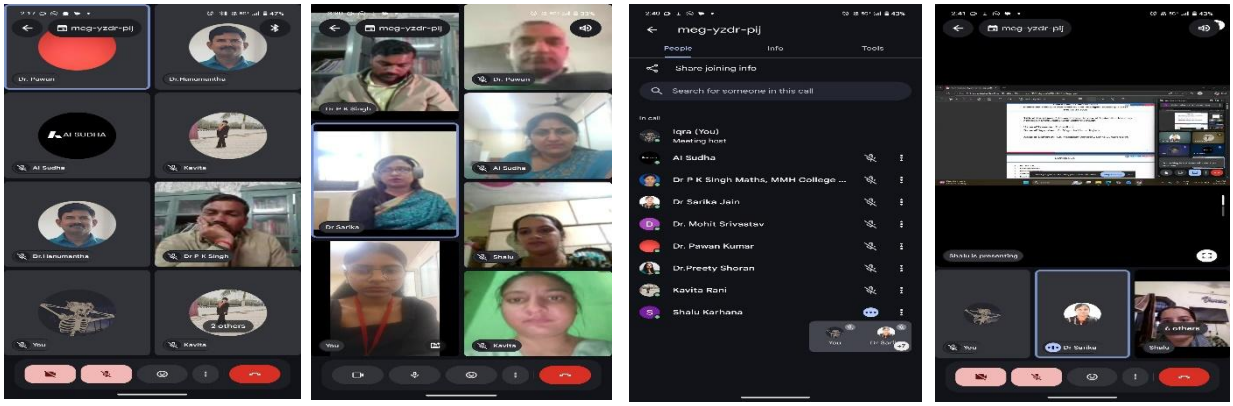
The session was chaired by Dr. Sarika jain and Dr. Meena Yadav. The session included a total of seven research paper presentations from different participants covering diverse topics such as cryptography, algorithms, mathematics, statistics, and consumer behavior.

List of Participants:

1. Product of Weighted composition operator and differentiation operator on Weighted Hardy spaces - Dr. Pawan Kumar.

2. A Comprehensive Review of Sustainable Inventory Model for Deteriorating items under uncertainty - Shaloo ran.
3. Blockchain-Enabled Dashboard System for Real-Time Supply Chain - Kavita Rani.
4. Adaptive Wavelet Neural Operators for Resolution-Invariant Learning of Non-Periodic PDEs - Pusuluri V N H Ravi.
5. CNN and Stochastic Differential Equation Based Hybrid Ensemble Model for Tomato Leaf Disease Detection - Preety Shoran.
6. Study of Some Inequalities and Applications on 2-norms and Derived Norms - PRADEEP KUMAR SINGH.
7. A high order finite volume method scheme of 2-d steady heat conduction problems - Dr. Mohit Srivastav.

Present Parallel Session 18 of Day 2 of the International Conference was successfully conducted online with active participation from most presenters. Despite a few absentees due to valid reasons, the session maintained academic quality and meaningful discussions.



Session 19 (2:00 PM – 3:30 PM):

Date: 27 February, 2026

Place: Innovation Plaza 1, Shyam Lal College

Number of participants = 11

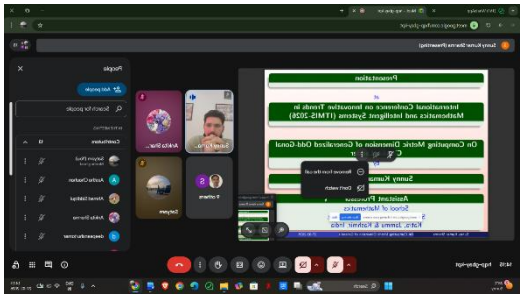
Number of presenters = 10

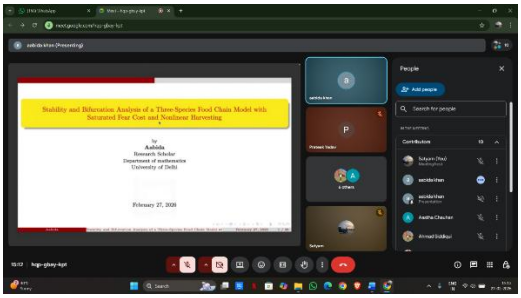
Dr. Ankita Sharma: The session was chaired by Dr. Ankita Sharma, Assistant Professor of Statistics at the School of Basic Sciences, Galgotias University, Greater Noida. She holds a Ph.D. from the University of Delhi and specializes in Applied Statistics, Data Science, and Stochastic Modeling. She has published research papers and holds a patent in Applied Statistics/Data Science

Dr. Jagvinder Singh: Dr. Jagvinder Singh, Assistant Professor at the University School of Management and Entrepreneurship, Delhi Technological University. He holds a Ph.D. in Operations Research from the University of Delhi and has over seven years of teaching experience. His research focuses on mathematical modelling in software reliability and management sciences.

List of Participants:

1. On Computing Metric Dimension of Generalized Odd-gonal Circular Ladder - Sunny Kumar Sharma.
2. Frames of Matrix-Valued Systems over Measure Spaces – Shyam Lal.
3. Inventory Optimization for Decorating Items with Variable Partial Backloging and Dynamic Holding – Kavita.
4. Availability Optimization of a Textile Manufacturing System using Mathematical Algorithms – Savita Garg.
5. Fixed point theorems for S_αβγ Metric Space Rachna.
6. Distributed Constraint Satisfaction Problem (DCSP) Based Scheduling of Crew at Airlines Ranjan Kumar Thakur.
7. High-Dimensional Financial Portfolio Selection Using Harris Hawk Optimization: Applications and Performance Pankaj Kumar.
8. Stability and Bifurcation Analysis of a Three-Species Food Chain Model with Saturated Fear Cost and Nonlinear Harvesting Aabida.
9. Minimal Cost Network Flow Ahmad Siddiqe.
10. Optimizing Sustainable Supply Chain through Hybrid Production and Renewable Energy under Inflationary Pressure and Emissions Regulations Aastha.





Session 20 (2:00 PM – 3:30 PM):

Date: 27 February, 2026

Place: Online (Coordinated via Shyam Lal College, University of Delhi)

Number of participants = 9

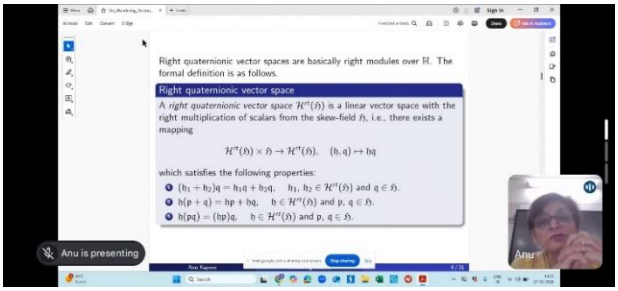
Number of presenters = 7

Session Chair: Prof. Dr. Deepti Jain, Associate Professor, Sri Venkateswara College

List of Participants:

1. Stability Analysis of Equilibrium Points in the Photo gravitational Circular Restricted Three-Body Problem - Mohit.
2. On Wandering Vectors for Quaternionic Unitary System - Anu Kapoor.
3. Parabolic Interface Problems in Gas Pipeline Thermal Modeling - ASHA KUMARI.
4. A Review of Mathematical Modelling of COVID-19 Epidemics: Structure, Dynamics, and Control - Reena.
5. q-Analogues of the Double Elzaki Transform and Their Applications - Jai Prakash.
6. Effect of Inertia weight on Tree seed Teaching Learning-based optimization (TSTLBOIW) algorithm - Aanchal.

7. Dynamical Structure and Periodic Orbit Families in the Circular Restricted Three Body Problem - Adarsh Pandey.



Session 21 (2:00 PM – 3:30 PM):

Date: 27 February, 2026

Place: Computer Lab-1, Shyam Lal College, University of Delhi

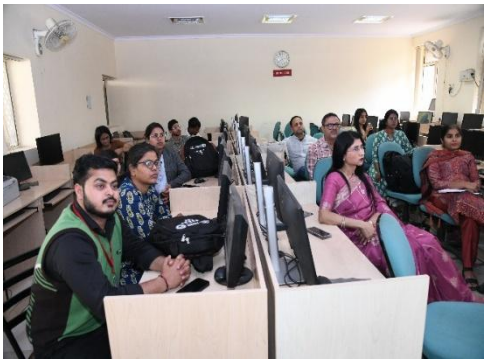
Number of participants = 14

Session Chair: Dr. Dharminder Chaudhary

List of Participants:

1. Approximation by the modified Baskakov operators and exponential operators - Dr. Chandra Prakash.
2. Availability Optimization of a Textile Manufacturing System using Mathematical Algorithms - Neetu Rani.
3. Security Aspects of AI Applications with IoT for RFID Authentication Protocols - Dr. Vikas Kumar.
4. Security Aspects of AI Applications with IoT for RFID Authentication Protocols - Lokesh kumar.
5. Conditional Mutual Information guided feature selection for high dimensional data - Harshita Kardum.
6. Optimal Sustainable Production Inventory Modelling with Trade Credit Dependent Demand in an Inflationary and Temperature Influenced Deterioration Environment - Rashmi Yadav.
7. Advancements in Discrete-Time Software Reliability Growth Models: Integrating Change-Point Analysis, Testing Strategies, and Nonparametric Approaches - Indarpal Singh.
8. Advancing Software Reliability Growth Models: Integrating Fault Removal Efficiency, Machine Learning, and Nonparametric Kernel Approaches - Sanjay Kumar.
9. Stinkov Five Body Problem when the primaries are oblate and Radiating - Rahul Tomar.
10. Quantum Cryptography and Its Applications - Pooja.
11. Optimization of an SDG-Oriented Circular Economy–Based ThreeEchelon Supply Chain with Waste Management - Vaibhav Singh.
12. Influence of Initial Stress, Thickness, and Interfacial Flaw on Rayleigh Wave propagation in FibreReinforced Media lying over a prestressed Orthotropic Half-Space - Abhilasha.

13. An Optimized Intuitionistic Type-2 Fuzzy Inference System using Particle Swarm Optimization for Enhanced Clinical Decision-Making in Chronic Disease Diagnosis - Parveen Kumar.
14. On the Solvability and Solution of Second-Order Fuzzy Relational Equations - Mansing Dattatray Khedekar.




After the successful completion of the technical sessions and invited talks, the conference moved towards its concluding segment.

Valedictory Ceremony

The valedictory ceremony of the program "**International Conference on Innovative Trends in Mathematics and Intelligent Systems (ITMIS)**" was conducted in the presence of distinguished guests **Prof. Ashok Kumar, Dr. Srinivas Jangirala and Dr. Dharmendra Yadav,** along with the principal, **Prof. Rabi Narayan Kar**, faculty members, researchers, and students. The ceremony marked the successful conclusion of the event organized by the **Department of Mathematics, Shyam Lal College (SLC), University of Delhi, in collaboration with IQAC, and sponsored by DRDO and ANRF**.

The session was hosted by **Dr. Virender and Dr. Swati Yadav** from the Department of Mathematics, SLC. They warmly welcomed the esteemed guests, the principal, faculty members, researchers, and students, and expressed gratitude for their presence and participation throughout the program

The ceremony began with inviting the **chief guest, Prof. Ashok Kumar**, to address the audience. In his speech, he shared his academic journey and personal experiences, including how he secured admission in his field and the challenges he faced along the way. His words were inspiring and motivating for the students and young researchers present at the event. Following his address, the other distinguished guests, **Dr. Srinivas Jangirala and Dr. Dharmendra Yadav**, were invited to share their thoughts. They spoke about the importance of research, collaboration, and innovation in the field of mathematics and related disciplines.

After the guest speeches, the **Principal of Shyam Lal College** addressed the gathering. The principal appreciated the efforts of the organizing team and highlighted the significance of such academic events in promoting research and knowledge sharing.

Finally, the **Convener of ITMIS, Dr. Vinod Kumar**, delivered the concluding remarks and proposed the vote of thanks. He expressed sincere gratitude to the guests, the principal, faculty members, organizing team, researchers, and students for their valuable contributions and support in making the program successful.

The ceremony concluded with the **National Anthem**, marking the formal end of the event. This was followed by **high tea arranged in the MPH corridor**, where participants had the opportunity to interact and reflect on the enriching sessions of the program.

Regards

Dr. Vinod Kumar

Convenor, ITMIS-2026 & TIC