NEWSLETTER

July 2023 - October 2023

DEPARTMENT OF MATHEMATICS

Message from Head of the Department

Dear all,

It is truly an honor to serve as the Head of the Mathematics Department, overseeing a community of individuals who bring unparalleled brilliance and dedication to the mathematical world of numbers, equations, and expositions.

Mathematics, often regarded as the universal language, transcends boundaries and connects us across various cultures and disciplines. Using advanced tools and techniques that are being rapidly developed, mathematicians can achieve better prediction results which can help in building stable societies. I think that the research community can create a sustainable environment by providing solutions to real-world problems that will have an immediate impact.

Let us collectively create an environment that inspires collaboration, mutual support, and a shared passion for the intricate patterns that mathematics unveils.

Best Wishes
Prof. V. H. Pradhan

Message from Faculty Co-ordinator

Dear readers,

Being faculty co-ordinator, I am very happy to release this newsletter on the birthday occasion of the great Indian mathematician, Srinivasa Ramanujan. Ramanujan is an unparalleled expert in mathematics and he should be a role model to all of us. He removed the stigma of barriers of reaching great heights by the outstanding work he performed during his time inspite of lack of equal opportunity at various stages of his life.

As we see the injustices prevailing around the world, the hope of achieving good for society by performing outstanding work should be our main motto. I would encourage the scholars, and students to work on pressing problems by applying the various learnt concepts in the advancement of humanity.

Happy reading!
Dr. Saroj R. Yadav

About

Vision

To be a model for excellence in educational research in Mathematics in order to meet the changing needs of society

Mission

To become an exemplary Centre of Excellence for research and training in the Mathematical Sciences by promoting learning, growth and development of young minds and finding solutions to scientific, technological and real-life problems.

In March 2023, the Department of Mathematics received its current status. Before that from 2021 to 2023, it was part of the Department of Mathematics & Humanities. Since 2009, it has been Applied Mathematics & Humanities, and before that, it was part of the Applied Sciences and Humanities Department. Throughout these years, the department has evolved into one of the epicenters of research in India. Since 2007, the department has been offering its own 5 years Integrated M.Sc. Degree Program in Mathematics, in which students are enrolled through the Joint Entrance Examination (JEE Mains). The department offers courses in Mathematics to undergraduate and postgraduate students in Engineering and other Science courses. Several alumni from this department have attained prestigious positions in teaching and research in India and abroad. The department has highly qualified faculty members including three Professors, two Associate Professors, and eleven Assistant Professors, who have extensive expertise in Fluid Mechanics, Special functions, Algebra, Integral Transforms, Approximation theory, Mathematical modeling, Magnetic fluid dynamics, Biomathematics, Data Mining, and Finite element modeling. In total 277 students have enrolled in the department for Five Years Integrated M.Sc., and 67 Ph.D. students are presently pursuing research. In total, 740+ papers have been published by the Department in the reputed SCI/SCIE and Scopus-indexed journals. During the last five years, the department has published 117 H index papers and 109 i10 index papers. A total of INR 2,11,00,000/- worth of projects have been carried out by the department in the last five years funded by different agencies such as the Department of Science and Technology (DST), NBHM, ISRO, and GUJCOST. So far, the department has produced 97+ Ph.D. students specializing in Mathematics and the department has a good placement record as well.

Achievements

Dr. Sudeep Singh Sanga

A sponsored project titled "Profit and Cost Investigations of Retrial Queueing Models under Admission Control Policies" has received approval from the Science and Engineering Research Board, Department of Science and Technology, Government of India (PI: Dr. Sudeep Singh Sanga).

Dr. Twinkle R. Singh & Mr. Bhavin Rachhadiya

Mr. Bhavin Rachhadiya under the supervision of Dr. Twinkle R. Singh won the Best Paper Presentation Award at the 6th International Conference on Mathematical Modelling, Applied Analysis and Computation-2023 (ICMMAAC-23) organized by JECRC University, Jaipur during August 3-5, 2023.

Mr. Yashwardhan Banta

Mr. Yashwardhan Banta was awarded the Champion at Ultimate Basketball League 2023 organized from August 13, 2023, to August 15, 2023, by the Surat District Basketball Association, Surat.

Expert Lectures Delivered

Dr. Sushil Kumar has delivered an expert lecture on "MATLAB" in Faculty development program on "MATLAB & its Applications in AI & ML" organized by Faculty Development Center, Sridev Suman Uttarakhand University, Badshahithaul, Tehri Garhwal, Uttarakhand, India, during August 16-21, 2023.

Dr. Jayesh M. Dhodiya delivered a talk on the Importance of Uncertainty theory for the solution of real-world problems in the Research Progress Week organized by Changa University, Gujarat, India on November 23, 2023.

Dr. Twinkle R. Singh has delivered an Expert talk in a five days online faculty development programme on Recent Trends in Mathematics and Technology organized by School of Science, OP Jindal University, Sonipat, Haryana during October 9-13, 2023.

Placement Statistics (July 2023 - October 2023)

Yashwardhan Pankaj Banta
Futures First

Mukul Raj Mishra
Deloitte

Kaushik Sanghani Chimanbhai
Deloitte

Shivam Rajpoot
Mastek

Khandelwal Dhruv
Mastek

Priyanshi Chandra
Tata Elxsi

Dudekula Abdul Rahiman
Tata Elxsi

Bathi Rama Krishna
Tata Elxsi

Recently joined faculty

Dr. Shivam Bajpayee

Post-Doctoral: Indian Institute of Science Education and Research Thiruvananthapuram (June, 2023 - September, 2023), Indian Institute Of Technology Delhi (February, 2022 - May, 2023).

Ph.D.: Visvesvaraya National Institute of Technology Nagpur (2021)

Area of Research: Functional Analysis, Applied Harmonic Analysis, Sampling-Reconstruction Problems, Neural Network Approximation.

Email Id: shivambajpeyi@amhd.svnit.ac.in

Internships of M.Sc. Students

Mridul Sehgal (I19MA006)

He has done an internship between May 15, 2023, and July 31, 2023, at Space Application Centre, Indian Space Research Organisation.

His work in his words: Analysis of Phenological metrics with the help of double derivative using Google Earth Engine and Python

Ayushi Singh (I19MA009)

She has done an internship between May 15, 2023, and July 31, 2023, at Space Application Centre, Indian Space Research Organisation.

Her work in her words: I worked on a project titled "Deriving Phenological Metrics using Double Derivative Analysis." The project involved accessing satellite data through Google Earth Engine. The target was to derive the start of season and end of season of Gir Forest. I used double derivative analysis techniques to derive the phenological metrics.

Priyanshi Chandra (I19MA012)

She has done an internship as a DAAD fellow between May 15, 2023, and July 31, 2023, at the Technical University of Braunschweig, Germany.

Her work in her words: The project focuses on random forest algorithm commonly used in Machine Learning for regression and classification tasks. This algorithm has been found to perform poorly in case the test distribution is different than training distribution, a situation commonly referred as covariate shift in machine learning. We defined the framework and background required for the problem. Our primary goal is to detect the problem in the algorithm and make it robust to shift in distributions.

Mansi Solanki (I19MA015)

She has done an internship between May 15, 2023, and July 14, 2023, at Sardar Vallabhbhai National Institute of Technology, Surat.

Her work in her words: I worked on a topic entitled 'Solution of Vehicle Routing Problem with Classical approach and Genetic Algorithm'. The aim of this internship was to minimize the carbon emission, risk and distance using Classical approach and Evolutionary approach. I have studied Vehicle Routing Problem and Genetic Algorithm in detail. I have worked with Real-World problem by collecting the data of Surat city and formulated Linear Programming Problem and Multi-objective Optimization Problem, after solving which we can minimize carbon emission along with distance and risk. Both Vehicle Routing Problem and Travelling salesman problem were solved. These problems were solved using Classical approach as well as Genetic Algorithm.

Mukul Raj Mishra (I19MA035)

He has done an internship between May 15, 2023, and July 14, 2023, at Sardar Vallabhbhai National Institute of Technology, Surat.

His work in his words: Engaged in a dynamic summer research internship focused on implementing machine learning models for flight Fare Prediction. Applied statistical techniques, data preprocessing, and feature engineering to enhance predictive accuracy.

Suryam Gupta (I19MA038)

He has done an internship as a ThinkSwiss fellow between May 15, 2023, and July 15, 2023, at IDSIA, USI-SUPSI, Switzerland.

His work in his words: • Extracting psychometric features such as emotions, emotional intensity, LIWC features, and contextual embeddings of short biomedical texts using NLP techniques and language models. • Building an XGBoost and various Deep Learning architecture models to classify a text as either anxiety or panic, with a current f1-score of 0.894. • Tech Stack - transformers, aspect-based-sentiment-analysis, Linguistic Inquiry and Word Count (LIWC), TensorFlow, Uniform Manifold Approximation and Projection (UMAP)

Gumma Venkata Surya Vamsi (I19MA046)

He has done an internship between June 1, 2023, and July 31, 2023, at Defence Institute of Advanced Technology, Pune.

His work in his words: Updated with latest information on Non-Newtonian Fluid Mechanics and Provided project progress updates and proposed solutions to issues and analyzed problems and worked on them to develop solutions.

Mahesh Rajarapu (I20MA002)

He has done an internship as an SRFP fellow between May 15, 2023, and July 15, 2023, at the Indian Institute of Technology, Ropar, Punjab.

His work in his words: During my Summer Research Fellowship at IIT Ropar, I collaborated with Dr. Sudarshan Iyengar in the Computer Science department. Leveraging Python and MATLAB, I optimized gamma values and employed GPU-accelerated computations with CUDA to tap into the capabilities of TensorFlow, PyTorch, and JAX.

My primary focus was on advancing image enhancement through cutting-edge techniques. I delved into auto image enhancement methods, employing Power Law Transformations, CLAHE, and CNN models to dynamically enhance contrast, brightness, and saturation. The use of GPU accelerated computations ensured efficient processing, contributing to significant strides in visual perception improvement.

A notable achievement was the development of an anonymous donation platform featuring secure tracking via unique code generation.

Shruti Shah (I20MA003)

She has done an internship as an SRFP fellow between June 1, 2023, and July 31, 2023, at the Indian Institute of Technology Delhi.

Her work in her words: In the internship, I figured out the numerical solution of Poisson's equation (with Dirichlet, Neumann, and mixed boundary conditions) using the finite element method. For the first month, I reviewed the necessary theoretical portion. I understood some functional analysis–the theory of L^p and Hilbert spaces. Then, I moved on to Sobolev spaces, which provided me with the framework for studying functions with weak derivatives, thus forming the solution space for differential equations. Then, I reviewed the existence and uniqueness of Poisson's boundary value problem. The second month was dedicated to implementing it in MATLAB, followed by a priori error analysis. I computed the order of the error in the solution space, which proved consistent with the theoretical results.

Pansuriya Tarang Bharatbhai (I20MA005)

He has done an internship as an SRFP fellow between May 15, 2023, and July 15, 2023, at the Indian Institute of Technology, Ropar, Punjab.

His work in his words: I worked on a topic entitled "Exploring the Depths of Movie Emotions: Unveiling the Story Beyond Screens." As the Summer Research Fellow, I had the opportunity to explore the world of 'Analysis of Sequences of Emotions in Movies' under the guidance of Dr. Sudarshan Iyengar, IIT Ropar. Most of the work involved deciphering the emotional fabric of films, employing cutting-edge machine learning models. Collaborating with Dr. Iyengar and my project teammate, Dharmik Patel, helped me gain additional insights into the exploration of this area. To understand the subtle emotions of storytelling, we analyzed various sets of movies, such as subtitles, background music, and character expressions. We dissected the underlying patterns governing the ebb and flow of emotions across various movie sequences. Utilizing this information, we developed compelling presentations that improved our technical skills and expertise in articulating complex findings. I would like to thank IAS, INSA, and NASI for providing me with this opportunity and selecting me for this program.

Dharmik Patel (I20MA020)

He has done an internship as an SRFP fellow between May 15, 2023, and July 15, 2023, at the Indian Institute of Technology, Ropar, Punjab.

His work in his words: Worked on Emotional Analysis on Subtitle files of movies using various NLP methods prominently BERT based language model

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Dhanani Jatinbhai Chimanbhai (I20MA022)

He has done an internship as an SRFP fellow between May 15, 2023, and July 15, 2023, at the Indian Institute of Technology, Ropar, Punjab.

His work in his words: During the internship, we conducted a comprehensive analysis of the "Computational Analysis of Caste-Based Reservation System in India," building on our guide's previous research. Using a network-based approach, we observed that caste preferences played a crucial role in forming distinct clusters within the Indian community. Introducing the concept of "social distance," we measured individuals' social capital within the backward class. Our findings highlighted that reservations reduce economic inequality by connecting diverse groups, promoting economic mobility, and bridging wealth disparities among castes. This approach facilitated a more inclusive society with fair economic opportunities. In our analysis, we utilized mathematical concepts such as network theory and social capital, implementing them through Python libraries like NetworkX and NumPy.

Prashant Shrivastava (I20MA052)

He has done an internship between May 15, 2023, and July 15, 2023, at Inria-Loria Research Lab, France.

His work in his words: Implemented a statistical model to classify language biases in text. The model provides an unsupervised technique for text-based classification based on any given set of interest or groups.

Veer Kamdar (I21MA007)

He has done an internship between June 13, 2023, and August 13, 2023, at Jainam Broking Ltd.

His work in his words: My role was that of a Backtester(Strategy Testing). I performed various Backtesting methodologies to assess the performance and risk-adjusted returns of multiple trading strategies developed by the Quantitative team.I also initiated the discussion of how can Machine Learning be integrated in Backtesting to automate certain evaluations and that it had the capacity to draw out certain non-linear relationships in the market data which could lead in more profitable strategies.

I also created a model using the Backtesting library(available in python) and trained it on a relatively smaller dataset in order to show that how ML can optimise the parameters of trading models for better performance and risk management.

Vidhi Parmar (I21MA017)

She has done an internship between March 3, 2023, and April 30, 2023, at Campalin Innovations.

Her work in her words: I did an internship based on AI field under " Campalin Innovations " company during the summer of 2023.

During the first month, they taught us how to make any model in Google Collab using Python programming and different libraries of Python such as Python numpy and so on.

During the second month, they guided us to make a model on our own. Among the few topics they provided to me, I chose the loan prediction model and by using the databases I completed the model.

Document Release 2023

Pramiti, which means "right conception" in Sanskrit, was intended to be an annual report compiled in the form of a magazine to showcase the departmental research progress, various activities, and events which occurred during the respective academic year in an attempt to disseminate information to the public. This idea first emerged in 2022, with the 2022 edition releasing on July 30, 2022. The newsletter is a triannual document that provides insights into the department's continuing activity during the preceding four months. It commenced in 2022, with the inaugural issue of every year being published on March 14 of the same year to commemorate UNESCO's declaration of the International Day of Mathematics in 2020. A handbook and brochure are a collection of appropriate resources for freshmen providing information about the course, department, and so on who are about to begin their full-time academic course at SVNIT. These documents are intended as a roadmap and reference during their studies. These publications (documents) were issued as part of a continual series of activities to share information.
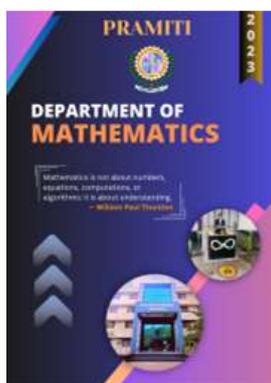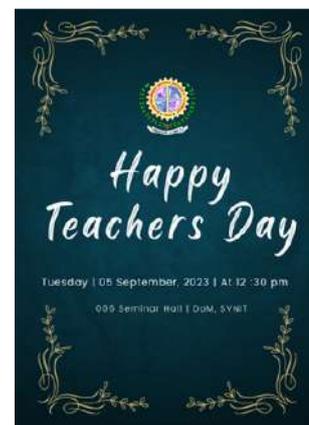

On August 16, 2023, the Department of Mathematics at SVNIT Surat held a program entitled "Documents Release 2023," during which the Pramiti 2023, Newsletter 2023 Issue 2, Handbook, and Brochure for Five Years of Integrated M.Sc. 2023 were released. Ms. Ekata Jain, the event's anchor, started the program at 12:30. The senior faculties released the documents, and Dr. Jayesh M. Dhodiya, Head, presented an introductory address in which he provided numerous insights into the documents and displayed the ongoing department's success in various aspects over the last few years. He pressed the students to address the societal issues that were still present. Later, Prof. A. K. Shukla delivered a speech on the significance of thinking critically in everyday life, which was followed by Prof. V. H. Pradhan's address on numerous practical uses of mathematics that students might consider as part of their research topics.
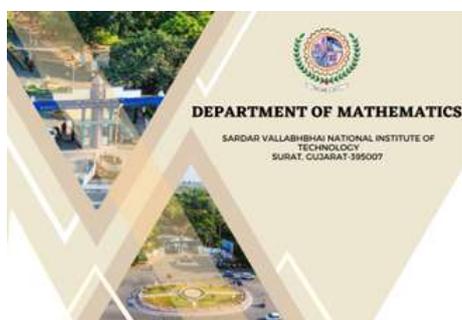
Later, Prof. A. K. Shukla delivered a speech on the significance of thinking critically in everyday life, which was followed by Prof. V. H. Pradhan's address on numerous practical uses of mathematics that students might consider as part of their research topics. Furthermore, Mr. Theophilus Gera has contributed insights into the documents as well as the team members' efforts in producing excellent pieces of material. Mr. Venkata Subbaiah Yerrapati ended the program with a vote of thanks.

Teachers' Day Celebration 2023

Teachers' Day is a special day dedicated to honoring and appreciating the contributions of educators to society. It is a time to acknowledge the hard work, commitment, and impact that teachers have on the lives of their students. In India, Teachers' Day is celebrated on the birthday of Dr. Sarvepalli Radhakrishnan, a distinguished philosopher and the second President of India, who advocated for the importance of education. The primary purpose of Teachers' Day is to express gratitude and appreciation to teachers for their tireless efforts in nurturing and shaping the future generation. It is an occasion to recognize their role in imparting knowledge, values, and skills that contribute to the overall development of students. Overall, Teachers' Day stands as a symbolic tribute to the invaluable contributions of teachers and serves as a reminder of the importance of education in building a better future.

Each year, the Department of Mathematics, SVNIT honours instructors with a lavish event planned by the students exclusively for the teachers. The purpose of this festival is to honour educators and highlight their value to both society and the students. On September 5, 2023, there was a celebration as well. Anchor Yashwardhan Banta opened the program by discussing the value of teachers and providing a general summary of how diligently teachers work to shape the futures of their students. The program was extended by presenting a bouquet to all the faculty members by the students of the department. Following the initial proceedings, Professor V. H. Pradhan, Head of the Department, delivered an enlightening talk during which he engaged both students and professors.

Through a thoughtful and articulate presentation, he contributed to a deeper understanding of the purpose behind the celebration and fostered a sense of appreciation for the teaching profession among both students and faculty members. Moreover, the commemoration of Teachers' Day included an insightful speech by Prof. Neeru Adlakha. She took the opportunity to share her perspectives on the significance of teachers and the noble profession of education.

Additionally, to enhance the celebratory atmosphere, a symbolic cake-cutting ceremony was organized as an integral part of the festivities. This momentous occasion brought together students, teachers, and staff to share in the joy of Teachers' Day. The event featured a captivating singing performance by two talented M.Sc students, namely Mridul Sehgal and Vaibhav Maurya. The students showcased their musical prowess with a selection of melodious songs, adding a delightful and artistic touch to the celebration. Their performance not only demonstrated their talents but also reflected the diverse skills and interests present within the academic community. The culminating moment of the program was marked by a sincere vote of thanks extended to all the teachers in attendance. This expression of gratitude was not merely a formality but a genuine acknowledgment of the invaluable contributions made by the teaching staff. The speaker highlighted the dedication, hard work, and positive impact that teachers have on the lives of students. The event concluded with high tea and snacks.

Internship Insights

The Department of Mathematics, SVNIT Surat, hosted a program titled "Internship Insights" on October 16, 2023. In this program, students and alumni of the department who completed their internships at reputable and well-known organizations shared their experiences, advice on how to get an internship, and details about the intern's journey. The program began with a piece of anchoring and introduction by Shrusti Upadhyay, Vidhi Panchal, and Jansi Vaghasiya. The discussion continued with an interactive session with Rishikesh Yadav, who was a doctoral student at the Department of Mathematics, SVNIT and worked under Dr. Ramakanta Meher's supervision.

He is currently working as a postdoctoral researcher at the University of Namur in Belgium. He graduated in 2021 with a Ph.D. He talked about his experience as a Ph.D. student at SVNIT followed by mentioning his research work in Belgium. Following this fascinating conversation, Priyanshi Chandra talked about her incredible visit to Germany. She was one of just 170 students worldwide to be chosen, having obtained a DAAD grant and working at TU Braunschweig University in Germany. Following her outstanding speech, Suryam Gupta talked about his internship in Switzerland. After being awarded the ThinkSwiss Research Scholarship, he interned at IDSIA USI-SUPSI in Switzerland. Next, Mridul Sehgal, a former ISRO intern who worked at the Space Application Center in Ahmedabad, delivered his insights on data science. Further, Mukul Raj Mishra discussed the facts of the corporate world and gave insight into its reach and how to break into it. Later on, Theophilus Gera, a JNCASR and SRFP fellow, and Sai Charan, a summer research intern at SVNIT, both talked about their research internship experiences. A group photo of the Dr. Jayesh M. Dhodiya with the organizers, guest, speakers and the attendees.

Real life applications of Mathematical and Physical Sciences

The Department of Mathematics in collaboration with the Department of Physics organized a successful one-day workshop on July 25, 2023, which included a series of talks delivered by experts on the topic "Real life applications of Mathematical and Physical Sciences". Prof. V. H. Pradhan, Dr. Jayesh M. Dhodiya, and Dr. Yogesh Sonave were the coordinators of the one-day workshop. The speakers are Prof. V. P. Saxena, Prof. V. D. Pathak, and Prof. Amit Parikh.

IntERAct Seminar

Internship Experience and Research Activities Seminar which is abbreviated as IntERAct Seminar was started by Dr. R. K. Jana in 2017 with the help of a few final-year students. The following is a list of sessions that were conducted during the foregoing timeline.

Date	Topic	Speaker(s)
28/08/2023	Introduction to Quotient Spaces and Homotopy Theory	Sagar Saini
04/09/2023	Non-Newtonian Fluid dynamics in Cardiovascular medicine	G. V. S. Vamsi
11/09/2023	Getting started with Natural Language Processing (NLP) and its applications	Suryam Gupta
18/09/2023	Research in Data Science and Sentiment Analysis: An Introductory Overview	Dharmik Patel
09/10/2023	Deriving Phenological metrics using Google Earth Engine and Python Part - 1	Mridul Sehgal
19/10/2023	Deriving Phenological metrics using Google Earth Engine and Python Part - 2	Ayushi Singh
26/10/2023	With 1000 thoughts in mind, what to focus on? An unfiltered conversation with your alumni	Abhishek Shah

Mock Interviews

From August 3 to August 7, 2023, the Department of Mathematics in collaboration with the Department of Humanities and Social Sciences conducted mock interviews for M.Sc. final-year students. The goal of these sessions was to enhance and prepare students for upcoming interviews for research and employment opportunities. Practice interviews were well-received by the students, who joined in large numbers. Dr. Jayesh M. Dhodia gave a motivational address to start the session. Then, Dr. Urvashi Kaushal gave a talk on tips to perform in interviews.

Dr. Sudeep S. Sanga, Mr. Sudhakar Rathod, Dr. Syeda Beenish S.M., Dr. Unnais K.T., and Dr. Bhavikaben Naik also attended the program. They provided helpful guidance on how to communicate effectively in interviews by considering both verbal and nonverbal communication. They guided students and helped them to overcome their concerns about the interview process. The purpose of the mock interviews was to give students ample opportunities to succeed and maintain their confidence. Students appreciated the session and found it beneficial.

Group Discussion

The Department of Mathematics conducted a group discussion (GD) session in August 2023. The goal of the sessions is to motivate students to analyze, think critically, and communicate their thoughts in a predetermined amount of time. Students pursuing integrated M.Sc. Math in their second and third years participated in this group discussion.

Dr. Jayesh M. Dhodiya conducted the GD session for third-year Int. M.Sc. students on October 12, 2023, with the topic being "Impact of India-Canada Relations on Education." Likewise, on October 19, 2023, Jayesh M. Dhodiya conducted a GD session for second-year students.

It was a fantastic meeting. The students thought the session was beneficial and admired it.

Publications

Journal Publications

F. H. Patel, R. K. Jana and A. K. Shukla, Note on Modified Generalized Bessel Matrix Function, Proyecciones Journal of Mathematics, Vol. 42, No. 5, 2023, pp. 1261-1269. https://doi.org/10.22199/issn.0717-6279-5820

Bhagya Shree Meena, Sushil Kumar, Thermal damage analysis in tissue caused by electromagnetic radiation using space–time collocation method, Journal of Thermal Biology, 117 (2023) 103715, Published online on 15 September 2023.

Rupali Gupta, Sushil Kumar, Chebyshev spectral method for the variable-order fractional mobile–immobile advection–dispersion equation arising from solute transport in heterogeneous media. Journal of Engineering Mathathematics 142, 1 (2023).

Yogeshwari, Patel and Dhodiya, Jayesh M. (2023). (R1966) Semi Analytical Approach to Study Mathematical Model of Atmospheric Internal Waves Phenomenon, Applications and Applied Mathematics: An International Journal (AAM), Vol. 18, Issue. 1, Article 5. Available at: https://digitalcommons.pvamu.edu/aam/vol18/iss1/5

Yogeshwari F. Patel and Jayesh M. Dhodiya (2023) "A Robust Semi Analytical Approach To Study Fractional Coupled Sokolov Wilson System In Shallow Water Waves" International Journal of Mathematical Modelling and Numerical Optimisation (IJMMNO), Vol. 13, No. 4, 2023, DOI: 10.1504/IJMMNO.2023.134155

Jani, H.P., Singh, T.R. Study of One Dimensional Groundwater Recharge Through Porous Media by Aboodh Transform Homotopy Perturbation Method. Int. J. Appl. Comput. Math 9, 132 (2023).

Yadav, J. U., & Singh, T. R. (2023). Solution of one-dimensional groundwater recharge through porous media via natural transform decomposition method and variational iteration transform method. Mathematics in Engineering, Science & Aerospace (MESA), 14(3).

Akshey & Twinkle R. Singh "A robust iterative approach for space-time fractional multidimensional telegraph equation", International Journal of Applied and Computational Mathematics published online on 9 September 2023.

Dhirawat K, Meher R. Semi-analytical Approach to Nonlinear Partial Differential Equations Using Homotopy Analysis Technique (HAM). Contemporary Mathematics. https://doi.org/10.37256/cm.4420232467. 721-732.2023 Oct.

Pokharna, N., & Tripathi, I. P. E-Optimality and E-duality results for multiobjective variational problems and application to the cake-eating problem. Journal of Industrial and Management Optimization, 10.3934/jimo.2023146, October 2023.

Conference Publications

Akshey & Twinkle R. Singh, International Conference on Recent Advances in Fluid Mechanics and Nanoelectronic held in Manipal Institute of Technology, Banglore on 12-14 July 2023. "A novel analytical-iterative approach for time fractional 3-D Helmholtz equations".

Jyoti U. Yadav and Twinkle R. Singh, "Numerical treatment of temporal fractional approach to imbibition phenomenon in homogeneous porous media" presented in International Conference on Recent Advances in Fluid Mechanics and Nanoelectronics Organized by Manipal Institute of Technology Bengaluru held on July 12-14, 2023.

Bhavin Rachhadiya, Twinkle R. Singh 6th International Conference on Mathematical Modelling, Applied Analysis and Computation-2023 (ICMMAAC-23) organized by JECRC University, Jaipur dated 3-5 August 2023. "Hermite-Hadamard type inequality for differentiable convex and quasi-convex function".

Sudeep Singh Sanga, 50th International Conference on Computers and Industrial Engineering (CIE50) organized by the American University of Sharjah, Sharjah, UAE from October 30–November 2, 2023. "Machine Repair Model with General Retrial Attempts under Admission Control Policy".

Sudeep Singh Sanga, 7th International Conference on Intelligent Computing & Optimization (ICO-2023), organized by the Steering Committee Optimization Conference Resources, Malaysia, was held in Phnom Penh, Cambodia during October 27-28, 2023. "Profit and Cost Optimization for Single-Server Markovian Retrial Queue with Server Breakdown, Customer Balking, and Feedback".

Khushbu Antala, Annual Conference on INDIAN WOMEN AND MATHEMATICS (IWM) held in Indian Institute of Science Education and Research, Bhopal on 13-15 July 2023. "Application of triple orbit retrial queue in healthcare center using Fuzzy logic".

Book Chapter Publications

Meena, B.S., Kumar, S. (2023). Temperature Distribution During Hyperthermia Using a 2D Space-Time Fractional Bioheat Model in Irregular Domain. In: Giri, D., Gollmann, D., Ponnusamy, S., Kouichi, S., Stanimirović, P.S., Sahoo, J.K. (eds) Proceedings of the Ninth International Conference on Mathematics and Computing. ICMC 2023. Lecture Notes in Networks and Systems, vol 697. Springer, Singapore.

Meena, R.K., Kumar, S. (2023). A Study on Fractional SIS Epidemic Model Using RPS Method. In: Giri, D., Gollmann, D., Ponnusamy, S., Kouichi, S., Stanimirović, P.S., Sahoo, J.K. (eds) Proceedings of the Ninth International Conference on Mathematics and Computing. ICMC 2023. Lecture Notes in Networks and Systems, vol 697. Springer, Singapore.

Sudeep Singh Sanga, Profit and Cost Optimization for Single-Server Markovian Retrial Queue with Server Breakdown, Customer Balking, and Feedback, Intelligent Computing and Optimization, Lecture Notes in Networks and Systems Springer Nature Book Series (Switzerland), October 2023

Book

Dr. Jayesh M. Dhodiya, Dr. Yogeshwari Patel, and Dr. Anita Ravi Tailor published book "A Text Book of Advanced Engineering Mathematics, Volume (II)" which is published with leading international publisher "Central West Publishing" from Australia (ISBN: 781922617534).
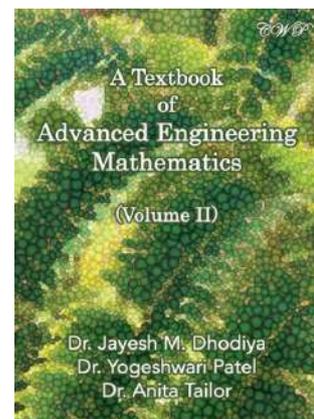
Newsletter Team
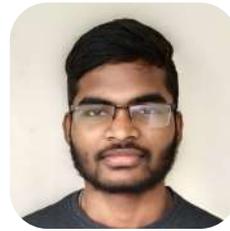

Prof. V. H. Pradhan

Dr. Saroj R. Yadav

Sai Charan
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Mahesh Rajarapu

Venkata Subbaiah
Yerrapati

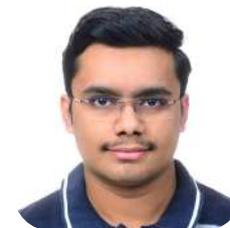Ekata Jain

Theophilus Gera

Ramesh
Vankudothu

Shrusti Gaurang
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