

Volume 1

Annual Issue

DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE (AUTONOMOUS)

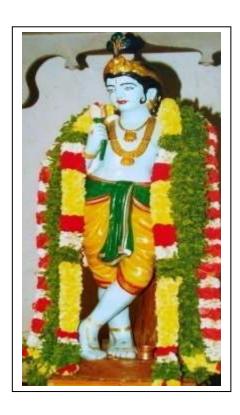
College with Potential for Excellence
(Linguistic Minority Institution)

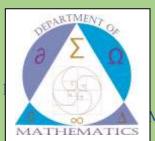
PG AND RESEARCH DEPARTMENT OF MATHEMATICS

2021



NEWSLETTER MATHPHILE





Message

Department activities

Students activities
Upcoming Events
Students Corner
Articles

Editor in Chief: Prof. M. Devika

Associate Professor, D.G. Vaishnav College

Sub Editor: Dr. N. Jayanth Karthik

Associate Professor, D.G. Vaishnav College



SECRETARY'S MESSAGE

The Post Graduate and Research Department of Mathematics has been constantly striving to keep the students and faculty at par with growing knowledge through online webinars and workshops by eminent scholars from various domains. My congratulations to the team for the arduous task done most effectively.

The Editorial Board has done commendable job in bringing out the "MATHPHILE". Newsletter This newsletter provides the overall contributions made by the department during the academic year 2020 - 2021. I offer my best wishes to the department for continuing the good work in upcoming years also.

Shri Ashok Kumar Mundra SECRETARY

PRINCIPAL'S MESSAGE

I am extremely happy to bring out the News Letter 'MATHPHILE' released from the Post Graduate and Research Department of Mathematics. A News Letter is like a mirror which reflects the picture of all sorts of activities undertaken by a Department and develops writing skills among students in particular and teaching faculty in general.

I congratulate the Editorial Board of this Newsletter who have played wonderful role in accomplishing the task in record time. Also my heartfelt congratulations to staff members and students for their fruitful effort.

With Best Wishes

Dr. S. Santhosh Baboo

PRINCIPAL



Head of the Department Message



Greetings!

The Department of Mathematics has recorded consistent improvement in its academic, research and placement performance. It offers a range of innovatively designed programs whose curricula are constantly updated to develop a deep understanding and enjoyment of Mathematics, to carry out original research, to become effective teachers and communicators and to prepare themselves for their future careers. In their curriculum, they are invigorated to take up projects and internship to supplement theoretical knowledge with practical experience.

I congratulate the Editorial Board of this Newsletter who have played wonderful role in accomplishing the task in record time. Also my heartfelt congratulations to staff members and students for their fruitful effort.

With Best Wishes

Prof. R. Venkataramanan Associate Professor & Head Post Graduate and Research Department



POST GRADUATE AND RESEARH DEPARTMENT OF MATHEMATICS

About the College

Dwaraka Doss Goverdhan Doss Vaishnav College, a linguistic minority institution established in the year 1964 with B.Sc Mathematics as first course. College was founded on the principles of Vaishnavism, with the sole purpose of imparting value based quality education and empowering the youth. The college has seen a phenomenal growth in terms of its infrastructure and revamped curriculum to cater to the specific needs of the student's community. Outstanding performance of the students in academics and extension activities has enabled the college to emerge one of the premier institutions of higher learning.

About the Department:

In the year of its inception, the college under the stewardship and the Principal of Shri T.Totadri Iyengar, offered an Undergraduate course in Mathematics along with Pre- University courses. The University of Madras upgraded thedepartment to the postgraduate status in the year 1980. M.Phil course was started in the year 2001. The Post Graduate and Research Department of Mathematics, DG Vaishnav College, Chennai has been vigorously engaged in both research and teaching. The Department has energetic and dedicated faculty members who are actively involved in research areas like Complex Analysis, Number theory, Mathematical Analysis, Fuzzy sets, Fuzzy Optimization, Petrinets, Information Security, Differential equations, Wavelets and Numerical Methods.

Vision of the Department:



The vision of the department is to promote and support a comprehensive, innovative and dynamic learning environment to assist students in acquiring a conceptual understanding of the nature and structure of Mathematics, its processes and applications.

Prof. R. Venkataramanan
Head, PG and Research Department of Mathematics



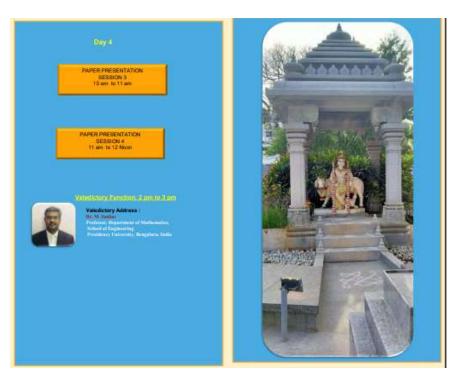
DEPARTMENT ACTIVITIES

CONFERENCES









➤ National Conference on Mathematical Modelling with differential equations (Online) from 14 - 17 October, 2020.

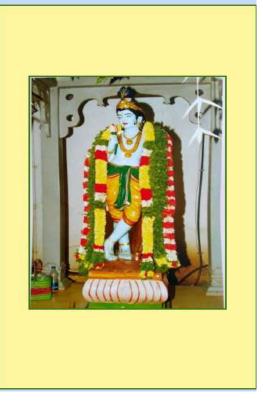
The Secretary of D.G. Vaishnav College, Shri. Ashok Kumar Mundra welcomed participants for this conference. The Presidential address was given by Dr. S. Santhosh Baboo, Principal, D.G. Vaishnav College. Convener & Head of the department of mathematics, Prof. R. Venkataramanan explained about the importance of this conference and the scope of the Mathematical modelling. There were five paper presentation session and concluded with valedictory address by Dr. Mani Sankar, Professor, Department of Mathematics, School of Engineering, Presidency University, Bangalore. The conference was attended by 265 Faculty members, 122 Research Scholars and 156 students.



> UGC Sponsored Online National Conference on Analysis and its Applications Focused on Fixed Point Theory- 24th-25th February, 2021







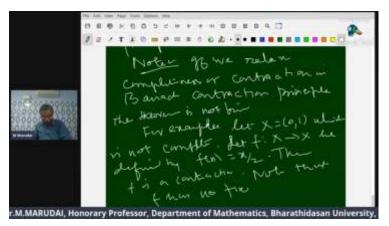


Post Graduate and Research Department of Mathematics Conducted Two Days Virtual National Conference on Analysis and its Applications – Focused on Fixed Point Theory. The Conference started on 24th Feb, 2021 with Inaugural session and the presidential address was given by Dr. S. Santhosh Baboo, Principal, D.G.Vaishnav College. The Convenor of the conference and the Head of the Department of Mathematics, Prof.R.Venkataramanan delivered the Welcome Address followed by the overview of the conference delivered by Dr R. Sivaraman, Associate Professor, D.G. Vaishnav College. There were eight invited talks by Eminent Professor's from various Universities/Institutes across India. 156 participants, both faculties and research scholars from various institutes registered for the conference.



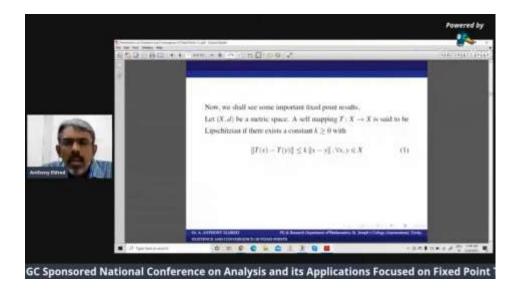
Day 1: 24.02.2021 (FN Session)

The Forenoon session of Day 1 had two talks. The first one is on "An Invitation to Fixed Point Theory" by Dr. M Marudai, Honorary Professor, Department of Mathematics, Bharathidasan University, Trichy.

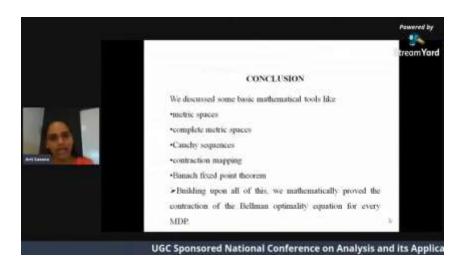




The second talk of forenoon session was give by Dr. A. Anthony Eldred, Assistant Professor, PG & Research Department of Mathematics, St. Joseph's College (Autonomous), Trichy, on "Existence and Convergence of Fixed Points".



The first session of afternoon session was started with an invited talk on "Banach Fixed Point Theorem and Applications" by Dr. Arti Saxena, Assistant Professor, Department of Mathematics, Manav Rachna International Institute of Research and Studies, New Delhi.

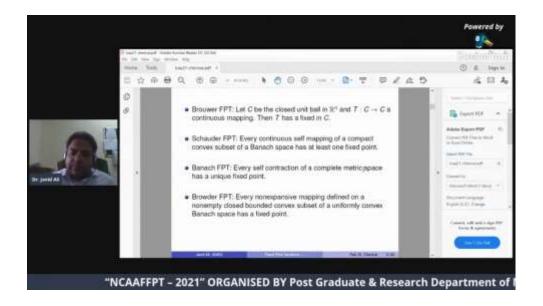


The last session lecture on Day 1, was delivered by Dr. Izhar Uddin, Assistant Professor, Department of Mathematics, Jamia Millia Islamia, New Delhi on "Some Recent Fixed-Point Theorems for Monotone Mappings".



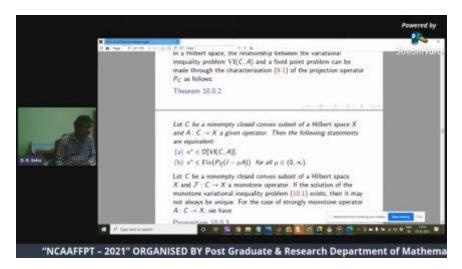


The second day of the conference started with a talk on "Fixed Point Algorithms: Convergence, Stability and Data Dependence and Applications" by Dr. Javed Ali, Assistant Professor, Department of Mathematics, Aligarh Muslim University, Aligarh.

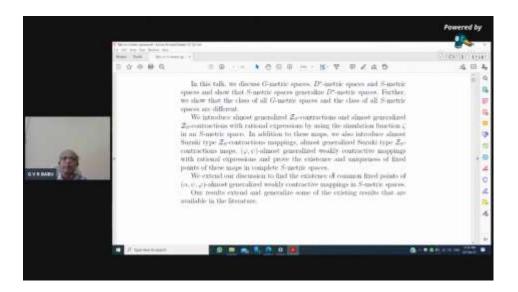


Dr. D. R. Sahu, Professor, Department of Mathematics, R S University, Raipur, had given the invited talk of second session on "Fixed Point formulation of nonlinear problems and applications"



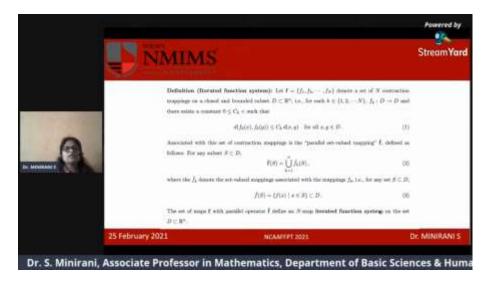


The afternoon session on Day 2 was given by Dr. G. V. Ravindranadh Babu, Professor, Department of Mathematics, Andhra University, Visakhapatnam on "Fixed Points of certain contraction maps in S-metric Spaces".



The last invited talk was delivered by Dr. S. Minirani, Associate Professor, Department of Basic Sciences & Humanities, MPSTME, NMIMS, Mumbai on "Fixed Point of an Iterated Function Systems (IFS)".





The Paper presentation session had 8 papers and the list is given below.

- 1. M. Joseph Jawahar Peppy Noor Iterative Scheme for Generalized Non Expansive Mapping
- 2. S. Jone Jayashree Data dependence for Ishikawa Iteration on Hyperbolic Spaces
- 3. Anjali Some Fixed Point Theorems with PPF dependence in Banach Space
- 4. Mallalah . K A fixed point theorem of Multiplicative Metric space using EA –like property
- 5. G. S. Vigneshwari Operator and Dynamical System in Analytic Lipschitz
- 6. D. Rejin Rose Generalized forward (u,u)(l) Difference Operator and some Applications in Algebra
- 7. A. M. Anto, G. S. Rekha, Madhukar Mallayya Inverse Quintic Spline Parabolic Runout Spline
- 8. Radhika V. S. Connected Vertex Edge Dominating Sets and Connected Vertex Edge Domination polynomials of Gem Graph G_n .

Finally, the conference concluded with the valedictory function on 25th February, 2021.

All the programmes can be viewed in DGVC Maths You Tube Channel.

https://www.youtube.com/channel/UCDcPvVpvlTkuAjI1UV9MhUA



Faculty Development Programme

> UGC Sponsored seven days National level virtual Faculty Development Programme on "Promising Success through inclusive Development"







▶ UGC Sponsored seven days National level virtual Faculty Development Programme on "Promising Success through inclusive Development" was held from 15th February to 21st February 2021. The FDP started on 15th Feb, 2021 with Inaugural address given by Shri. Ashok Kumar Mundhara, Secretary, DG. Vaishnav College and the Presidential address was delivered by Dr. S. Santhosh Baboo, Principal, D.G.Vaishnav College. The Convenor and the Head of the Department of Mathematics, Prof.R.Venkataramanan delivered the Welcome Address followed by the overview of the conference by Prof.M.Devika, Associate Professor, D.G. Vaishnav College. There were fourteen invited talks by Eminent Professor's from various Universities/Institutes across IndiaIt was concluded with valedictory function addressed Prof. Jibrael Jos, Christ University, Bangalore on 21st Feb, 2021. 120 participants comprising of both faculties and students from various institutes participated in the conference.



> UGC Sponsored Seven Days Faculty Development **Programme on** "Aspects of Mathematics" (22.03.2021 to 28.03.2021)

About D. G. Valdaur College Alloud file Department
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The PG & Research Department of Mathematics successfully completed seven days Faculty Development Program on "Aspects of Mathematics" from 22.03.2021 to 28.03. 2021.

On Day 1, the FDP started with Welcome address from the Convenor of the FDP prof. M. Devika, PG & Research Department of Mathematics, D G Vaishnav College, Chennai. Shri Ashok Kumar Mundhra, The Secretary, D. G. Vaishnav college had given the Inaugural message. The Principal of D G Vaishnav College, Dr. S. Santhosh Baboo, gave the Inaugural speech followed by the Key note address from Dr. K. A. Venkatesh, Professor of Mathematics and Computer Science, Myanmar Institute of Information Technology, Mandalay, Myanmar. Dr. K. A. Venkatesh initiated the release of *Brahmaganith* – The Mathematics Club of PG & Research Department of Mathematics, D G Vaishnav College and The Principal released the proceedings of the Two day National Conference on Analysis and Its Applications. The Principal also released the news letter - *Mathphile* of PG & Research Department of Mathematics, D G Vaishnav College. Finally, the vote of thanks was given by Dr. S. Hariharan, Assitant Professor, PG & Research Department of Mathematics, D G Vaishnav College, Chennai.



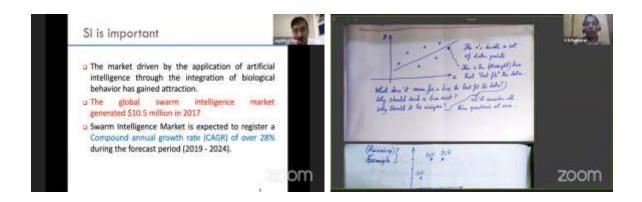








The Technical session on Day 1 started with a talk on **SWARM Intelligence: An Intelligent way of Optimization**, by Dr. Jagadish Chand Bansali, South Asian University, New Delhi. The second session was addressed by Dr. K N Ragavan, Institute of Mathematical Sciences, Chennai, on **The line of best fit: A linear algebraic approach.**

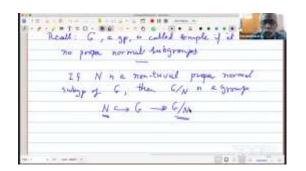


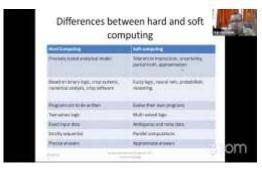
Day 2 was started with a session on <u>Base Stock Policy with Retrial Demands</u> by Dr. Anbazhagan, Professor, Alagappa University, Karaikudi followed by the second session on <u>Advances in Nature Inspired Optimization Techniques</u> by Dr. Kusumdeep, Professor, Department of Mathematics, Indian Institute of Technology, Roorkee.



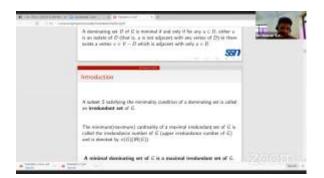
On Day 3, the first session was on <u>Simple Groups</u> by Dr. Parameswaran Sankaran, Professor, Institute of Mathematical Sciences, Chennai and Dr. Mukesh Kumar Sharma, from Chaudhary Charan Singh University, Meerut gave a lecture on <u>Soft Computing</u>.







On Day 4, Dr. R. Sundareshwaran from SSN Engineering College gave a lecture on <u>Outer</u> <u>Complete Fair Domination in Graphs.</u> and Dr. Nagaraj, Professor, Chennai Mathematical Institute, handled the second session with his lecture on <u>Symmetries and Groups.</u>





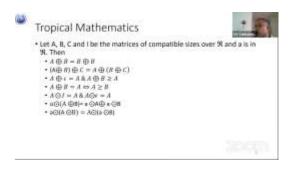
The first session of Day 5 was handled by Dr. Minirani from NMIMS. She gave a lecture on **Predictive Modelling.** The second lecture was given by Dr. Mani Sankar, Ibri, Sultanate of Oman on **Numerical Solutions for PDE**.

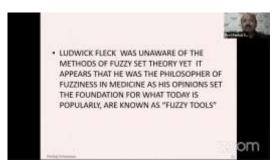






On Day 6, Dr. K. A. Venkatesh, Professor, Myanmar Institute of Information Technology, had given a lecture on <u>Tropical Mathematics</u> and the second session was on <u>Soft Computing</u> <u>Diagnostic System</u> by Dr. Pankaj Srivastava, MNNIT.





Finally, on Day 7, the first session started with <u>Open Problems in Mathematics</u> by Dr. R. Sivaraman, followed by a lecture on <u>Computational Linear Algebra</u> by Dr. S. Hariharan from D. G. Vaishnav college, Chennai.

The Valedictory session started with Principal's address followed by the Valedictory address from Dr. Mukti Acharya, Professor, Department of Mathematics, Christ University, Bangalore. The Convenor of the FDP Prof. M. Devika, briefed about the FDP and also gave Vote of Thanks on 28th March, 2021.

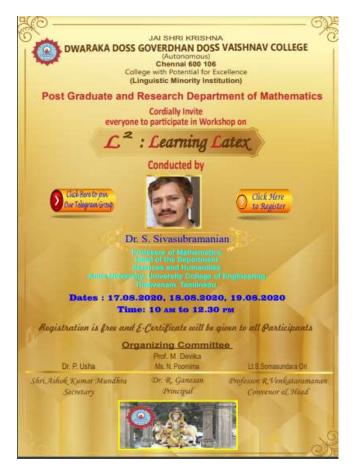


List of Workshops



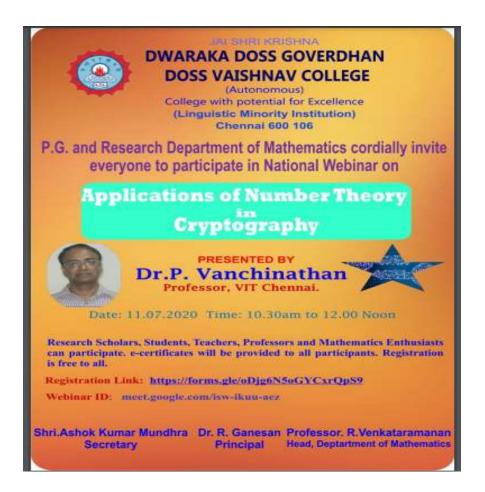
A three- day workshop on Geogebra: A teaching tool was organized from 12th -14th August 2020 presented by Dr. S. Ganesh Mathematics teacher, PUM School, Kilariyum, Thiruvarur district. NCERT E- Resource development team member National ICT curriculum team member Diksha contact center with 587 faculty members 40 research scholar and 386 students participated. He demonstrated and explained how a graph could be drawn using this software and how could it be useful for teachers to explain for students.





➤ A three- day workshop was conducted from 17th to 19th August by PG and Research Department of Mathematics DG Vaishnav College on L² Learning Latex presented by Dr. S. Siva Subramanian Professor of Mathematics, Head of the Department Science and Humanities Anna University College of Engineering, Tindivanam. He demonstrated Latex programming and explained the commands used in various typesetting. There were 231 faculty, 46 Research Persons and 373 students were participated in this program.

List of Webinars



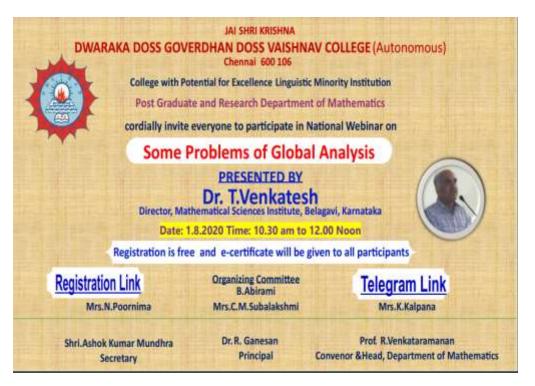
➤ On 11th July 2020 Post Graduate and Research Department of Mathematics D.G. Vaishnav College conducted National Webinar on Application of Number Theory in Cryptography by Dr. P. Vanchinathan Professor, VIT, Chennai. He spoke about encryption of data used in ancient times and about how the secrets were maintained during the war times. He also demonstrated application of computer language Python in cryptography. 432 participants registered for this webinar.





➤ National Webinar on Decimal expansion, Gauss Conjecture & Borel Function was presented by Dr. R. Thangadurai Professor, Health Chandra Research Institute, Allahabad, India on 25th July 2020 there were 321 faculty participants, 53 research Scholar and 174 student's participation. Speaker defined cantor Set and explained how any real number is given decimal expansion and about Gauss Conjecture and Borel Function.





➤ National webinar on Some problems of Global Analysis was conducted on 01/08/2020 presented by Dr. T. Venkatesh, Director, Mathematical Science Institute Belgavi, Karnataka .252 faculties, 45 Resource Persons and 102 students Participated and they were benefited from his lecture. Speaker explained how all physical phenomena can be framed as a mathematical equation and how it can be solved.





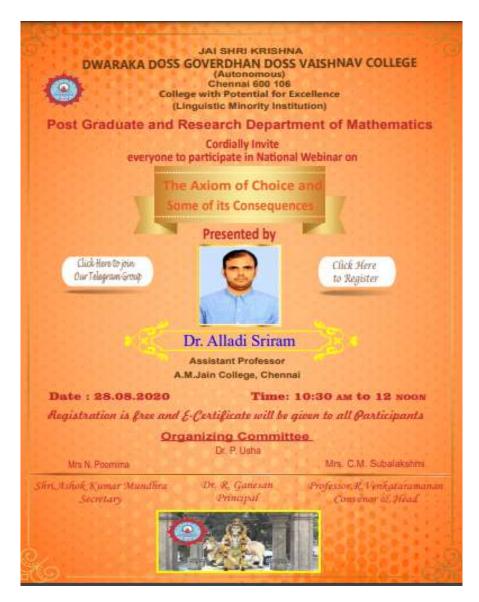
➤ International webinar on Application of Linear programming in Performance Measurement presented by Dr. K. A. Venkatesh, Adjunct Professor IIIT Bangalore, Professor of Mathematics and computer Science Myanmar Institute of Information Technology, Mandalay Myanmar on 8th August 2020 there were about 189 faculty members 22 research scholars and 77 students participated. A mathematical model has certain assumption and limitation he explained how frontier Analysis is used to arrive Performance and how efficiency can be arrived using efficient frontier and Data envelopment analysis. Speaker explained about the application of LPP in Performance Measurement Geometry LPP, also he explained how to Solve LPP using Excel and how to model the performance measurement as an LPP.





➤ National webinar on Role of fuzzy Analysis was organized on 27th August 2020 by Dr. K. Arjunan Assistant Professor, Alagappa Government Arts College, Karaikudi there were 83 faculty participants,10 Research Scholar and 148 students were Participated in this webinar. This webinar was about the application of fuzzy and its analysis.





➤ National Webinar on The axiom of choice and some of its consequences was organized on 28th August 2020 by Dr. Alladi Sriram, Assistant Professor, A.M. Jain College, Chennai. There were 78 faculty participants, 12 research participants and 153 students participated in this program. Speaker explained about the axiom of choice and its applications.





➤ National Webinar on the function of bounded Variation by Dr. M. Marudai, Honorary Professor Department of Mathematics, Bharathidasan University, Trichy on 29th August 2020. 92 faculty paritipants,14 Research scholars and 168 Students were participated in this webinar and gained knowledge about functions of Bounded Variation he introduced and solved sequences and series with different techniques.





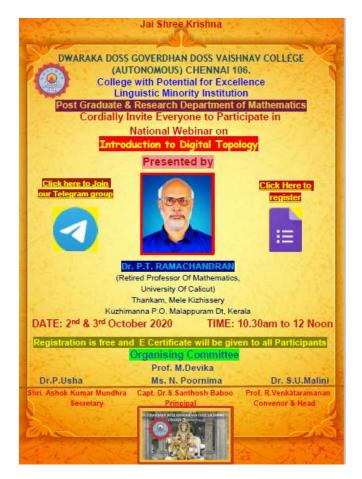
➤ National Webinar on mathematical modelling of Infectious Disease was presented by Dr. D.K. Yadav, Assistant Professor, Department of Mathematics and Demography, National Institute of Health and Family welfare Munirca, Noida on 12th Sep 2020 in which 107 faculties, 32 research Scholars and 69 students participated.





➤ National Webinar on Coloring Game of graphs was presented by Dr. S. Francis Raj Assistant Professor, Department of Mathematics, Ramanujan School of Mathematical Sciences, Pondicherry University on 19th Sep 2020. In which 49 faculty participants, 11 research scholar and 258 students were participated. His lecture was about how graphs can be colored with certain constraints.





A two-day National Webinar on Introduction to Digital Topology was presented by Dr. P.T. Ramachandran retired professor of Mathematics, University of Calicut on 2 & 3 October 2020 with 80 faculty participants 13 research scholar and 279 student's participation. The speaker explained about how picture component can be separated and used in digital image processing, document reading, Radiology, Hematology, Tomography, Geology, Land use management, counting and labelling, border tracking Contour filling the thinning etc.





➤ National Webinar on Mathematics of Fractals on 10th October, 2020 presented by Dr. S. Minirani, Associate Professor in Mathematics, Department of Basic Science and Humanities, MPSTME, NMIMS, Deemed to be University, Mumbai. The webinar was attended by 34 faculty participants 5 research scholars and 165 students. Resource person gave introduction to fractls and explaining the concepts fractals in detail. She also clarified where do we use fractals and how Euclidean geometry is used to define fractals. Application of fractals in various fields were also explained.





➤ Webinar on construction of Topology from basis and sub basis was conducted on 24th October, 2020 presented by Dr. J. Sakthivel Retired prof and head of department of Mathematics Vivekananda college, Agatheeswaram Kanyakumari, Tamilnadu. Number of participants for this webinar was 40 faculty, 10 research scholar and 167 students. Started his lecture by defining Metric space and opensets properties of open sets and he introduced Topology and he completely covered about basis and sub basis and he also said about books. Which are very useful to have a wider knowledge about topology.





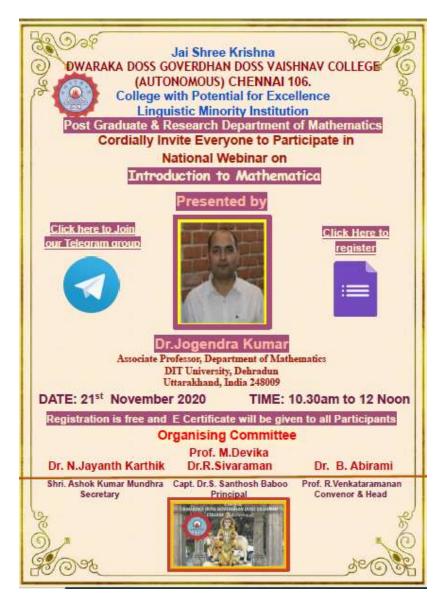
➤ National webinar on General Measure and integration was conducted on 31st oct 2020 presented by Dr. C. Elango. Associate Professor, Research Department of Mathematical Sciences. Cardamon Planters Association College Theni District. Speaker introduced about Integration application using measure of profit and loss and Riemann Integration. He stated about difference between differentiation and Integration.





National Webinar on Application of Epidemiological model to Quantify the spreading of Fake News in Social Media on 7.11.2020 presented by Dr.Pooja Khurana, Associate Professor, Faculty of Engineering Technology, Manav Rachna International Institute of Research & Studies, Faridabbad. The webinar was attended by 32 faculty participants 5 research scholars and 210 students. Introduced about Epidemiological model to Quantify the spreading of Fake News in Social Media which are very useful to have a wider knowledge about the spreading of Fake News in Social Media.





National Webinar on Introduction to Mathematica which was held on 21.11.2020 presented by Dr.Jogendra Kumar, Associate Professor, Department of Mathematics, DIT University, Dehradun, Uttatakhand. The webinar was attended by faculty participants research scholars and students. This Webinar was about an Introduction to Mathematica – Scientific Computing and Visualization. Solving Ordinary Differential Equations, Partial Differential Equations and Numerical Analysis problems in Programming Language.





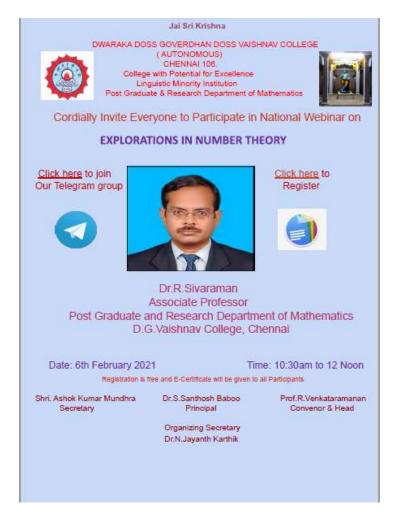
➤ National Webinar on Uniform Convergence which was held on 28.11.2020 presented by Dr.P.Srinivasan, Associate Professor, Department of Mathematics, Bharathidasan University, Tiruchirappalli. The webinar was attended by faculty participants research scholars and students. Introduction over Uniform convergence was his point of discussion and said about Pointwise uniformly Cauchy sequences. Reference books for further studies was mentioned in this webinar.





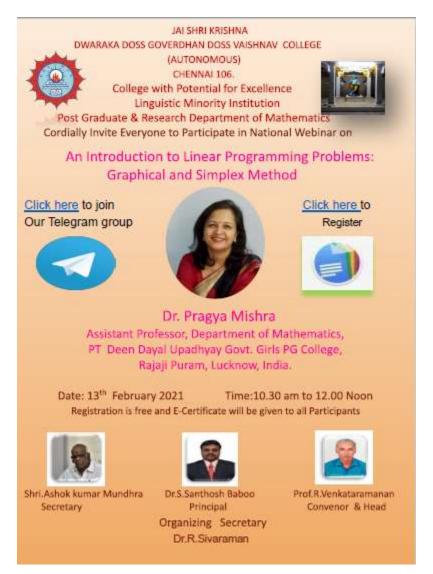
➤ National Webinar on Quick Visit of Matrices was held on 30.01.2021 presented by Dr.Nita Shah, Professor and Head, Department of Mathematics, Gujarat University. The webinar was attended by faculty participants research scholars and students.





National Webinar on Explorations in Number theory was conducted on 6th February 2021 by Dr. R. Sivaraman, Associate professor, PG and Research Department of Mathematics, DG Vaishnav College. Resource person explained about the concepts of Number theory in detail. This webinar provided a wonderful chance for participants to understand Concepts of Number theory in detail. 63 Faculties, 6 research scholars and 79 students have registered for this Webinar.





➤ National Webinar on "Linear Algebra and its Applications" was presented by Dr. Pushpa B.V, Assistant Professor, Department of Mathematics, BMS institute of Technology and Management, Bangalore on 13th March 2021. 40 Faculties, 7 research scholars and 85 students have registered for this Webinar.





➤ National Webinar on "HIV infection and its Remedial Drug therapy – A mathematical Study" was presented by Dr. Rajeswari Seshadri, Professor and Head Department of Mathematics, Ramanujan School of Mathematics, Pondicherry University on 20th February 2021.





➤ National Webinar on "Nevanlinna Theory and Its Applications" was presented by Dr. Rajeswari. S, Assistant Professor, Department of Mathematics, Presidency University, Bangalore on 27th February 2021.

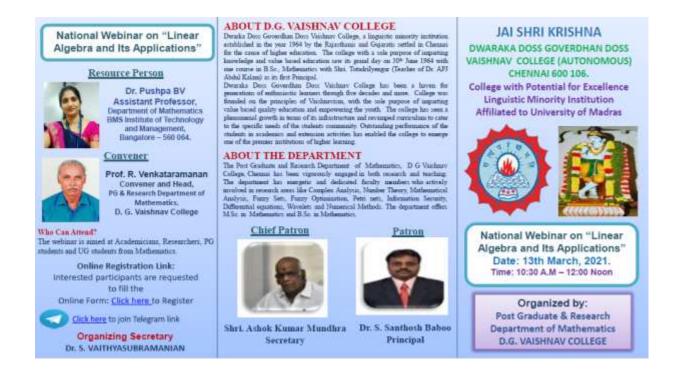






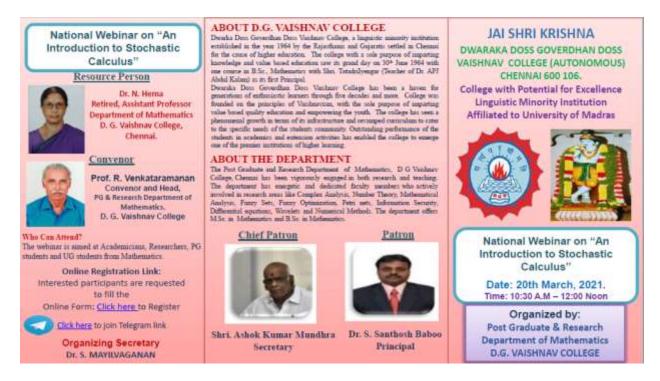
➤ National Webinar on "Fractional and Discrete Fractional Calculus with Application" by the resource person Dr. G. Britto Antony Xavier, PG and Research Department of Mathematics, Sacred Heart College, Tirupattur on 6th March 2021. 26 Faculties 11 research scholars and 110 students have registered for this Webinar.





➤ National Webinar on "Linear Algebra and its Applications" was presented by Dr. Pushpa B.V, Assistant Professor, Department of Mathematics, BMS institute of Technology and Management, Bangalore on 13th March 2021. 26 faculties 11 research scholars and 110 students have registered for this webinar.





➤ National Webinar on "An Introduction to Stochastic Caluculus" was presented by Dr. N. Hema Retired, Assistant Professor, Department of Mathematics, D.G. Vaishnav College, Chennai on 20th March 2021. The webinar was attended by 17 faculty participants 26 research scholars and 110 students.





➤ National Webinar on "Graphs from Algebraic structures" was presented by Dr. G. Kalaimurugan, Assistant Professor, Department of Mathematics, Thiruvalluvar University, Vellore on 20th March 2021. 20 faculty participants 31 research scholars and 96 students were registered for this Webinar.





➤ National Webinar on "Fuzzy Mathematics - Applications and E- resources" was presented by Dr. T. Bharathi, Assistant Professor, Department of Mathematics, Loyola College, Chennai on 3rd April 2021. 20 faculty participants 31 research scholars and 96 students were registered for this Webinar.





➤ National Webinar on Graceful Tree Conjecture was presented by Dr.G. Sethuraman, Professor, Department of Matheamtics, CEG Campus, Anna University, Chennai. More number of Research Scholar, Faculties and Students were participated in this webinar.

FREE ONLINE COACHING CLASS



➤ C⁴ – Chase, Conquer, Crack CSIR- NET is a free online coaching class for NET aspirants of Mathematical Sciences. The series of online classes was inaugurated by the Principal Capt. Dr. S. Santosh Baboo, on 4th October 2020. The programme is a series of class conducted every week Saturday from 6.00 pm to 8.00 pm and Sunday from 11.00 am to 1.00 pm for the benefits of NET Aspirants. The topics include Analysis, Linear Algebra, Topology, Complex Analysis, Functional Analysis, Ordinary differential equations, Linear Integral equations and so on. More than 537 participants registered for this programme. So far 35 sessions have been conducted. The sessions were handled by Dr. K. A. Venkatesh, Dr. M. Marudai,

Dr. N. Sridharan, Dr. Karuppiah Kannappan, Dr. C. Elango, Mr. Gnanaprakasam,

Dr. R. Sivaraman, Dr. S.P. Vijayalakshmi Dr. S. Hariharan,

Dr. S. VaithyaSubramanian, Mr. P. Thirumal.

All the Programmes can be viewed in

DGVC Maths You tube Channel





TEACHERS' CLASS

The purpose of Teacher's Class is to have intra and interdisciplinary collaborative research on open problems. The Teachers' Class was inaugurated on 9th March 2021by Principal Dr. S. Santhosh Baboo. Principal emphasized the importance of providing solutions to real world problems through mathematics. He also mentioned about the role of mathematics in data science and data Analytics. The teaching and learning process of current situation is to teach the student through applications.

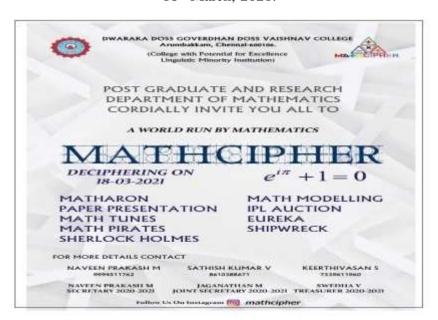






MATHCIPHER

MATHCIPHER – Inter collegiate students technical event of PG & Research Department of Mathematics, D G Vaishnav college, Chennai was successfully conducted on 18th March, 2021.



MATHCIPHER – Inter collegiate students technical event of PG & Research Department of Mathematics, D G Vaishnav college, Chennai was successfully conducted on 18th March, 2021. The programme started at 9.30 AM with Thamizhthai



Vazhthu and college prayer followed by Lighting of Lamp by the dignitaries of the event. The Secretary of Mathcipher Mr. Naveen Prakash gave the welcome address. Prof. M. Devika had given the inaugural speech and the presidential address was delivered by Dr. S. Santhosh Baboo, Principal, D.G. Vaishnav College. Mr. Ananth Ram, Director-cum-Actor was the special invitee and he gave the invited speech along with Mr. Sri Haran Balan, Director of Madura travel services, Chairman of Tourism Committee India.

Totally, there were 9 events conducted and around 35 colleges were invited. The events were started around 10.30 AM and ended around 2.30 PM. The number of colleges registered for the events and the prize winners of each event have been summarized below.

| Sl. No. | Event | No. of Teams Registered | First Prize | Second Prize |
|---------|--------------------------|----------------------------|---|---|
| 1 | Math Relay - Matharon | 4 | Guru Nanak College | Ramakrishna Mission – Vivekananda College |
| 2 | Paper Presentation | 6 | Ramanujan Institute | Shri Krishnaswamy College |
| 3 | Quiz | 6 | Guru Nanak College | Ramanujan Institute for Advanced Study in Mathematics |
| 4 | Shipwreck | 5 | St. Thomas College of Arts and Science | Ramakrishna Mission – Vivekananda College |
| 5 | IPL Auction | 5 | Ramanujan Institute for Advanced Study in Mathematics (Shift 1) | Ramanujan Institute for Advanced Study in Mathematics (Shift 2) |
| 6 | Sherlock Homes | 6 | Ramanujan Institute for Advanced Study in Mathematics | Ehiraj College for Women |
| 7 | Math Tunes | 5 | Ethiraj College For Women | St. Thomas College of Arts and Science |
| 8 | Math Modelling | 5 | Ramanujan Institute for Advanced Study in Mathematics | Guru Nanak College |
| 9 | Math π Rates | 7 | Ramanujan Institute for Advanced Study in Mathematics | Guru Nanak College |



The valedictory function was started around 3.00 p.m. with the prize distribution for the winners of the events. The prizes were given by Prof. M. Devika, Dr. N. Jayanth Karthik, and Dr. R. Sivaraman of PG & Research Department of Mathematics, D. G. Vaishnav College, Chennai. Also Prof. B. Sangeetha, HoD in-charge of Department of Mathematics with Computer Applications also joined the presentation ceremony. Dr. S. Hariharan, addressed the gathering and the programme was ended with the vote of thanks from Joint Secretary of Mathcipher, Mr. Jagannathan with the National Anthem.

Inaugural Session:



Lighting of Lamp:

Welcome Address: Mr. M. Naveen Prakash



March



Inaugural Speech: Prof. M. Devika,

Felicitation:



March

Presidential Speech: Principal, D. G. V.



Chief Guest Address: Mr. Ananth Ram Balan

Chief Guest Felicitation:

Chief Guest Address: Mr. Shri Haran



March



Presentation Ceremony:





March

Valedictory Function:



Prize Distribution:







Valedictory Address: Dr. S. Hariharan Vote of Thanks: Mr. M. Jaganathan



March





MATHEMATICS CLUB BRAMMAGANITH



March



Mathematics club named "BRAHMAGANITH" was inaugurated by the Dr. K. A. Venkatesh, Adjunct Professor, IIIT-B, India, Professor of Mathematics & Computer Science, Myanmar Institute of Information Technology, Mandalay, Myanmar. The following activities were conducted in the mathematics club Brahmaganith.

GUEST LECTURE



March



➤ Guest Lecture was organized on 18th July 2020 and the lecture was about Petrinets – Fundamental Models and its Application by Dr. P. USHA, Assistant Professor, Department of Mathematics D.G. Vaishnav College. She explained about different models of Petrinet and its applications. Second year, Third year UG students and Second year PG students were participated.



March



➤ Guest Lecture on "Base 12" was presented by Lt. G. SomaSundara Ori Assistant professor, Department of Mathematics D.G. Vaishnav College on 20th August . In his presentation he explained how every number can be represented in base 12 as we represent every number in base 2(binary) and base 10 and he also explained the various application of these numbers. In this lecture UG II and III year students and PG II student's participated and this lecture kindled the mind of young students using different approach.

UPCOMING EVENTS



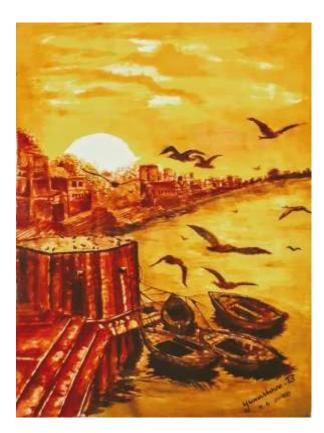
March

- > Series of Webinars to be conducted on all Saturdays
- ➤ C⁴ Chase, Conquer, Crack CSIR-NET, free online coaching class for NET aspirants of Mathematical Sciences.
- ➤ Mathematics club named "BRAHMAGANITH" was formed by the department. The activities of the mathematics club will be pursued in the forthcoming academic year.

STUDENTS CORNER



March











Articles

Splendid Spirals

P. Vishali, II M.Sc. Mathematics, D.G. Vaishnav College

Among all shapes that we witness in nature, one of the shape which often shows up are Spiral shapes. There are abundant spirals present in gigantic galaxies as well as tiny DNA molecules. Here are some of the most famous spirals that we often find along with their mathematical equations, pictures and examples where we find in our life.

| Name of Spiral | Equation | Shape | Some Examples |
|--|------------------------|-------|---|
| Logarithmic Spiral (Equiangular Spiral or Growth Spiral) | $r = ae^{b\theta}$ | | Nautilus Shell Snail Shell Sunflower Florets Elephant's Tusk Ram's Horn Rhinoceros' Horn Cat's Claw Pinecone Bracts Artichoke Bracts Pineapple Scales |
| Archimedes' Spiral | $r = a\theta$ | | Coiled Rope Watch Spring Ionic Column Capitol Celtic Art Spirals |
| Hyperbolic Spiral (Inverse Spiral) | $r = \frac{a}{\theta}$ | | Fiddlehead Fern Eye of Horus Symbol |
| Fermat's Spiral (Parabolic Spiral) | $r^2 = a^2\theta$ | | Celtic Art Double Spiral Mazes |

March

Viewing Heart Mathematically

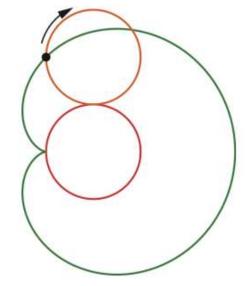
Dr. R. Sivaraman, Associate Professor Department of Mathematics, D.G. Vaishnav College

In our day to day life, we often recognize a character of a good person by saying "Man of Good Heart". But have you ever thought of the possibility of

viewing heart mathematically?

In fact, there is such a possibility, thanks to a curve called "cardioid". The term "cardioid" refers to being "Heart Shaped". This is the reason why we call doctors who were specialists in heart surgeries as "Cardiologists". In this article we try to know about this interesting curve.

Roll a circle around another circle of the same radius. A marked point on the first circle traces a curve called a cardioid. (In the figure shown aside we rolled the orange circle around the red circle to draw the green cardioid.) This beautiful heart-shaped curve



shows up in some of the most unexpected places. Grab a cup of coffee and we'll show you some.



We do not know who discovered the cardioid. In 1637 Étienne Pascal—Blaise's father—introduced the relative of the cardioid, the limacon, but not the cardioid itself. Seven decades later, in 1708, Philippe de la Hire computed the length of the cardioid—so perhaps he discovered it. In 1741, Johann Castillon gave the cardioid its name.

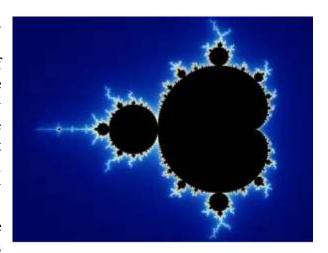
Got your coffee? Turn on the flashlight feature of your phone and shine the light into the cup from the side. The light reflects

off the sides of the cup and forms a caustic on the surface of the coffee. This caustic is a cardioid.



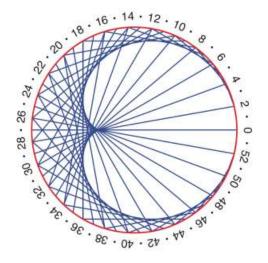
March

The Mandelbrot set (shown below) is one of the most beautiful images in all of mathematics. It is the set of complex numbers c such that the number 0 does not diverge to infinity under repeated iterations of the function $fc(z)=z^2+c$. The Mandelbrot set consists of a heart-shaped region with infinitely many circles, spiny antennae, and other heart-shaped regions growing off of it. What shape is that main heart-shaped region? It's a cardioid.



Cardioids even show up in audio engineering. Sometimes engineers need a uni-directional microphone—one that is very sensitive to sounds directly in front of the microphone and less sensitive to sounds next to or behind it. When they do, they reach for a *cardioid microphone*. The microphone is sonamed because the graph of the sensitivity of the microphone in polar coordinates is a cardioid.

We now generate this fabulous curve through an activity.

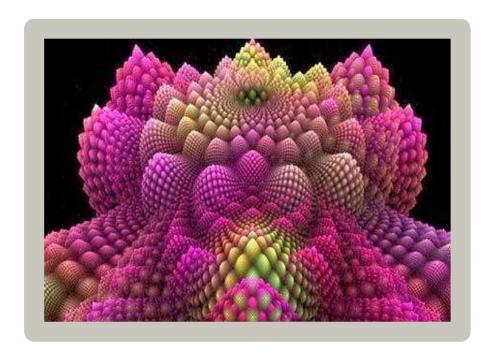


Begin with a circle (the red circle). Mark a certain number of evenly spaced points around the circle, N, say, and number them consecutively starting at some point P: 0, 1, 2,..., N-1. Then for each n, draw a line between points n and $2n \pmod{N}$. In our example, N = 54, so we would join points 5 and 10, 19 and 38, and 31 and 8 (since 8 is 62 mod 54). The envelope of these lines is a cardioid. Similarly, there are varieties of other ways that we can make in generating cardioid curves.

As an interesting project, students can take big circle and take for example say N = 60 or N = 80 points and draw such similar curves which will eventually generate cardioids. Having these many properties, it is no wonder, that cardioid resembles the most vital part of the human body.



March



We express our sincere thanks to our Management, Secretary, Principal, Invited speakers, Chair person for their wonderful support.

We extend our sincere thanks to Teaching Fraternity of various colleges, Paper presenters and other participants.

We thank our Head of the Department for his able guidance and also thank our Staff members for their pillar of strength.

Students! Thank you for rocking support

