

# Aryabhatta College

## *Department of Mathematics*

### *(Annual Report for the Academic session 2022-23)*

1) Name of Teacher in Charge: Dr. Chandrashekhar Nishad

2) Brief details of Faculty members:

Name	Qualification	Designation	Specialization	Teaching Experience (Years)	Permanent/Temporary/Ad-hoc/Guest
Prof. Narender Kumar	Ph.D.	Professor	Mathematical Programming and Optimization	28 Year 9 month	Permanent
Dr. Naveen Kumar Jain	Ph.D.	Assistant Professor	Complex Analysis and Functional Analysis	11	Permanent
Dr. Yogender Singh	Ph.D.	Assistant Professor	Optimal Control Theory	11	Permanent
Mrs. Aakanksha Singh	M.Sc.	Assistant Professor	Optimization	11	Permanent
Mr. Gufran malik	M.Tech.	Assistant Professor	Approximation Theory	11	Permanent
Dr. Chandrashekhar Nishad	Ph.D.	Assistant Professor	Fluid Dynamics	8	Permanent
Mr. Dheeraj Singh	M.Phil.	Assistant Professor	Valuation Theory (Algebra)	5	Ad-hoc



### 3) Details of publication work by the faculty members

Serial No.	Author	Title	Journal/Conference	Volume, Year, Page No.	Publisher /ISSN No. / Int. Database	Refereed
1.	Prof. Narender Kumar	1. Mathematical approach to Trading: Discovering a short-term High probability, Low risk, High return trading strategy	Res Militaris	13, No.2, January 2023 5960-5981	2265-6294	
		2. Solving hesitant fuzzy linguistic matrix game with regret theory	Granular Computing	Published online March 21, 2023	Electronic 2364-4974 2364-4966 Springer	
2.	Dr. Naveen Kumar Jain	1. Radii Constants for Functions with Fixed Second Coefficient	Mathematics	2022, 10(23), 4428		Impact Factor: 2.592
		2. Certain Estimates of Normalized Analytic Functions	Math. Slovaca	72 (2022), No. 1, 85–102	<a href="https://doi.org/10.1515/ms2022-0006">https://doi.org/10.1515/ms2022-0006</a>	(Impact Factor: 0.996
		3. 'Mittag-Leffler Operator	Journal of Mathematics	Volume 2022,	<a href="https://doi.org/10.1155/2">https://doi.org/10.1155/2</a>	(Impact factor:



		<p>Connected with Certain Subclasses of Bazilevic Functions</p> <p>4. 'Differential Subordinations for Functions with Positive Real Part Using Admissibility Conditions Normalized Analytic Functions with Fixed Second Coefficient'</p>	<p>Asian-Eur. J. Math</p> <p>Journals of Analysis(accepted)</p>	<p>Article ID 2065034, 7 pages.</p> <p>15 (2022), no. 4, Paper No. 2250066, 22.</p>	022/2065034	0.971
3.	Dr. Yogender Singh	On an Attempt to Establish the Inter-relationships amongst the Benefactors of Forest therapy through ISM Methodology	International Journal of Computer Applications	<p>Volume 185 – No. 4, April 2023</p> <p>Page: 1-4</p>	0975 – 8887 <a href="https://www.ijcaonline.org/archives/volume185/number4/bansal-2023-ijca-920933.pdf">https://www.ijcaonline.org/archives/volume185/number4/bansal-2023-ijca-920933.pdf</a>	Yes
4.	Ms. Aakanksha Singh	—	—	—	—	—
5.	Mr. Gufran Malik			—	—	—
6.	Dr. Chandrashekhar Nishad	<p>Analysis and chaos synchronization of Genesio–Tesi system applying sliding mode control techniques</p>	International Journal of Dynamics and Control	<p>Volume-11Year: 2023</p> <p>Page No. 656–665</p>	Springer	Yes



7.	Mr. Dheeraj Singh	—	—	—	—	—
----	-------------------	---	---	---	---	---

- **Award:** Awarded with COMMENDABLE RESEARCH AWARD worth Rs. 50,000/- by Indira Gandhi Delhi Technical University for Women, Delhi on 15 Mar 2023 for a journal publication in the year 2022. (Ms. Aakanksha Singh; madam please complete)

#### Conference Presentations:

1. Ms. Aakanksha Singh presented a paper entitled 'ON SOLVING TRANSPORTATION PROBLEM WITH FERMATEAN FUZZY NUMBERS' in an International Conference on Optimization, Learning and Analytics in Business organized by Department of Mathematics, Heritage Institute of Technology, Kolkata, India and Operational Research Society of India (Kolkata Chapter) from Dec 15-17, 2022.
2. Mr. Gufran Malik presented a paper titled 'Some Direct Theorems on Beta Type Szasz Mirakian Operators' in International Conference on Analysis and its Applications ICAA 2023 held during February 27-28, 2023 at department of Mathematics, Shivaji College, University of Delhi.

#### Participation of faculty members in seminars/workshops ,etc :

1. Ms. Aakanksha Singh successfully completed a refresher course in 'APPLICABLE MATHEMATICS' from 26 July - 08 August 2022 organized by Teaching- Learning Centre, Ramanujan College, University of Delhi.
2. Ms. Aakanksha Singh successfully contributed as Co-convener in One Week (Online) Faculty Development Programme on "SIGNIFICANCE OF VEDIC MATHEMATICS IN MODERN ERA" (5 December– 10th December 2022) organized by Aryabhatta College, University of Delhi in collaboration with Shiksha Sanskriti Utthan Nyas & Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi.
3. Dr. Chandershekhar Nishad contributed as Coordinator for One Week (Online) Faculty Development Programme on 'Significance Of Vedic Mathematics In Modern Era' (5th -10th December, 2022) organised by Aryabhatta College, University of Delhi in collaboration with Shiksha Sanskriti Utthan Nyas & Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi.
4. Dr. Yogender Singh successfully completed a refresher course in 'APPLICABLE MATHEMATICS' from 26 July - 08 August 2022 organized by Teaching- Learning Centre, Ramanujan College, University of Delhi.

#### 4) Student Strength

First Year	Second Year	Third Year
------------	-------------	------------



51	52	37
----	----	----

5) Fee Concession extended to the students of Departments

S.No.	Nature of Fee Concession	Number of beneficiaries	Period considered
1	Number of Students receiving full tuition fee reimbursement from State and Central Government	N.A.	N.A.
2	Number of Students receiving full tuition fee reimbursement from Institution funds	06	Academic year 2022-23
3	Number of Students receiving full tuition fee reimbursement from Private Bodies	N.A.	N.A.

6) Placement and Higher Education Data

S.No.	Nature of Progression	Number of Students
1	Number of Students Placed	N.A.
2	Number of Students selected for Higher Studies	N.A.

7) Library Budget sanctioned for the Department: Rs 125000/-

8) Achievement of Students including their participation in various societies

INTERNSHIP: 03

SHORT TERM COURSE/ ADD ON COURSE: 04

SEMINAR/CONFERENCE/WORKSHOPS ATTENDED: 89

9) Co-curricular Programmes conducted by the Department:

**FDP/Talk/Webinar/Seminar**

### 1. One Week Faculty Development Programme (FDP)

Topic: Significance of Vedic Maths in Modern Era

**Resource Persons:**

1. Dr. Gajender Pratap Singh (Assistant Professor JNU)
2. Mr. Deepak Vashishta, Lecturer in Mathematics, Govt Model Sanskriti Sr Sec School, Faridabad.
3. Dr. Kailash Vishwakarma, Associate Professor and Head, Physics Department, BNPG



- College Rath Hamirpur, Uttar Pradesh.
4. Dr. Rakesh Bhatia, Vedic Mathematics Expert, Board of School Education, Haryana.
  5. Dr. Anuradha Gupta, Associate Professor, Delhi College of Arts & Commerce (University of Delhi).
  6. Dr. Komal Asrani, Professor, Dept of Engineering and Computer Science, Babu Banarasidas Northern Indian institute of Technology, Lucknow, U.P.
  7. Dr. Shriram Chauthaiwale, Retd. Lecturer, Amolakchand College, Amravati University, Maharashtra.
  8. Sh. Anil Kumar Thakur, Vedic Ganit Expert, SSUN.

Number of Participants: 68 (From Aryabhata College: 18 & Outside from Aryabhata college 50)

## 2. Seminars:

1. The department organized three seminars during the year, which covered a wide range of topics related to mathematics. The first seminar was on **"History of  $\pi$ "** and was conducted on February 8th, 2023, by **Prof. Ajay Kumar (NSI Senior Scientist)**. The seminar provided a historical perspective on the development of the concept of  $\pi$ .
2. The second seminar, conducted on February 9th, 2023, was on **"How to write a Research Article by Undergraduate Students"** by **Prof. Shobha Bagai, Director, Cluster Innovation Center, University of Delhi**. The seminar aimed to equip the undergraduate students with the necessary skills and knowledge required to conduct research in mathematics.
3. The third seminar, conducted on February 20th, 2023, was on **"From Finite to Infinite Horizon Optimal Control Problems in Discrete Time"** by Professor **Agnieszka Wiszniewska-Matyszek** from the **Institute of Applied Mathematics and Mechanics, University of Warsaw, Poland**. In seminar she discussed the concept of optimal control problems in discrete time and their applications in various fields.

### 10) (Strength, Weakness, Opportunities, Challenges) SWOC Analysis of the Department

- **Strength:** Dedicated educators who are ready to help and mentor the students beyond the classrooms. Facilities include a well-maintained computer lab and good resourceful books in the college library.
- **Weakness:** Lackness of add-on / certificate course.
- **Opportunities:** Teachers feel that they can better utilize technology in the classroom to create an improved learning environment for their students.
- **Challenges:** Students initially find it difficult to handle the abstract nature of the subject and sometimes don't push themselves to work hard or ask doubts from the teachers. Lack of peer-learning and unwillingness to study is another challenge faced by the teachers.



#### 11) Future Plans of the Department

- To initiate research projects.
- To organize certificates, add-on courses.
- To conduct workshops for students to enhance their skills in application of mathematics.

