Curriculum-Vitae

Dr. Arvind
Professor
Dept. of Mathematics
HRC, North Campus
University of Delhi
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Career Objective:

To pursue a research / teaching oriented career in **Mathematics** with a long term view of acquiring knowledge and developing expertise.

To work in an organization that stimulates learning through work.

To work with an environment of high involvement and creativity institute.

To work in an organization where contribution is encouraged and appreciated.

To spread the knowledge of **Mathematics** all over the region.

Strong desire to work in R & D type of institute.

Summary of Education:

Ph.D. in Mathematics from C.C.S. University Meerut University in 2008.

Qualified JRF (**NET)** in June 2003.

M.Phil in Maths from C.C.S. University Campus, Meerut with 76% marks in 2002.

M.Sc. in Maths from C.C.S. University Campus, Meerut with 79% marks in 2001.

B.Sc. from Meerut College, Meerut with. 68% marks in 1999.

Passed Standard XIIth from C.A.B. Inter College, Meerut with 71% marks in 1996.

Passed Standard Xth from C.A.B. Inter College, Meerut with 73% marks in 1994.

Teaching /Research Experience :

(1) Currently Working as an professor in Dept. of Mathematics , Hansraj college(D.U.) from Jan 19, 2022 to till date.

(2) Worked as an Associate professor in Dept. of Mathematics , Hansraj college(D.U.) from Jan 19, 2019 to 18th Jan 2022.

(3) Worked as an Assistant professor in Dept. of Mathematics , Hansraj college(D.U.) from Jan 18, 2011 to 18th Jan 2019.

(4) Taught Cryptography to M.Sc students in Dept. of Mathematics , D.U. in 2013.

(5) Worked as Scientist in DRDO from 31st May 2005 to 17th jan 2011..

(6) Taught to M.Sc. classes in Dept. of Mathematics in C.C.S. University, Campus

Meerut from 1 January 2004 to May 2005.

(7) Worked as Lecture in Dept of Mathematics , S.C. R.I.E.T. University Campus, Meerut from Feb. 2003 to Dec. 2003.

(8) Worked as Guest Faculty in Dept of Mathematics , in Meerut College, Meerut in 2002-03.

Curriculum Development

(i) Worked as Committee Member of the papers of new B.Sc. Hons. Mathematics FYUP system , academic session 2013-14 in Dept of Mathematics ,University of Delhi.

(ii) Worked as Committee Member of the papers of new B.Sc. Hons. Mathematics and B.Sc. (Physical Sciences) and B.Sc. (Mathematical Sciences) course and curricula under Semester System in academic session 2018-19 Dept of Mathematics ,University of Delhi

(iii) Worked as Committee Member of the papers of new B.Sc. Hons. Mathematics and B.Sc. (Physical Sciences) and B.Sc. (Mathematical Sciences) course and curricula under Learning outcomes-based Curriculum Framework (LOCF) in academic session 2018-19 in Dept of Mathematics ,University of Delhi.

Research Guidance

Research Area : Cryptography, Algebra , Number Theory , Fluid Dynamics

(i) Ph.d degree Awarded- 3, In Continuation -5

(ii) M.phil degree Awarded- 2,

publications:

(i) "Stability of the flow of a dusty gas" co-authored with S.C.Agrawal and Jaimala

in the Global Journal of Applied Mathematics and Mathematical Sciences,Vol 2(1),

pp 95-108, ISSN- 0973-5518 in 2009.

(ii) "Hydromagnetic instability of shear flow of visco elastic fluid in an isotropic medium" co-authored with S.C.Agrawal, in International Journal of Mathematical Sciences Vol 7(3-4), PP 387-397, ISSN 0972-754X, 2008. **(UGC CARE List 23099)**

(iii) Rajeev, S.K.Pal and Arvind : Arithmetic of Pairing and Pairing Friendly Curves, International Journal of Trends In Computer Science, vol. 2(11), p 77-99, ISSN 7462-8452, 2013.

(iv)Rajeev, S.K.Pal and Arvind : Optimal Pairing & Design of Pairing Friendly Curves, INROADS (EBSCO), vol. 3(2), ISSN 2277-4904,p 313-318 2014

(v). Rajeev, S.K.Pal and Arvind : Design of Identity based Cryptographic Schemes from Pairing, International Journal of Mathematical Sciences and Applications (MathSciNet), vol. 5(1), ISSN: 22309888, Vol 5(1), 67-75, 2015.

(vi). Rajeev, S.K.Pal and Arvind : Efficient Signature Scheme from Self-pairing on Elliptic Curves, International Journal of Pure and Applied Mathematics (Scopus), vol. 105(2),p 187-200, ISSN 1311-8080, 2015.

(vii). Rajeev, S.K.Pal and Arvind : Pairing-Friendly elliptic curves of embedding degree 1 and applications to cryptography, Italian Journal of Pure and Applied Mathematics (Scopus), ISSN 2239-0227, Vol 38, p441-454, 2017.

(viii). Rajeev, S.K.Pal and Arvind : Elliptic curve based authenticated encryption scheme and its application for payment system, International Journal of Computing Science and Mathematics (Scopus), Vol 9(1), p 90-101, ISSN 1752-5055, 2018.

(ix) Arvind and Ram Ratan :Bit-plane measures And its Applications in analysis of image ciphers, https://doi.org/10.1007/978-981-13-5758-9_24 : **Journal** CCIS, **968**, 2019 **Publisher** Springer **Indexing** SCOPUS, MATH REVIEWS **Impact Factor** IF 0.49, SJR 0.19, H45

(x) Arvind and Ram Ratan :Bit-plane specific selective histogram equalization for image enhancement and representation, https://doi.org/10.1007/978-981-13-9181-1_58 **Journal** CCIS, **1035**, 2019 **Publisher** Springer **Indexing** SCOPUS, MATH REVIEW **Impact Factor** IF 0.49, SJR 0.19, H45.

(xi) Ram Ratan and Arvind :Analysis of cryptographic communications Using bit- plane measures and fuzzy computing, https://doi.org/10.1007/978-981-15-0751-9_90 **Journal** AISC, **1053**, 2020 **Publisher** Springer **Indexing** SCOPUS, DBLP **Impact Factor** IF 0.57, SJR 0.17, H25

(xii) Ram Ratan, B. l. jangid and Arvind :Bit-plane specific randomness testing for statistical analysis of ciphers, https://doi.org/10.1007/978-981-15-3290-0_16 **Journal** AISC, **1138**, 2020 **Publisher** Springer **Indexing** SCOPUS, DBLP **Impact Factor** IF 0.57, SJR 0.17, H25

(xiii) Ram Ratan and Arvind : Cryptanalysis of an image cipher using multi-entropy measures and the counter measures, https://doi.org/10.14429/dsj.70.15467, **Journal** Defence Sci J, **70**(4), 2020. **Publisher** DESIDOC, DRDO **Indexing** SCIE, SCOPUS **Impact Factor** IF 1.3, SJR 0.21, H 30.

(xiv) Arvind and Ram Ratan : Identifying Traffic of same keys in cryptographic communications using fuzzy decision and bit---plane measures, https://doi.org/10.1007/s13198-019-00878-7, **Journal** Int J Syst Assur Eng Manag, **11**(2), 2020 **Publisher** Springer **Indexing** SCOPUS, ESCI **Impact Factor** IF 1.02, SJR 0.35, H20

(xv) Ram Ratan and Arvind: Key Independent image deciphering using neighbourhood similarity characteristics and divide--- and---conquer attack https://doi.org/10.1007/s13198-019-00878-7 ,**Journal** Rec Patents Eng, **14**.1, 2020 **Publisher** Bentham Science **Indexing** SCOPUS, CSA **Impact Factor** IF 0.28, SJR 0.19, H17

(xvi) Arvind and Menakshi Agrawal: **"sharing secret with public key cryptography"** Published in Journal "HansShodhShikhar – Vigyaan-Vaanijaya-kala ka Shodh Sangam" 2020.
(xvii)Arvind and Meenakshi Agrawal "Safe Multi-signature Exchange Practices" published in the edited book "Application of Mathematical Tools in Social Sciences and Sciences" 2021.

(xviii) Ram Ratan and Arvind : Security Analysis of Bit-plane Level Image Encryption Schemes, https://doi.org/10.14429/dsj.71.15643, **Journal** Defence Sci J, **71**(2), 2021. **Publisher** DESIDOC, DRDO **Indexing** SCIE, SCOPUS **Impact Factor** IF 1.3, SJR 0.21, H 30.

 (xix)Arvind and Sarik Idrishi": " Elliptic Curve based Cryptographic Encryption Schemes" in Journal "HansShodhShikhar – Vigyaan-Vaanijaya-kala ka Shodh Sangam" Vol. 2, Issue 1, (2021), pp. 54-64.

(xx) M. Agarwal, A. Yadav & R. Ratan, On the characteristics of 1D-HD Chaotic Maps for Cryptographic Applications. NeuroQuantology 20(9), 6073-6081 (2022).ISSN1303-5150;https://www.researchgate.net/publication/364467554_On_the_characteristics_1D-HD_chaotic_maps_for_cryptographic_applications

(xxi) M. Agarwal, A. Yadav & R. Ratan, "Analysis of Bao-Zhou-Chen-Liu's Hybrid Chaotic System," In Proceedings of the SoCTA 2022, Soft Computing, vol. 627, 303-315, (2023) ISSN: 2194-5365 https://doi.org/10.1007/978-981-19-9858-4_26

(xxii) M. Agarwal, A. Yadav & R. Ratan, MARCS: A Novel Secure Hybrid Chaotic System. **Lecture Notes in Networks and Systems 731(LNNS Springer 2024- Scopus)-** ISSN : **2194-5365 https://doi.org/10.1007/978-981-99-4071-4_3**

(xxiii) Ajay Dabral , S.K. Pal & Arvind Yadav: "Lattice basis reduction techniques" Multimedia Tools and Applications(SCIE & SCOPOUS) Feb 2024 ISSN: 1573-7721, https://doi.org/10.1007/s11042-023-17939-6

(xxiv) **Akshay Ankush Yadav , Indivar Gupta , Harshdeep Singh , Arvind Yadav** "New Classes of Permutation Trinomials of $F_{2}(2m)$ " in Finite field and applications. Volume 96, 2024, ISSN-1071-5797 https://doi.org/10.1016/j.ffa.2024.102414 (**SCIE & SCOPOUS**)

(xxv) **Ram Ratan , Arvind Yadav and Chaman Prakash Arya** "Selection of best cipher system using fuzzy soft decision methodology" in *Journal of Discrete Mathematical Sciences & Cryptography* ISSN 0972-0529 (Print), ISSN 2169-0065 (Online) Vol. 27 (2024), No. 3, pp.1087–1103(**SCOPOUS**) https://doi.org/10.47974/JDMSC-1853

(xxvi) **Ravi kumar srivastava and Arvind :** "Generalization of fuzzy ideals of semirings and metatheorem" in **Journal of Annals of Fuzzy Mathematics and Informatics** Volume 27, No. 3, (June 2024), pp. 245–255 ISSN: 2093–9310 (print version) ISSN: 2287–6235 (electronic version) **(MathSciNet)** http://www.afmi.or.kr

(xxvii) **Sunil Lumar , Gaurav Mittal and Arvind Yadav** "An efficient ID-based cryptographic encryption based on group ring" *Journal of Discrete Mathematical Sciences & Cryptography ,* ISSN 0972-0529 (Print), ISSN 2169-0065 (Online) Vol. 27 (2024), No. 6, pp. 1851–1866https://doi.org/10.47974/JDMSC-1871(**SCOPOUS**)

(xxviii) **Sunil Lumar , Gaurav Mittal and Arvind Yadav** "A group based probably secure and efficient identity based signature scheme" in journal of **Smart Innovation , System and Technology ,** ISSN 2190-3026(Electronic), CSCT vol 1 2024, pp 1-16(**Scopous**)

(xxix) **Meenakshi Agarwal, Arvind, Chaman Arya, and Ram Ratan** "Fuzzy Soft Set-Based Identification of Best Chaotic System for Security Applications" in **Defence Science Journal,** Vol. 74, No. 6, November 2024, pp. 893-903, DOI : 10.14429/dsj.74.19877-2024 **(SCIE & SCOPUS)**

(xxx) **Ravi Srivastava , Arvind Yadav and Anand Swaroop Prajapati** "Generated Fuzzy Ideals in Semirings " **Journal of Computational Analysis and Applications vol. 33, no. 8,pp-1596-1612, 2024 (Scopous)**

(xxxi) **Ravi Srivastava and Arvind Yadav** "Regular Semigroups and Metatheorem" International Journal of Science, Mathematics and Technology Learning ISSN: 2327-7971 (Print) ISSN: 2327-915X (Online) Vol 32 No. 2, pp- 361-378 2024 DOI: https://doi.org/10.5281/zenodo.14768947 **(Scopous)**

(xxxii) **Sunil Kumar, Gaurav Mittal and Arvind Yadav "**Three Party Post Quantum Secure Lattice Based Construction of Authenticated Key Establishment Protocol for Mobile Communication**"** in the journal of *Concurrency and Computation: Practice and Experience Concurrency 2025; 37:e8369 1 of 16 https://doi.org/10.1002/cpe.8369 (SCIE & SCOPOUS) Impact factor 3*

(xxxiii) **Sunil Kumar, Gaurav Mittal and Arvind Yadav** "A novel and provably secure identity-based blind signature scheme for online transactions" In the Journal of Sadhana (2025) 50:55 (Indian Academy of Sciences) https://doi.org/10.1007/s12046-025-02694-1 *(SCIE & SCOPOUS) Impact factor 1.4*

Resource Person:

(i) Invited as an External Expert for recruitment of JRFs conducted by SAG-DRDO Delhi on 2August 2018.

(ii) Worked as OBSERVER in UGC NET EXAM organized by National Testing Agency on 5th and 11th Nov 2020.

(iii) Worked as OBSERVER in IGNOU Examination in 2018,2019.

(iv) Worked as reviewer in Defense Science Journal , published by Desidoc DRDO.

(v) Chair a session in National conference on "Modern Mathematics and its Applications" organized by dept of Mathematics , Banaras Hindu Universitry from 29-30 Jan 2022.

(vi) Chairman of KV selection board of PRT teachers in Delhi 2023.

Paper presented/ Talk delievered:

(i) The Paper an entitled **" S- box Analysis in light weight block ciphers"** in the National   conference organized by Dept. of Mathematics, Delhi University-2016.

(ii) Delivered Two talks on "**Algebra in Cryptology"** during special training program in DRDO on 04/09/2017.

(iii) Delivered a live TV talk of 30 mins on DD Gyan Darshan on 05/02/2019 on the topic **"Cryptography and its Application in Real world"**.

(iv) A session on **"Promotion Rules and Evaluation"** during one-month Faculty Induction Programme organized by Mahatma Hansraj Faculty Development Centre (supported by MHRD) on 25/06/ 2019.

(v) Delivered a live radio talk of one hour on GYAN VANI (FM 105.6) on 13/08/2019 on the topic **"Utility of Numerical and statistical computing"** .

(vi) Delivered a live TV talk of 30 mins on DD Gyan Darshan on 21/02/2020 on the topic **"Discrete Mathematics and its Applications".**

(vii) Worked as Resource Person in a **"workshop on Mathematica"**   organized by SSCBS, University of Delhi and delivered 16 Sessions from 17/11/20 to 23/11/20

(viii) Worked as Resource Person in a **"Workshop on Practical Aspect of Numerical Analysis Using Mathematica"**   organized by SSCBS, University of Delhi and delivered 16 Sessions from 26/03/21 to 30/04/21.

(ix) Delivered a talk on **Leadership Skills** in a **Workshop** organize by Ramjas College University of Delhi on March 1, 2024

(x) Deliver a talk on **" Cryptography: past , present and post quantum Future"** in 2nd international conference on Advances in mathematics (ICAMS-2025) held on March 08-09 2025, at **Mahatma Gandhi Central University, Motihari (East Champaran) Bihar**

(xi) Deliver a talk on **" Classical Cryptography to post quantum Cryptography "** in National conference on Computational and Theoretical   Advances in mathematical Sciences and their Applications held on March 21-22, 2025, at **CCS University Meerut**

Research Project:

Successfully completed two Innovation Research Project funded by Research council of

university of Delhi.

(1) Study and Security Analysis of Smart Cards.(Cost 5 Lakhs 2015-16)

(2) Understanding the Physical and Geometrical behavior of Differential equations and applicability to the real world.(Cost 3.5 Lakhs 2013-15)

Books / chapters written:

(i) Chapter Titled "Vector Spaces" for Institute of Lifelong Learning, University of Delhi. (ISSN: 2349-154X, ISBN: 978-93-86264-07-7)

(ii) Chapter Titled "Linear Transformations" for Institute of Lifelong Learning, University of Delhi. (ISSN: 2349-154X, ISBN: 978-93-86264-07-7)

(iii)   Author of a book named CALCULUS for B.Sc/B.A. Honours mathematics for Under Graduate students from K. K. Publication (UGC approved Publisher)

(iv) Author of a book named Numerical Methods for B.Sc/B.A. Honours mathematics for Under Graduate students from NAROSA publication.

Conference / Seminar/ workshop organized and Attended :

(i) Completed an Orientation Course for Newly Recruited Scientist-B organized by Institute of Technology Management, Mussoorie from 27 June to 22 July 2005

(ii) Attended a Course on "System Analysis" under continuing educational program of DRDO held at Institute of System Studies and Analyses, Delhi from 12 September to 16 September 2005.

(iii)   Attended a Course on "Cryptology" under continuing educational program of DRDO held at SAG, Delhi from 26 September to 7 October 2005

(iv)   Participated in the course on "Computing Techniques in Cryptology", under continuing educational program of DRDO held at Scientific Analysis Group on 10-14September 2007.

(v) Participated in a national workshop on "Pattern Recognition and Machine Learning for Defence Science Application", organized by Scientific Analysis Group (DRDO) at Metcalfe House Complex, Delhi on 28-29August 2008.

(vi) Participated in the course on "Application of Pattern Recognition in Signal Processing", under continuing educational program of DRDO held at Scientific Analysis Group on 17-21November 2008.

(vii) Attended a Course on "Information Security and Assurance" under continuing educational program of DRDO held at SAG, Delhi from 9-13November 2009.

(viii)Attended a Course on "Building Professional Competence of Young Scientists in R&D Organization" under continuing educational program of DRDO held at Defence Institute of Psychological Research, Delhi from 16-20 August 2010

(ix) Participated in the UGC-Sponsored Orientation programme OR-69 on Professional development in Higher education, organized by CPDHE, University of Delhi on 13 December 2011-9 January 2012.

(x) Participated in the International Conference "The Legacy of Srinivasa Ramanujan", organized by the University of Delhi on 17-22December 2012

(xi) Participated in the three weeks UGC-Sponsored Refresher Course in "Mathematical Sciences", organized by CPDHE (supported by UGC-ASC), University of Delhi from 14 December 2013 to 4 January 2014.

(xii) Participated and successfully completed the three weeks Refresher Course in "Mathematical Sciences", organized by CPDHE (supported by UGC-HRDC), University of Delhi from 26 November to 16 December 2015.

(xiii) Participated in the UGC-Sponsored Workshop on "Academic and Creative Writing", organized by CPDHE (supported by UGC-HRDC), University of Delhi on 20-26 September 2016.

(xiv) Participated in the "Teacher's Enrichment Workshop on Differential Equation, Mathematical Modelling & Analysis", organized by National Centre for Mathematics, held at Deshbandhu College, New Delhi on 24-29July 2018.

(xv) Participated in a Workshop on "How to get Published Research Papers in Right Journals", on 27October 2018 organized by Great India Educational Charitable Trust at Hansraj College, University of Delhi on the occasion of 87th bith anniversary of hon'ble president of India Bharat Ratna Lt. Dr. APJ Abdul Kalam.

(xvi) Organized a one-week faculty development programme on "Software Packages on Mathematical Sciences" at Mahatma Hansraj Faculty Development Centre (supported by MHRD) from 14 -19November 2018.

(xvii) Participated in two-week faculty development programme on "Challenges before the academia era of Gadgets, E-Communications and A.I(interdisciplinary)", organized by Mahatma Hansraj Faculty Development Centre (supported by MHRD) from 15 - 28December 2018.

(xviii) Organized a one-day workshop on "Prevention of Sexual Harassment at Workplace" in Hansraj College, University of Delhi.

(xix) Worked as Reviewer and Organizing team member in Ist International conference on Networks and Cryptology , organized by School of computers and Systems sciences, JNU , New Delhi on 14-16 June 2019.

 (xx) Participated in Ist International conference on Networks and Cryptology, organized by School of computers and Systems sciences, JNU , New Delhi on 14-16 June 2019.

(xxi) Participated as a Judge for an event in Annual festival Expression 2019 at Army public School Shanker Vihar on 19 July 2019.

(xxii) Participated in one week faculty development program " ICT in Education and Cyber Security " organized by mahatma Hansraj Faculty Development Centre (supported by MHRD)from 10 july-16 july 2019

(xxiii) Coordinator of one week faculty development program " Understanding the connection of mathematics with the world around us : An application based learning " organized by mahatma Hansraj Faculty Development Centre from 20 june-26 june 2019.

(xxiv) Coordinator of one month Faculty Induction program organized by mahatma Hansraj Faculty Development Centre(supported by MHRD) from 17 june-16 july 2019.

(xxv) Attended a one day webinar on " Teachers and Technology : The Road Ahead"organized by mahatma Hansraj Faculty Development Centre(supported by MHRD) on 25/04/2020

(xxvi) Attended a three days webinar on " Stress Management "organized by Mahatma Hansraj Faculty Development Centre(supported by MHRD) from 1st may - 3rd May 2020 .

(xxvii) Attended a three days webinar on " Covid 19: Challenges and Road Ahead "organized by Mahatma Hansraj Faculty Development Centre(supported by MHRD) from 7th may – 9th May 2020 .

(xxviii) Attended a one day webinar "Global Panel Discussion on Education 4.0 : The Revolution "organized by Shri Vishwakarma Skill University on 11/05/2020 .

(xxviii) Attended a two days webinar on " Myths and Truths of Fitness and corrective Exercises for Various Body Deformities "organized by Mahatma Hansraj Faculty Development Centre(supported by MHRD) from 12th may -13th May 2020 .

(xxix) Coordinator of one week faculty development program " Applications of Algebra and Number theory in Network security" organized by mahatma Hansraj Faculty Development Centre from 22Dec -29 Dec 2020.

(xxx) Coordinator of two week faculty development program "Usage of ICT in Education : Challenges and Opportunities During COVID-19" organized by mahatma Hansraj Faculty Development Centre in Collaboration with CCS University Merrut from 2July - 15July 2021.

(xxxi) Convener of an International Conference **"RECENT TRENDS IN MATHEMATICS"** organized by Dept. of Mathematics, Hansraj College, University Of Delhi in Collaboration with Mahatma Hansraj Faculty Development Centre from 22/12/21 to 24/12/21.

(xxxii) Attended a refresher course of **NCC** at **Officers Training Academy , Kamptee, Nagpur** from 19th July -27th Aug 2022 and got Certificate of Appreciation.

(xxxiii) Attended a Refresher Course "NEP 2020 Orientation & Sensitization Programme" (03rd June – 13th June, 2024) under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission(UGC) organised by Mahatma Hansraj Malaviya Mission Teacher Training Centre (MH-MMTTC), Hansraj College, University of Delhi

Extra circular activities:

(1) Successfully completed 3 Months NCC Direct Commission Course with **Commandand Silver Medal** at OTA Kamptee (Nov 2017-Feb 2018)

(2) Awarded the Best Researcher award 20180 on oct 27, 2108 by Grace India Charitable trust at Hansraj college , university of Delhi

(3) Working as Associate NCC officer **(Lieutenant)** from 1st Jan 2012 to till Date

(4) N.C.C. 'B 'and 'C' Certificate holder.

Hobbies:

Net Surfing, Playing & Watching Cricket, Listening Music, Watching movies.

Summary about me:

· Excellent analytical, quantitative, interpersonal and problem solving skills.

· Ability to learn new ideas and concepts quickly and desire to solve the new challenges.

· Having good communication skills and excellent worker qualities while working individual as well as in group.

Personnel Profile:

Name	Prof (Dr.) ARVIND
Father's	Shri Babu Ram Yadav
Date of Birth	13th Feb. 1979
Corresponding Address	R 916 VVIP Addresses Raj Nagar Extension Ghaziabad (U.P.) 201017
Language Known	English & Hindi

Date :   **Place: Delhi**

(Dr. Arvind)