
CURRICULUM VITAE

Pramod Kumar Kewat

Professor

Department of Mathematics & Computing

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Experience :

- Professor, IIT(ISM) Dhanbad, April 2026 - Present.
- Associate Professor, IIT(ISM) Dhanbad, April 2021 - April 2026.
- Assistant Professor, IIT(ISM) Dhanbad, January 2012 - April 2021.
- Post Doctoral Fellow, IMSc, Chennai, May 2011 - January 2012.

Educational Qualifications :

• Doctor of Philosophy

Institute : IIT Bombay, Mumbai, Maharashtra, India.
Thesis title : On the exterior square L -function of GL_n .
Thesis Supervisor : Dr. Ravi Raghunathan.
Year : 2011

• Master of Science

University : Banaras Hindu University, Varanasi, U.P., India.
Subject : Mathematics.
Division & Year : First (86.6%, 2nd Rank in the University), 2003.

• Bachelor of Science

University : V.B.S. Purvanchal University, Jaunpur, U.P., India.
Subject : Mathematics, Physics & Chemistry.
Division & Year : First (69.27%), 2001.

Research Interests :

- Area of Research: Algebraic Coding Theory & Number Theory.

Publications:

1. P. K. Kewat. The local exterior square L -function: Holomorphy, non-vanishing and Shalika functionals, *Journal of Algebra*, 347, 153-172, 2011.
2. P. K. Kewat and R. Raghunathan. On the local and global exterior square L -functions of GL_n , *Mathematical Research Letters*, 19(4), 785-804, 2012.
3. A. K. Singh and P. K. Kewat. On cyclic codes over ring $\mathbb{Z}_p[u]/\langle u^k \rangle$, *Design Codes Cryptography*, 74(1), 1-13, 2015.
4. P. K. Kewat, B. Ghosh and S. Pattanayak. Cyclic codes over the ring $\mathbb{Z}_p[u, v]/\langle u^2, v^2, uv - vu \rangle$, *Finite Fields and Their Applications*, 34, 161-175, 2015.
5. P. K. Kewat and P. Kumari. Cyclic codes from the second class two-prime Whiteman's generalized cyclotomic sequence with order 6, *Cryptography and Communications*, 9(4), 475-499, 2017.
6. P. K. Kewat and S. Kushwaha. Cyclic codes over the ring $\mathbb{F}_p[u, v, w]/\langle u^2, v^2, w^2, uv - vu, vw - wv, uw - wu \rangle$, *Bulletin of Korean Mathematical Society*, 55(1), 115-137, 2018.
7. P. K. Kewat and S. Kushwaha. Gray images of $(1-u)$ -Constacyclic codes over the ring $\mathbb{F}_{p^k} + u\mathbb{F}_{p^k} + v\mathbb{F}_{p^k} + uv\mathbb{F}_{p^k}$, *Asian-European Journal of Mathematics*, 11(2), 1850026, 2018.
8. P. K. Kewat and P. Kumari. Cyclic codes from the first class two-prime Whiteman's generalized cyclotomic sequence with order 6, *Bulletin of Korean Mathematical Society*, 56(2), 285-301, 2019.
9. P. K. Kewat and R. Kumar. Hypergeometric functions and algebraic curves $y^e = x^d + ax + b$, *Journal of the Ramanujan Mathematical Society*, 34(3), 325-342, 2019.
10. Ankur and P. K. Kewat. Type I and Type II codes over the ring $\mathbb{F}_2 + u\mathbb{F}_2 + v\mathbb{F}_2 + uv\mathbb{F}_2$, *Asian-European Journal of Mathematics*, 12(2), 1950025, 2019.
11. P. Kumari and P. K. Kewat. 2-adic and linear complexities of a class of Whiteman's generalized cyclotomic sequences of order four, *International Journal of Foundations of Computer Science*, 30(5), 759-779, 2019.
12. H. Q. Dinh, P. K. Kewat, S. Kushwaha and W. Yamaka. On constacyclic codes of length p^s over $\mathbb{F}_{p^m}[u, v]/\langle u^2, v^2, uv - vu \rangle$, *Discrete Mathematics*, 343(8), 111890, 2020.
13. Ankur and P. K. Kewat. Decomposition of self-dual codes over the ring $\mathbb{F}_2 + u\mathbb{F}_2 + v\mathbb{F}_2 + uv\mathbb{F}_2$, *Malaysian Journal of Mathematical Sciences*, 14(3), 15-27, 2020.

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14. Ankur and P. K. Kewat. Self-dual codes over $\mathbb{F}_2[u]/\langle u^4 \rangle$ and Jacobi forms over a totally real subfield of $\mathbb{Q}(\zeta_8)$, *Design Codes Cryptography*, 89, 1091-1109, 2021.
 15. H. Q. Dinh, P. K. Kewat and N. K. Mondal. Lee Distance of $(4z - 1)$ -Constacyclic Codes of Length 2^s over the Galois Ring $GR(2^a, m)$, in *IEEE Communications Letters*, 25(7), 2114-2117, 2021.
 16. H. Q. Dinh, T. Bag, P. K. Kewat, S. Pathak, A. K. Upadhyay and W. Chinakum. Constacyclic codes of length (p^r, p^s) over mixed alphabets, *J. Appl. Math. Comput.* 67, 807-832, 2021.
 17. H. Q. Dinh, P. K. Kewat and N. K. Mondal. Lee distance of cyclic and $(1+u\gamma)$ -constacyclic codes of length 2^s over $\mathbb{F}_{2^m} + u\mathbb{F}_{2^m}$, *Discrete Mathematics*, 344(11), 112551, 2021.
 18. P. K. Kewat and R. Kumar. Generalizations of Jacobsthal sums and hypergeometric series over finite fields, *Ramanujan Journal*, 56, 993-1006, 2021.
 19. H. Q. Dinh, P. K. Kewat, S. Kushwaha and W. Yamaka. Self-dual constacyclic codes of length 2^s over the ring $\mathbb{F}_{2^m}[u, v]/\langle u^2, v^2, uv - vu \rangle$, *J. Appl. Math. Comput.* 68, 431-459, 2022.
 20. H. Q. Dinh, P. K. Kewat and N. K. Mondal. Lee distance distribution of repeated-root constacyclic codes over $GR(2^e, m)$ and related MDS codes, *J. Appl. Math. Comput.*, 68(6), 3861-3872, 2022.
 21. P. K. Kewat and R. Kumar. Some supercongruences related to truncated hypergeometric series, *Ramanujan Journal*, 60, 157-173, 2023.
 22. Ankur and P. K. Kewat. Binary Self-dual codes and Jacobi forms over a totally real subfield of $\mathbb{Q}(\zeta_8)$, *Applicable Algebra in Engineering, Communication and Computing*, 34(3), 377-392, 2023.
 23. P. K. Kewat and N. K. Mondal. Two classes of few-Lee weight $\mathbb{Z}_2[u]$ -linear codes using simplicial complexes and minimal codes via Gray map, *Discrete Mathematics*, 346(12), 113650, 2023.
 24. V. Tiwari and P. K. Kewat. CSS codes and QSCs from Whiteman's Generalized Cyclotomy of order four, *IEEE International Symposium on Information Theory (ISIT)*, 619-624, 2023.
 25. H. Q. Dinh, P. K. Kewat and N. K. Mondal. Symbol-pair distance of some repeated-root constacyclic codes of length p^s over the Galois ring $GR(p^a, m)$, *Applicable Algebra in Engineering, Communication and Computing*, 35(2), 195-205, 2024.

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26. H. Q. Dinh, P. K. Kewat and N. K. Mondal. Maximum distance separable repeated-root constacyclic codes over $\mathbb{F}_{2^m} + u\mathbb{F}_{2^m}$ with respect to the Lee distance, *Applicable Algebra in Engineering, Communication and Computing*, 35(4), 557-571, 2024.
 27. S. Bansal and P. K. Kewat. An infinite family of additive codes over the ring $\frac{\mathbb{F}_2[u]}{\langle u^4 \rangle}$ with Lee distance 8, *IEEE International Symposium on Information Theory (ISIT)*, 1-6, 2025.
 28. P. K. Kewat and V. Tiwari. Applications of order six cyclotomy to construct CSS quantum codes and quantum synchronizable codes, *Quantum Information Processing*, 24, 270, 2025.
 29. S. Bansal and P. K. Kewat. A family of optimal linear codes of length 2^s over the ring $\frac{\mathbb{F}_2[u]}{\langle u^2 \rangle}$ with Lee distance 4, *Filomat*, 39(30), 10847-10862, 2025.
 30. P. K. Kewat and V. Tiwari. Construction of good CSS quantum codes and QSCs using Whiteman's generalized cyclotomy of order two, *Quantum Information Processing*, 24, 344, 2025.
 31. S. Bansal and P. K. Kewat. Binary polycyclic codes associated with $x^{2^{\eta+1}} + x^{2^{\eta}} + 1$: Hamming distance, duality, reversibility and LCD properties, *Finite Fields and Their Applications*, 110, 102741, 2026.
 32. V. Tiwari and P. K. Kewat. Construction of good cyclic codes and quantum error correcting codes using reversed Dickson polynomials, *Discrete Mathematics*, 349(3), 114885, 2026.
 33. S. Bansal and P. K. Kewat. A family of optimal dual-containing and reversible linear codes over $\mathbb{F}_4$, *Finite Fields and Their Applications*, 111, 102777, 2026.
 34. V. Tiwari and P. K. Kewat. The minimum distance of three classes of primitive BCH codes and certain classes of cyclic codes, *IEEE Transactions on Information Theory*, 72(5), 2881-2906, 2026.
 35. S. Bansal and P. K. Kewat. On the construction of reversible linear codes over the field $\mathbb{F}_{2^r}$, Accepted for the publication in *IEEE International Symposium on Information Theory (ISIT)*, 2026.

Ph.D. supervision:

- Mr. Bappaditya Ghosh (Degree awarded, 2016); On Codes over the Ring $\mathbb{F}_q[u, v]/\langle u^k, v^2, uv - vu \rangle$.
- Ms. Sarika Kushwaha (Degree awarded, 2018); On Constacyclic Codes over Certain Finite Commutative Local Non Chain Rings.
- Ms. Priti Kumari (Degree awarded, 2018); On 2-adic and Linear Complexities of Generalized Cyclotomic Sequences with Period Product of Two Distinct Odd Primes.

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- Mr. Ankur (Degree awarded, 2020); Codes over Finite Commutative Local Rings and their Relation with Lattices, Theta Series and Jacobi Forms.
 - Mr. Ram Kumar (Degree awarded, 2020); Hypergeometric Functions over Finite Fields and their Connection to Algebraic Curves.
 - Mr. Nilay Kumar Mondal (Degree awarded, 2022); Lee distance of certain classes of linear codes over some finite chain rings with even characteristics.
 - Ms. Ekta Bindal (Degree awarded, 2024), Co-Supervisor.
 - Ms. Varsha Tiwari (Degree awarded, 2026); On the Construction of CSS Quantum Codes and Quantum Synchronizable Codes.
 - Ms. Sujata Bansal (Ongoing, 2021-).
 - Shovana Datta (Ongoing, 2023-).
 - Kalyan Ghosh (Ongoing, 2024-).
 - Subhendu Ghosh (Ongoing, 2024-).

M. Phil supervision:

- Mr. Vikash Kumar Prasad (Degree Awarded, 2014); A study of cyclic codes over the ring $\mathbb{F}_2 + u\mathbb{F}_2$.
- Mr. Chandra Sekhar Sahu (Degree Awarded, 2015): Hypergeometric functions over finite fields.

PG project supervision: Degree awarded - 35 and Ongoing - 02.

Research Projects:

- CRG entitled “Lee distance distributions of linear codes over finite chain rings and construction of good codes over finite fields” sponsored by Science and Engineering Research Board (SERB), India (Sanctioned Amount: Rs. 24.03 Lakh, Sanctioned date: 16/05/2024, Ongoing).
- MATRICS grant entitled “Linear complexity, 2-adic complexity and autocorrelation values of generalized cyclotomic sequences” sponsored by Science and Engineering Research Board (SERB), DST, India (Sanctioned Amount: Rs. 6.60 Lakh, Sanctioned date: 09/05/2018, Completed).
- Start-Up Research Grant (Young Scientists) entitled “Linear and cyclic codes over finite local rings” sponsored by Science and Engineering Research Board (SERB), DST, India (Sanctioned Amount: Rs. 15.02 Lakh, Sanctioned date: 20/09/2016, Completed).
- FRS Research Project sponsored by IIT(ISM) Dhanbad (Sanctioned Amount: Rs. 3.20 Lakh, Sanctioned date: 27/03/2013, Completed).

Awards/Scholarships :

- National Eligibility Test for Lectureship (NET), jointly conducted by Council of Scientific and Industrial Research and University Grant Commission, India, December-2003.
- Graduate Aptitude Test in Engineering (GATE)-2004 with All India Rank - 160.
- Council of Scientific and Industrial Research (CSIR)- Junior Research Fellowship, June-2004 (Among Top 20%).
- Department of Science and Technology and International Center for Theoretical Physics (DST-ICTP) fellowship 2007.
- National Board for Higher Mathematics (NBHM) Post Doctoral Fellowship, 2011.
- The Institute of Mathematical Sciences Post Doctoral Fellowship, 2011.

Conferences/Seminars/Workshops Participation:

• International:

- Asian-French Summer School in Algebraic Geometry and Number Theory 2006 : Motives and related topics held at Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, Paris, France, during July 17-29, 2006.
- Summer School and Conference on Automorphic Forms and Shimura Varieties held at The Abdus Salam International Center for Theoretical Physics, Miramare, Trieste, Italy, during July 9-27, 2007.
- Satellite Conference on Galois Representations in Arithmetic and Geometry held at International Center, Goa, India, during August 10-13, 2010.
- International Congress of Mathematicians, 2010 held at Hyderabad, India during August 19-27, 2010.
- The 4th ILJU School of Mathematics-Theta Festival held at POSTECH, Pohang, South Korea, during August 13-19, 2011.
- The International Colloquium on Automorphic Representations and L-Functions held at Tata Institute of Fundamental Research, Mumbai, India, during January 3-12, 2012.
- Indo-French Symposium on Automorphic forms, Galois representations and L-functions held at IISER Pune during September 3-7, 2012.
- Summer School on Gan Gross Prasad Conjectures held at Institute of Mathematics, Jussieu, Paris, France during June 18-27, 2014.

• **National:**

- 21st Ramanujan Mathematical Society Annual Conference/Workshop held at University of Hyderabad, Hyderabad, India, during July 3-8, 2006.
- National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013) held at IIT(ISM) Dhanbad during February-16, 2013.
- 80th Annual conference of IMS held at IIT(ISM) Dhanbad during December 27-30, 2014.
- 7th National conference of Wave Mechanics and Vibrations held at IIT(ISM) Dhanbad during December 21-23, 2015.
- National Conference on Recent Advances in Science and Engineering held at IIT(ISM) Dhanbad during March 28-29, 2016.
- NCM workshop on Analytic Number Theory held at ISI Kolkata during December 26-31, 2017 (as a Tutor).

Conferences/Seminars/Short term courses/Workshops organized:

- Treasurer, 7th National conference of Wave Mechanics and Vibrations (7th WMVC) held at IIT(ISM) Dhanbad during December 21-23, 2015.
- Programme Coordinator, 1st Orientation programme of Faculty Development Center held at IIT(ISM) Dhanbad during February 09-29, 2016.
- Organizing Secretary, National Conference on Recent Advances in Science and Engineering held at IIT(ISM) Dhanbad during March 28-29, 2016.
- FDC Co-coordinator, 1st Refresher course in recent trends in microwave devices and antennas of Faculty Development Center held at IIT(ISM) Dhanbad during December 26, 2016-January 15, 2017.
- Programme Coordinator, Refresher Programme in Mathematical Sciences of Faculty Development Center held at IIT(ISM) Dhanbad during May 16, 2017-June 05, 2017.
- FDC Co-coordinator, Refresher Programme in Physics of Faculty Development Center held at IIT(ISM) Dhanbad during May 25, 2017-June 14, 2017.
- FDC Co-coordinator, Refresher Programme in Chemistry of Faculty Development Center held at IIT(ISM) Dhanbad during June 1-21, 2017.
- FDC Co-coordinator, National Training Programme on Mineral Processing of Faculty Development Center held at IIT(ISM) Dhanbad during June 26-July 01, 2017.

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- Programme Coordinator, National Training Programme in Scientific Computing with Mathematica of Faculty Development Center held at IIT(ISM) Dhanbad during December 04-09, 2017.
 - Programme co-coordinator, National Training Programme on Research Methodology of Faculty Development Center held at IIT(ISM) Dhanbad during December 18-23, 2017.
 - FDC Co-coordinator, National Training Programme on Wireless Sensor Networks of Faculty Development Center held at IIT(ISM) Dhanbad during December 18-22, 2017.
 - Programme co-coordinator, Induction Training/Orientation Programme of Faculty Development Center held at IIT(ISM) Dhanbad during December 28, 2017-January 25, 2018.
 - FDC Co-coordinator, Refresher Programme in Physics of Faculty Development Center held at IIT(ISM) Dhanbad during May 29-June 18, 2018.
 - FDC Co-coordinator, Refresher Programme in Chemistry of Faculty Development Center held at IIT(ISM) Dhanbad during June 08-28, 2018.
 - Programme co-coordinator, Induction Training/Orientation Programme of Faculty Development Center held at IIT(ISM) Dhanbad during November 15, 2019-December 12, 2019.
 - Joint Secretary, National Conference on Modeling Analysis & Simulation (MAS-2019) held at IIT(ISM) Dhanbad during December 16-18, 2019.
 - Convener, International Conference on “Recent Trends in Applied Sciences and Computing Engineering” (RTASCE -2021) with collaboration of VIT University Bhopal held at VIT Bhopal during December 17-19, 2021.
 - Convener, A one-day workshop on the occasion of National Mathematics Day 2021 held at IIT(ISM) Dhanbad on December 22, 2021.
 - Co-Coordinator, Workshop on Post Quantum Cryptography-I (Design and Analysis of Quantum Safe Public Key Cryptosystems) held at IIT(ISM) Dhanbad during April 13-17, 2024.
 - Co-Coordinator, Workshop on Theoretical, Algorithmic, and Spectral approaches in Graph Theory held at IIT(ISM) Dhanbad during May 09-11, 2025.
 - Co-Coordinator, Workshop on Post Quantum Cryptography-II held at IIT(ISM) Dhanbad during June 25-28, 2025.

Talks :

- Seminar talk at Indian Institute of Technology Bombay, Mumbai, India, January 2009.

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- Colloquium talk at Institute of Mathematical Sciences, Chennai, India, June 2011.
 - Delivered 4 lectures on Analysis in Undergraduate Training Programme in Linear Algebra and Analysis at IIT(ISM) Dhanbad, during May 28-June 6, 2012.
 - Seminar talk at Indian Institute of Technology Bombay, Mumbai, India, January 2013.
 - Two lectures on Linear Algebra in the Refresher Programme in Mathematical Sciences held at IIT(ISM) Dhanbad, during May 16, 2017-June 05, 2017.
 - Seminar talk on “Some supercongruences related to truncated hypergeometric series” at DIT University, Dehradun, Uttarakhand, on the occasion of National Mathematics Day 2020.
 - A talk on “Primality Testing” in the Refresher Course on Mathematical tools for Physical and Computational Sciences held at Dr. Harisingh Gour Vishwavidyalaya Sagar, M.P., during September 24-October 08, 2021.
 - Two lectures on “Public Key Cryptosystems” in the Training program on Mathematical Methods with Applications held at IIT(ISM) Dhanbad during March 14-20, 2023.
 - A talk on “Public Key Cryptosystems” in the 2nd International Conference on “Recent Trends in Mathematical, Physical And Computational Sciences (ICRTMPCS-2023)” held at Dr. Harisingh Gour Vishwavidyalaya Sagar, M.P., during March 17-19, 2023.
 - A talk on “Bounds and Construction of Linear Codes” in the Workshop on Algebraic Codes and MAGMA Computation held at IIT Patna, during November 10-11, 2023.
 - Two Lectures on Basics of Coding Theory in the Workshop on Post Quantum Cryptography-I (Design and Analysis of Quantum Safe Public Key Cryptosystems) held at IIT(ISM) Dhanbad, during April 13-17, 2024.
 - Two Lectures on Coding Theory in the Workshop on Post Quantum Cryptography-II held at IIT(ISM) Dhanbad, during June 25-28, 2025.
 - A talk on “On the Hamming distance of primitive BCH codes” in the International Symposium on Rings, Modules, Algebras and Their Applications as a part of ICMSC-2025 held at Department of Mathematics, NERIST Nirjuli, Arunachal Pradesh, during June 26-28, 2025.
 - A talk on “Primality Testing” at Department of Mathematics & Statistics, Deen Dayal Upadhyaya Gorakhpur University, U.P., on the occasion of National Mathematics Day 2025.

Administrative/Extra-curricular activities:

- Convener, DPGC, 2024 - Present.
- Chairman, JEE (Advanced)-2023.
- Vice-Chairman, JEE (Advanced)-2021 and 2022.
- Chief Warden, Diamond Hostel, 2021-2022.
- Member, DPGC, 2020-2022.
- Warden, Diamond Hostel, 2019-2021.
- Member, GATE-JAM Committee, 2019-2021.
- Member, M. Tech admission Committee, 2017-19.
- Time-Table in-charge, Department of Mathematics & Computing, IIT(ISM) Dhanbad, 2018-2022.
- Faculty Mentor, I B. Tech (common), 2017-18 and 2018-19.
- Deputy coordinator, Faculty Development Centre (FDC) (under the scheme of Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching funded by Department of Higher Education, Ministry of Human Recourse and Development, Government of India), IIT(ISM) Dhanbad (2015-2021).
- Faculty Advisor, Integrated M.Tech (M&C), July 2012-May 2016 and July 2016-May 2021.
- Third position holder in Hindi essay writing for faculty and officers category organized during Hindi Pakhwara, 2016 at IIT(ISM) Dhanbad.
- Second position holder in Hindi essay writing for faculty and officers category organized during Hindi Pakhwara, 2014 at IIT(ISM) Dhanbad.
- Tabulator (Exam) for session 2013-14.
- Course coordinator, II B.Tech (common) (for the course Mathematics-II), Winter Semester, 2022-23, 2023-24 and 2024-25.
- Course coordinator, III B.Tech (common) (for the course Methods of Applied Mathematics-I), Monsoon Semester, 2014-15.
- Course coordinator, III B.Tech (common) (for the course Methods of Applied Mathematics-I), Monsoon Semester, 2012-13.
- Reviewer for Mathematical Reviews and several international journals.