Curriculum Vitae

Name   Dr. Ashima

E-mail Address   ashima@hrc.du.ac.in

Present Designation   Assistant Professor

Department   Mathematics

Organisation   Hansraj College
                              University of Delhi

Research Area   Finite Fields and Cryptography

Education :

Degree	Passing Year	Subject	University
B. Sc. (Non-Medical)	2015	Mathematics, Physics and Chemistry	Guru Nanak Dev University, Amritsar
M. Sc.	2017	Mathematics	Guru Nanak Dev University, Amritsar
Ph. D.	2022	Mathematics	Himachal Pradesh University, Shimla

Achievements :

- Qualified **CSIR NET- JRF** in December, 2017.
- Qualified **GATE** in Mathematics in 2018.

During the Tenure of Ph. D. :

- I had given a presentation on Srinivasa Ramanujan, A Great Indian Mathematician on National Mathematics Day (22nd December, 2020) celebrated in the Department of Mathematics, H. P. University, Shimla.
- My article entitled "On Catalan's Conjecture" is published in the Magazine of Department of Mathematics, H. P. University, Shimla.
- I have secured third position in the Man- Making and Nation Building Programme, "Arise! Awake! Declamation Competition" on the occasion of "Universal Brotherhood Day"-2021.
- I have presented the Life and Work of Srinivasa Ramanujan on National Mathematics Day (22nd December, 2021) celebrated in the Department of Mathematics, H. P. University, Shimla.

- I got the best paper presenter award in *National e-Conference on "Industrial Mathematics and Opportunities in IT"* organized by **Department of Mathematics, Loknete Vyankatrao Hiray Arts, Science and Commerce College, Nashik** held during March 22-23, 2022.

Teaching Experiences :

- I have given free coaching to the students of 11th and 12th for JEE Examinations of SVM Schools, Bilaspur, H. P.
- I have taught Mathematics to the students of B. Tech. in University Institute of Technology (UIT), H. P. University, Shimla during the period 2019-2022.
- I have taught the courses of Vedic Mathematics in H. P. University, Shimla.
- I have taught/guided the M. Sc. students for the preparation of NET/ JRF in the Department of Mathematics, H. P. University, Shimla.
- I have taught Mathematics to the students of M. Sc. Chemistry, H. P. University, Shimla.

Research Publications/ Submissions :

Sr. No.	Research Paper	ISSN
1.	Sharma P. L., Ashima and Sharma Arun Kumar, *Recursive Construction of Normal Polynomials over Finite Fields,* **Journal of Discrete Mathematical Sciences and Cryptography**, 2022, Vol. 25, No. 8, pp. 2645-2660.	0972-0529
2.	Sharma P. L. and Ashima, *Construction of Irreducible Polynomials over Finite Fields*, **Asian-European Journal of Mathematics,** 2022, Vol. 15, No. 07, 2250130.	1793-5571
3.	Sharma P. L., Ashima, Gupta Shalini, Harish Mansi and Kumar Sushil, *Constructions of Irreducible Polynomials over Finite Fields with Even Characteristic,* **Indian Journal of Pure and Applied Mathematics**, 2022, Published Online, https://doi.org/10.1007/s13226-022-00291-0	0975-7465

4.	Sharma P. L., Kumar Sushil, Ashima and Dhiman Neetu, *On Permutation Polynomials Modulo 7^n,* **Journal of Discrete Mathematical Sciences and Cryptography**, 2022, Accepted for Publication.	0972-0529
5.	Sharma P. L., Kumar Arun and Ashima, *Some Trace Inequalities of a Special Type of Rhotrix,* **GANITA,** 2022, Vol. 72, No. 1, pp. 57-67.	0046-5402
6.	Sharma P. L., Ashima and Gupta Kritika, *Time Efficient Authenticated Encryption Scheme using Elliptic Curve Cryptography,* **Himachal Pradesh University Journal**, Accepted for Publication.	2277-1425
7.	Sharma P. L., Gupta Kritika, Badoga Nikhlesh Kumar and Ashima, *A New Mapping Scheme Using Elliptic Curve Cryptography*, **The Journal of Oriental Research Madras**, 2021, Vol. XCII-LXXVIII (November 2021), pp. 38-48.	0022-3301
8.	Sharma P. L., Gupta Kritika, Badoga Nikhlesh Kumar, Ashima and Monga Himanshu, *Authenticated Public Key Encryption Scheme using Elliptic Curve Cryptography,* **International Journal of Ubiquitous Computing,** 2022, Vol. 13, No. 1, pp. 19-31.	2278-3075
9.	Sharma P. L., Gupta Shalini, Gupta Kritika, Ashima and Kumar Sushil, *Message Mapping Technique Using Elliptic Curve Cryptosystem,* **Bulletin of Pure and Applied Sciences- Math& Stat.**, 2022, Vol. 41E, No. 1, pp. 104-108.	2320-3226

Details of Papers Presented in International/National Conferences:

1. Paper entitled "*Recursive Constructions of Normal Polynomials Over Finite Fields*" presented in the *International Conference on "Class groups on number fields and related topics – 2021"* (online), organized by **Kerala School of Mathematics** held during October 21-24, 2021.

2. Paper entitled **"Construction of Irreducible Polynomials Over Finite Fields"** presented in the *International Conference on Recent Trends in Mathematical Sciences (ICRTMS - 2021)* organized by **Himachal Ganita Parishad** held during December 11-12, 2021.

3. Paper entitled "*Recursive Constructions of k-Normal Polynomials Using Some Suitable Transformations Over Finite Fields*" presented in the **4ᵗʰ *International Conference on "Frontiers in Industrial and Applied Mathematics*** organized by **Department of Mathematics, Sant Longowal Institute of Engineering & Technology, Longowal** held during December 21-22, 2021.

4. Paper entitled "*Some New Classes of Irreducible Polynomials Over Finite Fields*" presented in the *National e-Conference on "Industrial Mathematics and Opportunities in IT"* organized by **Department of Mathematics, Loknete Vyankatrao Hiray Arts, Science and Commerce College, Nashik** held during March 22-23, 2022.

5. Paper entitled **"Construction of Some New Classes of Irreducible Polynomials Over Finite Fields"** presented in the *2ⁿᵈ International Conference on Recent Trends in Mathematical Sciences (ICRTMS - 2022)* organized by **Himachal Ganita Parishad** held during December 27-28, 2022.

List of Conferences/ Workshop/ Seminar/ Webinar Attended:

1. "International Conference on Algebra and Continuum Mechanics" organized under UGC SAP-DRS-II held in the Department of Mathematics and Statistics, Himachal Pradesh University, Shimla during November 23-25, 2018.

2. National Workshop on "Sustainable Development Goals" on the auspicious occasion of Statistics Day- 29ᵗʰ June 2019, organized by Department of Interdisciplinary Studies, Department of Mathematics and Statistics, Department of Economics and Statistics of Government of Himachal Pradesh.

3. National Workshop on "Quantum computing" under the AICTE Training and Learning (ATAL) Academy held at UIIT, H. P. University, Shimla on September 2-6, 2019.

4. National Webinar on "Metric Space and Fixed-Point Theorem" organized by Department of Mathematics, I. B. (PG) College, Panipat held on June 6, 2020.

5. Online Workshop on "Python Software" organized by Department of Mathematics, Modern college of Arts, Science and commerce, Ganeshkhind, Pune-16, held on 13th and 14th August 2020.

6. International Workshop on "Geometry of Continued Fractions: Ramanujan and his Successors" organized by Srinivasa Ramanujan Department of Mathematics, Centre for Vedic Mathematical Sciences, Central University of Himachal Pradesh, Dharamshala during September 14-15, 2020.

7. Online Instructional School for Teachers on "Linear Algebra" hosted by National Institute of Technology (NIT) Arunachal Pradesh during February 20-March 28, 2021.

8. National webinar on "आज के संदर्भ में वैदिक गणित की प्रसंगिकता" organized by the Central University of Himachal Pradesh, Dharamshala held on 3rd September, 2021.

9. National Webinar on 'Cryptography' during September 10-12, 2021, organized by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon in collaboration with Indian Institute of Information Technology, Lucknow.

10. International Conference on "Class groups on number fields and related topics – 2021" (online), held during the October 21-24, 2021 at the Kerala School of Mathematics.

11. National Seminar on "74th Punya Tithi of Mahatma Gandhi" on the occasion of 75 Azadi ka Amrit Mahotsav organized by National Institute of Technology, Arunachal Pradesh on January 30, 2022.

12. International Webinar on "Intelligent Optimization Techniques and Their Real-Life Applications" organized by Department of Mathematics, Punjabi University, Patiala held during February 25-27, 2022.

13. Webinar on "Latex Software" organized by School of Chemical Engineering and Physical Sciences, Lovely Professional University, Punjab on July 8, 2022.

14. Participated in One Month "Faculty Induction Programme" organized by Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi during December 1-30, 2022.

15. Participated in Two weeks "Faculty Development Programme" on "Computer Algebra Systems" organized by Mahatma Hansraj Faculty Development Centre, Hansraj College in collaboration with IQAC, Ramjas College during March 22-April 3, 2023.

Administrative work in College:

1. Subject Coordinator, Mahatma Hansraj Faculty Development Centre, Hansraj College.
2. Member, Girls Hostel Committee, Hansraj College.
3. Member, HRC Journal of Contemporary Science, Hansraj College.