CURRICULUM VITAE

Dr. PANKAJ KUMAR

Associate Professor,

Srinivasa Ramanujan Department of Mathematics

Central University of Himachal Pradesh, Dharamshala

Educational Qualification:

PhD : Galgotias University,

M.E : Thapar University, Patiala, Punjab

M.A. **:** D.J. College Baraut (Baghpat), C.C.S. University, Meerut (U.P)

Awards **:** CSIR –JRF (Mathematics), SPM Call (Mathematics), GATE Qualified (Mathematics) UGC-JRF (Computer Science), UGC-NET (Education), Best thesis of the year, Gold medal in PhD

Patents Granted:

1. Nano network ECC authentication, Device Application 427887, published and granted, the patent office, Government of India.
2. Quantum Teleportation Based Communication Device, 441307-001, published and granted, the patent office, Government of India.

Edited book:

1. Thakur SKR , R. Prakash, B. Singh.V.K.Jain, P. Kumar, K. Sood "Indian Education for Global Welfare", V.B. Educational Trust. ISBN No.9788197023361

List of Publications

Paper Published in Journals

Publications in Q1

1. A. Rana, Deepika, P. kumar, A.K. Das "Architectures, Benefits, Security and Privacy Issues in Internet of Nano Things: A Comprehensive Survey, Opportunities and Research Challenges" published in IEEE communication survey and Tutorials. **(SCI, Q1, IF 34.5)** 10.1109/COMST.2024.3423477,2024,

2. A. Rana, Deepika, P. kumar, A.K. Das "A Comprehensive Review of Machine Learning Applications for the Internet of Nano Things: Challenges and Future Directions" Artificial intelligence Review. 2025 **(SCIE,Q1, Impact factor 10.7)**

3. A. Rana, S. Prajapat, Deepika, P. kumar, Chien-Ming Chen"Designing a Security Framework Based on Hybrid Communication in the Internet of Nano Things", Published in IEEE Internet of Things Journal, (2023), 10.1109/JIOT.2023.3315712 **(SCIE, Q1, Impact Factor 10.6)** Science Citation Index Expanded

4. Deepika Gautam, Garima Thakur, Pankaj Kumar, Ashok Kumar Das, Youngho Park "Blockchain Assisted Intra-twin and Inter-twin Authentication Scheme for Vehicular Digital Twin System" published IEEE Transactions on intelligent transport system. **(SCIE,Q1, Impact Factor 8.5)** 10.1109/TITS.2024.3394438, 2024

5. Sunil Prajapat, Dheeraj Kumar, Pankaj Kumar, Mohammad Wazid, Ashok Kumar Das, M Shamim Hossain "Quantum Secure Energy-Efficient Authentication Protocol for Digital Twins-Enabled Transportation Cyber-Physical Systems" IEEE **ITS (SCIE,Q1, Impact factor 8.5), 2025**

6. Sunil Prajapat, Pankaj Kumar, Dheeraj Kumar, Ashok Kumar Das, M. Shamim Hossain, Joel Rodrigues "Blockchain-Assisted Quantum Authentication Scheme for Internet of Medical Things" published in IEEE Internet of Things. **(SCIE,Q1, Impact factor 8.3)** 2024.

7. Sunil Prajapat, Pankaj Kumar, Ashok Kumar Das, Ghulam Muhammad "Generative AI-Enabled Quantum Encryption Algorithm for Securing Healthcare IoT Application Using Blockchain" IEEE IOT **(SCIE,Q1, Impact factor 8.3)**

8. S. Prajapat, P. Kumar, Gautam Reddy "A Blockchain-Assisted Fair Exchange Signature Protocol Using Quantum Key Distribution for Metaverse Environment" IEEE OJCOMS **(SCIE,Q1, Impact factor 6.8)**
9. S. Prajapat, Deepika, P. kumar, Ashok Kumar Das, S. Jangrila, pascal lorenz "Secure Lattice-Based Aggregate Signature Scheme for Vehicular Ad Hoc Networks", published in IEEE Transactions on Vehicular Technology **(SCIE,Q1, Impact Factor 6.8)** 10.1109/tvt.2024.3383967, 2024
10. G Thakur, D Gautam, P Kumar, AK Das, V Bhat "Blockchain-Assisted Cross-Platform Authentication Protocol with Conditional Traceability for Metaverse Environment in Web 3.0" IEEE OJCOMS, 2024 **(SCIE,Q1, Impact factor 6.8)**
11. S. Prajapat, G. Thakur, P. Kumar, A. K. Das, M. Shamim Hossain "A Blockchain-Assisted Privacy-Preserving Signature Scheme Using Quantum Teleportation for Metaverse Environment in Web 3.0" in FGCS, 2024 **(SCIE,Q1, Impact factor 6.3)**
12. G. Thakur, S. Prajapat, P. Kumar, C-M. Chen "A Privacy-Preserving Three-Factor Authentication Scheme of Wireless Sensor Networks for IoT System" published in Journal of System Architecture. 2024 **(SCIE,Q1, Impact factor 3.7)**
13. Garima Thakur, P. kumar, Anchna, S. Prajapat, Chien-Ming Chen, V. Thanos, A robust privacy-preserving ECC-based three-factor authentication scheme for metaverse environment, Published in Computer communication, Elsevier, (2023) DOI 10.1016/j.comcom.2023.09.020. **(**SCIE**, Q1, Impact Factor 6.0)** SCIE
14. Deepika Gautam , Garima Thakur, Sunil Prajapat, Pankaj Kumar "SC-VDTwinAuth: Smart-Contract Assisted Handover Authentication Protocol for Vehicular Digital Twin Network" Vehicular Communications **(SCIE,Q1, Impact factor 5.8)**
15. Deepika Gautam, Sunil Prajapat, Pankaj Kumar, Ashok Kumar Das, Korhan Cengiz, Willy Susilo "Blockchain-Assisted Post-Quantum Privacy-Preserving Public Auditing Scheme to Secure Multimedia Data in Cloud Storage", published in Cluster computing (2024**) (SCIE,Q1, Impact Factor 4.4).** 10.1007/s10586-024-04412-8
16. Deepika, P. kumar, S. Prajapat, A Blockchain Assisted Public Auditing Scheme For Cloud-based Digital Twin Healthcare Services, Published in Cluster Computing, (2023) DOI: 10.1007/s10586-023-04101-y **(SCIE, Q1, Impact Factor 4.4)** Science Citation Index Expanded
17. Sunil Prajapat, Aryan Rana, Pankaj Kumar, Ashok Kumar Das, Willy Susilo "A Privacy-Preserving Authentication Protocol for User Personal Device Security in the Brain-Computer Interface" revised Computer interface and standard. **(SCIE,Q1, Impact factor 4.0)**
18. Sunil Prajapat, Neeraj Kumar,A.K. Das, Pankaj Kumar, Rifaqat Ali "A lattice-based encryption scheme based on post-quantum computing for secure data sharing in IoT blockchain network" published cluster computing **(SCIE,Q1, Impact factor 4)**
19. S. Prajapat, Garima Thakur, P. kumar, Ashok Kumar Das, S. Jangrila, W. Susilo "Designing High Performance Lattice-Enabled Group Authentication Scheme Based on PostQuantum Computing in Healthcare Applications", Computer and Electrical Engineering **(SCIE,Q1, Impact factor 4)**
20. S. Prajapat, P. kumar, sandeep kumar" A Novel Privacy Preserving Quantum Authentication Scheme For Wireless Body Area Networks", published in cluster computing. **(SCIE,Q1, Impact Factor 4.4)** 10.1007/s10586-024-04449-9, 2024
21. S. Prajapat, A. Rana, P. kumar, A.K. Das "Quantum Safe Lightweight Encryption Scheme for Secure Data Sharing in Internet of Nano Things" published in Computers and Electrical Engineering 10.1016/j.compeleceng.2024.109253, 2024 **(SCIE,Q1, Impact factor 4.0)**
22. G. Thakur, P. kumar, Deepika, A. K. Das, S. Jangrila, Y. Park An effective privacy-preserving blockchain assisted security protocol for cloud based digital twin environment, Published in IEEE excess (2023) 11 26877- 2689 2169- 3536**(Impact Factor 3.9)** Science Citation Index Expanded
23. P. Kumar, S.Kumari, V. Sharma, A. Kumar,W. Jianghong, X. Li," A new certificateless aggregate signature scheme for Healthcare Wireless Sensor Network" published in Journal of Sustainable Computing, Informatics and Systems , Elsevier Journal Vol 18, 2018. **(SCIE, Q1, Impact factor 3.8)**
24. Sunil Prajapat, Aryan Rana, Pankaj Kumar, A. K. Das "Designing a Secure and Privacy-Preserving Quantum Authentication Scheme Using Blockchain Identifiers in Metaverse Environment" JSA **(SCIE,Q1, Impact factor 3.7)**
25. Sunil Prajapat, Deepika Gautam, Pankaj Kumar, Srinivas Jangirala, Ashok Kumar Das, Biplab Sikdar "Secure Lattice-Based Signature Scheme for Internet of Things Applications" IEEE access, **(SCIE, Q1, Impact factor 3.4)**
26. S. Prajapat , D. Kumar , P. Kumar "Quantum Computing-Based Image Encryption Protocol for Secure Communication in Medical Networks" published in cluster computing, 2024 **(SCIE,Q1, Impact factor 3.6)**

27. Manish Tomar, Sunil Prajapat, Dheeraj Kumar, Pankaj Kumar, Rajesh Kumar, and Athanasios V. Vasilakos"Exploring the Role of Material Science in Advancing Quantum Machine Learning: A Scientometric Study" mathematics, MDPI. **(Impact factor 2.3)**
28. Deepak Ranga, Pankaj Kumar, Sunil Prajapat, Kranti Kumar, Aryan Rana, Athanasios V. Vasilakos "Quantum Machine Learning: A Survey on Encoding Techniques" Mathematics, MDPI **(SCIE,Q1, Impact factor 2.3)**
29. D. Ranga S. Prajapat, Z. Aktar, P. Kumar, Athanasios V. Vasilakos "Binary Image Classification of MNIST Dataset using Hybrid Quantum-Classical Neural Networks" Mathematics, MDPI **(SCIE,Q1, Impact factor 2.3)**
30. G. Thakur, P. kumar, S. Prajapat, A.K. Das, S. Shetty "An Efficient Lightweight Provably Secure Authentication Protocol for Patient Monitoring Using Wireless Medical Sensor Networks" Published in IEEE Access, (2023), 10.1109/ACCESS.2023.3325130 **(SCIE,Q1,Impact Factor 3.9)**
31. S. Prajapat, P. kumar, sandeep kumar , A.K. Das, M Shamim Hossain "Designing High-Performance Identity-Based Quantum Signature Scheme With Strong Security" published in IEEE Excess. (2024) **(SCIE,Q1, Impact Factor 3.9)** 10.1109/access.2024.3355196
32. P. Kumar, Vivek, sunil, garima, A.K.Das, S.Shetty, Joel "A secure interaction protocol based on quantum teleportation for metaverse environment" IEEE ACCESS. 10.1109/ACCESS.2024.3427268, 2024 **(SCIE,Q1, Impact Factor 3.9)**
33. S. Prajapat, U. Gautam , D. Gautam , P. Kumar, Athanasios V. Vasilakos "Designing a Robust Quantum Signature Protocol Based on Quantum Key Distribution for E-voting Applications" Published in Mathematics, MDPI 10.3390/math12162558. 2024 (SCIE,Q2, Impact factor 2.3)

Publications in Q2

34. Deepika, A. Rana, M. S. Obaidat, P. Kumar, S. Prajapat, A Probably Secure Biometric-based Authentication and Key Agreement Scheme for Internet of Drones" Published in Transactions on Emerging Telecommunications Technologies DOI 10.1002/ett.4893 (SCIE,Q2, Impact factor 3.6)
35. S. Prajapat , V. Bharmaik, M. S. Obaidat, P. Kumar, G. Thakur "Quantum Safe Proxy Blind Signature Protocol Based on 3D entangled GHZ-type states" published in Transactions on Emerging Telecommunications Technologies
36. P. Kumar, S.Kumari, V. Sharma, A. Kumar, X. Li, SK Hafizul Islam "Secure CLS and CL-AS Schemes Designed for VANETs". published in Journal of Super Computing, Springer Vol 74. 3076–3098, 2019 (SCIE,Q2, Impact factor 3.3)
37. Sunil Prajapat, Akanksha Dhiman, Sandeep Kumar, Pankaj Kumar "A practical convertible quantum signature scheme with public verifiability into universal quantum designated verifier signature using self-certified public keys" revised Quantum information processing (SCIE,Q2, Impact factor 2.5)
38. G. Thakur, M. S. Obaidat, P. kumar, S. Prajapat, P. Sharma "A Provably Secure Authenticated Key Agreement Protocol for Industrial Sensor Network System", published in Concurrency and Computation: Practice and Experience 10.1002/cpe.8250. 2024 (SCIE,Q2, Impact factor 1.5)
39. Deepika, S. Prajapat, P. kumar, Shaurya kanwar, Chien-Ming Chen "A Robust ECC Based Authentication Protocol for Satellite-to-Satellite communication Network" published in telecommunications system. 2024 (SCI,Q2 IF 2.5)
40. Garima Thakur, Sunil Prajapat, Pankaj Kumar, Piyush Sharma, Mohammad Obaidat "An Efficient Provably Secure Authentication and Key Agreement Protocol for satellite Communication Networks" published in security and privacy wiley., 2024 (ESCI,Q2, Impact Factor 1.9) 10.1002/spy2.404

Other SCI/ESCI/Scopus

41. P. Kumar, V. Sharma, "Cryptanalysis and Improvement of a Certificateless Aggregate Signature Scheme". published in International Journal of Information, Security and Privacy2019. (ESCI, Impact factor .8)
42. D. Ranga, S. Prajapat, P. Kumar "Machine learning in the quantum age: classical vs Quantum algorithms using iris data for accuracy analysis" published in Tuijin Jishu/Journal of Propulsion Technology 2024 (Scopus index)
43. Gajraj Singh, Pankaj Kumar, Garima Thakur, Vinod Kumar, and Saurabh Rana "ECLSS: Extended Chaotic Map-Based Certificate less Signature Scheme" Published in Tuijin Jishu/Journal of Propulsion Technology (Scopus index)
44. P. Kumar, V. Sharma,"Cryptanalysis and Improvement of two provably secure certificates signature schemes" Published in Jr. of Combinatorics, Information & System Sciences (JCISS), Vol 42, 2017.
45. P. Kumar, V. Sharma, "Cryptanalysis of Efficient Certificateless Aggregate Signature Scheme" Published in Global and Stochastic Analysis Vol. 4 No. 1, 2017. (Scopus index)

46. P. Kumar, V. Sharma, "Collision Resistance Attack on Certificateless Signature Schemes in Vehicular Ad-hoc Networks". published in International Journal of Pure and Applied Mathematics, Volume 118 No. 22 2018, 1441-1445. (Scopus index)

47. P.Kumar, V. Kumar, M. Ahmad" The Cryptanalysis of Provably Secure Authenticated Key Agreement Scheme for Distributed Mobile Cloud Computing Services" published in International Journal of Pure and Applied Sciences 2017. (Scopus index)

48. S. prajapat, P. Kumar, A. K. Das "Blockchain-Empowered Arbitrable Multimedia Data Auditing in IoT Based on Post Quantum Computing" accepted in Access Control and Security Monitoring of Multimedia Information Processing by IET publisher, 2023 (Scopus index)

49. Prajapat, S., Anchana, Kumar, P. "Cryptanalysis and Improvement of Rifaqat Ali et al.'s Scheme on Wireless Sensor Networks for Agriculture Monitoring". Sustainability and Health Informatics: A Systems Approach to Address the Climate Action Induced Global Challenge.

50. P. Kumar, V. Sharma."Certificateless Aggregate Signature Schemes: A Review" published in the proceedings of International conference on IEEE, held at Galgotia University , April 29-30, 2016, pp 531-536. (Scopus Indexed)

51. P. Kumar, V. Sharma." On the Security of Certificateless Aggregate Signature Scheme in Vehicular Ad-hoc Networks" published in the proceedings of in International conference on IEEE, held at Galgotia University, April 29-30,2017 PP 1095-1098. (Scopus Indexed)

52. P. kumar, V. Sharma" On the Security of Certificateless Aggregate Signature Scheme used in Vehicular Ad-hoc Network", Published in the proceedings of international conference on Springer (SOCTA), held at Amity University, Dec 28-30, 2016. (Scopus Indexed)

53. Pankaj Kumar, Vishnu Sharma "A Comment on Efficient Certificateless Aggregate Signature Scheme" International conference on computing, Communications and Automation held in Galgotias University held at 5-6 may 2017. (Scopus Indexed)

54. P. Kumar, V. Sharma, "Cryptanalysis of a Short Certificate-Based Signature" published in IEEE conference ICACCCN-2018 Galgotias University held at 12-13 Oct 2018. (Scopus Indexed)

55. P. Kumar, V. Sharma, "Cryptanalysis of a Certificateless Signature Scheme". published in IEEE conference ICACCCN-2018 Galgotias University held at 12-13 Oct 2018. (Scopus Indexed)

56. P.Kumar, V.kumar, M. Ahmad "An Identity-Based Authentication Framework for Big Data Security" published in the conference ICCCN 2018, 29-30 march 2018 held at NITTTKR Mohali Chandigarh. (Scopus Indexed)

57. P. Kumar, A. Kumar, P.Kumar" Effect of noise on the performance of clustering" IEEE conference 2010, 504-506, ISSN 978-1-4244-7578-0, 2010. (Scopus Indexed)

58. S. Prajapat, P. kumar, V.Sharma "A Lightweight Group Authentication scheme over Lattices", published in IEEE conference 2023. (Scopus Indexed)

59. S. Prajapat, P. kumar, V.Sharma. "An Efficient CL-Signature scheme over NTRU Lattices" published in IEEE conference 2023. (Scopus Indexed)

60. Shaurya kanwar, P. kumar, Deepika, S. Prajapat "An Improved Privacy-Preserving Multi-Factor Authentication Protocol for Wireless Sensor Networks", published in International Conference on Data & Information Sciences 2023. (Scopus Indexed)

61. Piyush Sharma, P. kumar, G. Thakur "Cryptanalysis and improvement of a mutual authentication scheme for smart grid communications" published International Conference on Network Security and Blockchain Technology, 2023(Scopus Indexed)

62. A. Rana, P. kumar, S. Prajapat, K. Kumar "Performance Evaluation of Machine Learning Models for Intrusion Detection in Wireless Sensor Networks Dataset" published in International Conference on Data & Information Sciences, 2023. (Scopus Indexed)

63. Aryan Rana, Anurag Dhiman Mohammad S. Obaidat, Pankaj Kumar , K.Kumar "Evaluating Machine Learning Models for Wheat Yield Prediction in Amritsar District" published in CITS 2024(Scopus Indexed)

64. Garima Thakur, P. kumar" Security Analysis of Authenticated Key Agreement Protocol for Remote Patient Monitoring IoMT", published in CCCI, China. (Scopus Indexed)

65. Deepika, P. Kumar "Data Survey Of Pairing Free Certificateless Signature Schemes Security Frameworks" edited Book Computational Intelligence for Data Analysis, Bentham Science publisher, 2023.

Papers related to Vedic Mathematics

66. Pankaj Kumar "Application of Vedic mathematics in algebra"itihas diwakar 2022.

67. Pankaj Kumar" **वर्ग ज्ञात करने के लिए वैदिक गणित का अनुप्रयोग** " itihas diwakar 2023.

68. Pankaj Kumar" Colonizing Time: An Exploration of Katapayadi in Vedic Mathematics for Optimizing Modern Data Compression Techniques " itihas diwakar 2023.

69. S. Prajapat, P. kumar" Unlocking Efficiency: A Study on the Significance of the Three Sutras of Vedic Mathematics in Optimizing Fundamental Mathematical Operations"

70. Pankaj Kumar "An Introduction of Vedic Mathematics"itihas diwakar 2022.

71. Rakesh Bhatia, Dinesh Kumar Sharma, Shivraj Singh, Pankaj kumar "Applications Of Sutras And Upsutras In Squaring " published in shodhsamhita 2022.

Other Publications and Proceeding (Without Scopus)

72. Shoraya Kanwar, Pankaj Kumar , Garima Thakur "Security Analysis of Privacy-Preserving Three Factor Authentication Protocol for Wireless sensor network" Proceedings of International Conference on Artificial Intelligence, 5G Communications and Network Technologies 2023

73. A Software Process Improvement Model (SPIM), International Journal of Software Engineering, 4(2), 23-34, ISSN 0974-3162.

74. A Comparative Study of Job Migration Algorithms for Autonomic Grid Management, International Journal Information and Computational Technology, 3(2), 55-62, ISSN 0974-2239.

75. Statistical Inference of a Competing Risk Model with Application to the Real Data Set, International journal of statistics and systems, 8(3), 217-228, ISSN 0973-26758.

76. Software Process Improvement Models: Limitation and Comparative Analysis, International Journal of Advanced Software Engineering, Volume 2(2), 1-7, ISSN 2249-3069.

77. SOFTWARE PROCESS IMPROVEMENT: INFLUENCE FACTORSPROBLEM, CAUSE, SOLUTION, IOSR Journal of Computer Engineering, 16(3), 74-78, e-ISSN: 2278-0661, p- ISSN: 2278-8727

78. Load Balancing and Job Migration Algorithms for Autonomic Grid Environment, GJCST-B, 14 (1), e-ISBN 09754172, p-ISSN 09754350.

79. Part-of-Speech (POS) Tagging Using Maximum Entropy Model, International Journal of Advanced Research in Computer Science and Software Engineering, 4(6),ISSN: 2277 128X

80. Anchna , Pankaj Kumar, Deepika A Comment On The Secure User Authentication And Key-Agreement Scheme Using Wireless Sensor Networks For Agriculture Monitoring. Proceedings of International Conference on Artificial Intelligence, 5G Communications and Network Technologies 2023

81. Dixit , Pankaj Kumar , Sunil Prajapat , "A comment on lightweight authentication and key agreement protocol for internet of things-based wireless body area network" Proceedings of International Conference on Artificial Intelligence, 5G Communications and Network Technologies 2023

Presentations/ Invited talks in various international/national conferences:

1. Pankaj Kumar; Software Process Improvement Model ….Comparative Analysis presented in International Seminar on role of Mathematics in Science and Engineering, held at Graphic Era University Dehradun on May 13-14, 2011.
2. Pankaj Kumar; Mathematics before the Vedic Period presented in International Seminar on History of Mathematics, held at Ramjas College (University of Delhi) Nov, 19-20 2012.
3. Pankaj Kumar; Historical background of cryptography presented in International Seminar on History of Mathematics, held at Ramjas College (University of Delhi) Nov, 27-28 2013
4. P. Kumar; Certificateless Aggregate Signature Schemes: A Review presented in International conference on IEEE, held at Galgotia University , April 29-30.
5. P. Kumar; Cryptanalysis of a Certificateless Aggregate Signature Scheme presented in International conference on IEEE, held at Galgotia University , April 29-30, 2016.
6. P. Kumar,; A Comment on Efficient Certificateless Aggregate Signature Scheme presented in International conference on IEEE, held at Galgotia University, may 5-6, 2017.
7. P. kumar,; Cryptanalysis of Efficient Certificateless Aggregate Signature Scheme presented in International conference on Forum for Interdisciplinary Mathematics held in Manipal University Jaipur Dec 22-25, 2016.

8. P. kumar,; On the Security of Certificateless Aggregate Signature Scheme used in Vehicular Ad-hoc Network, presented in international conference on Springer (SOCTA), held at Amity University, Dec 28-30, 2016.
9. Pankaj Kumar; Security Analysis of Certificateless Aggregate Signature Scheme presented in International Seminar on History of Mathematics, held at Ramjas College (University of Delhi) april, 26-28 2017
10. Pankaj Kumar," Review of Security Attacks in Certificateless Aggregate Signature Scheme presented in International Seminar on History of Mathematics, held at Ramjas College (University of Delhi) April, 26-28 2017
11. Pankaj Kumar," A study on identity based authentication protocol for cloud computing presented in the proceeding of National Conference (ETCCBDA-2017), held at MDU Rohtak, Haryana 6 March 2017, PP 39-42.
12. Pankaj Kumar; Cryptanalysis and further improvement of a certificateless aggregate signature scheme presented in the proceeding of National Conference (ETCCBDA-2017), held at MDU Rohtak, Haryana 6 March 2017, PP 181-184.
13. Pankaj Kumar, V. Sharma "Security analysis of certificateless signature scheme presented in the international conference Silver Jublee of Indian Society of Industrial and Applied Mathematics (ISIAM), 29-31 January 2016.
14. P. Kumar; Collision Resistance Attack on Certificateless Signature Schemes in Vehicular Ad-hoc Networks presented in National Conference on Advances in Operations Research and Mathematical Sciences (AORMS-2018) held at 24-25 Feb 2018 Bijnor.
15. P. Kumar; Energy Efficient Certificateless Signature Scheme for Healthcare Wireless Sensor Network' presented in International Conference on Sustainable Agriculture, Energy, Environment and Technology (Icsaeet-2018) held on February 24-25, 2018.
16. P. Kumar, V. Sharma; Certificateless Aggregate Signature Scheme for Healthcare Wireless Sensor Network presented in the conference ICAM 2018 held at Motilal Nehru College, Delhi from 19-20 February, 2018.
17. P.Kumar; An Identity-Based Authentication Framework for Big Data Security presented in the conference ICCCN 2018, 29-30 march 2018 held at NITTTKR Mohali Chandigarh.
18. P.Kumar; Secure CLS and CL-AS Schemes Designed for VANETs presented in the conference Applications of Graph & Network in Computational Studies, Bioinformatics & Engineering And their Technical Terminology 16-18 march 2018, held at JNU Delhi.
19. P. Kumar; Cryptanalysis of a Short Certificate-Based Signature presented in IEEE conference ICACCCN-2018 Galgotias University held at 12-13 Oct 2018.
20. P. Kumar; Cryptanalysis of a Certificateless Signature Scheme. presented in IEEE conference ICACCCN-2018 Galgotias University held at 12-13 Oct 2018.
21. P.Kumar; security attacks against newly constructed efficient certificateless aggregate signature scheme presented in the conference in innovation in management and technology 17 jan 2020 held at GINM delhi.
22. P.Kumar; security analysis of certificateless signature scheme" presented in the conference recent trends in humanities, technology, management, and social development, 7-8 feb 2020 held at KIET Ghaziabad.
23. P. Kumar; An efficient and secure certificateless signature scheme for vanet 19-21 Dec 2019, in ICAM held at Ramanujan Delhi.
24. P. Kumar,"collision resistance attack against efficient certificateless aggregate signature scheme", in FIAM, 21-22 Dec, 2019 held at galgotias college,grater Noida.
25. P. Kumar;cyber security: A necessary part of life" in Role of media in social transformation, 18-19 2020 jan, MDU rohtak.
26. P. Kumar; An efficient CLAS for healthcare IOT" in NCMBS in DCRUST murthal, 26-27 feb 2020.

27. P. Kumar; Cryptanalysis and improvement of a mutual authentication scheme for smart grid communication 2 nd International Conference On Network Security And Blockchain Technology.

28. P. Kumar; Security Analysis of Privacy-Preserving Three-Factor Authentication Protocol for WSN Third International Conference on Artificial Intelligence, 5G Communications and Network Technologies (ICA5NT 2023).

29. P. Kumar; A Comment on the secure user authentication and key agreement scheme using wireless sensor networks for agriculture monitoring Third International Conference on Artificial Intelligence, 5G Communications and Network Technologies (ICA5NT 2023) .

30. P. Kumar; A Comment on Lightweight Authentication and Key Agreement Protocol for Internet of Things Based Wireless Body Area Network Third International Conference on Artificial Intelligence, 5G Communications and Network Technologies (ICA5NT 2023).

31. P. Kumar; CRYPTANALYSIS ON "Rsa-Based Authentication Scheme In Authorized Access To Healthcare Services" NCRACE 2023.

32. P. Kumar; CRYPTANALYSIS ON "Lightweight Authentication And Key Agreement Protocol For Internet Of Things Based Wireless Body Area Network" NCRACE 2023.

33. P. Kumar Cryptanalysis Of A Privacy Preserving Three-Factor Authentication Protocol For WSN NCRACE 2023.

34. P. Kumar; Difference of squared numbers, Sum and difference of squared numbers National Workshop on Vedic Mathematics from 17-22 January, 2022 through online mode.

35. P. Kumar Duplex in arithmetic and algebra, Sum of squared numbers National Workshop on Vedic Mathematics from 17-22 January, 2022 through online mode.

36. P. Kumar A Security Infrastructure for SMART Cities using Internet of Things one day online International Virtual one day online International Virtual Conference on Emerging Trends on Artificial Intelligence in Industry 4.O.

37. P. Kumar cryptography in vedic mathematics all india vedic mathematics conference

38. P. Kumar Review of Proxy Signature in Elliptic Curve Cryptography recent advances in communicative electronics.

39. P. Kumar Survey of Security Framework of Different Network with Pairing Free Certificateless Signature Schemes one day online International Virtual Conference on Emerging Trends on Artificial Intelligence in Industry 4.O.

40. P. Kumar Provably Secure Identity-Based Quantum Signature Scheme with Strong Security. National conference on role of academic driven startup in economy 2023

41. P. Kumar; Securing vehicular digital twin: blockchain based authentication System National conference on role of academic driven startup in economy 2023

42. P. Kumar; Enhancing security in the metaverse: an ecc-based three-factor Authentication approach National conference on role of academic driven startup in economy 2023

43. P. Kumar; Quantum Proxy Signature Protocol Based on entangled GHZ-type states Advances in Pure and Applied Mathematics (ICAPAM) 2024

44. P. Kumar; A Practical Convertible Quantum Signature Scheme with Public Verifiability ICETMS 2024

45. P. Kumar; Secure and Lightweight Authentication for Patient Monitoring via Wireless Medical Sensors National Institute of Technology Srinagar 2024

47. P. Kumar; Secure Satellite-to-Satellite Communication: An ECC-Based Authentication Protocol National Institute of Technology Srinagar 2024

46. P. Kumar; Variational Quantum Classifier Algorithm on Iris Dataset National Institute of Technology Srinagar 2024

47. P. Kumar; A secure quantum designated verifier signature scheme for electronic voting machine National Institute of Technology Srinagar 2024

48. P. Kumar; A Quantum Authentication Scheme For Wireless Body Area Networks National Institute of Technology Srinagar 2024

49. P. Kumar**;** Vedic Mathematics In-service training for lecturers (Mathematics), 2023

50. P. Kumar; Set and Relations In-service training for lecturers (Mathematics), 2023

51. Pankaj Kumar; Historical Background of Operational Research and its application in various fields, presented in international conference on History of Mathematical Science and Symposium on Non-Linear Analysis, held at Kumaun University on May 16-19, 2011,

52. P. Kumar "Vedic Mathematics: the magic of numbers" in Central University of Jammu 23 Dec 2024

53. P. Kumar "creative thinking and critical thinking" in HIET College, 7 Jan 2025

54. P kumar "A Quantum Authentication Scheme For Wireless Body Area Networks", Delhi University 6 Feb 2025

55. P Kumar Statistical tools and Spreadsheet" Jammu College 5 March 2025

56. P Kumar "A Basics of Quantum Computing and research Directions" Ambedkar University Delhi 18 March 2025

57. P. Kumar "A Quick Session on Matlab" HPU shimla, 22 March 2025

Ph.D Guided/ Guidence:

S.No.	Student Name	Status	Title of the Thesis
1.	Sunil Prajapat	Awarded	Design and analysis of secure protocols using lattice-based cryptography
2.	Deepika	Pre submission completed	Design and Analysis of Blockchain-Assisted Cryptographic Algorithms
3.	Garima Thakur	Pre submission completed	Design and Analysis of Cryptographic Protocols for Enhancing Security in Specific Domains
4.	Deepak Ranga	Pre submission completed	A Study of Some Quantum Machine Learning Algorithms Using Encoding Techniques

M.Sc. project/Dissertation Guided:

S.No.	Roll No	Student Name	Batch	Title of the project
1)	CUHP21IAM03	Anchna	2021-23	Designing an Authentication Scheme forWireless Sensor Networks
2)	CUHP21IAM04	Anil kumar	2021-23	Crypanalysis of TMIS Protocol
3)	CUHP21IAM06	Aryan Rana	2021-23	Design and Analysis of a Secure Authentication Protocol
4)	CUHP21IAM10	Dixit	2021-23	Design and analysis of an authentication protocol for WBAN
5)	CUHP21IAM16	Piyush Sharma	2021-23	Design and analysis of authentication security protocols for various environments
6)	CUHP21IAM27	Shoraya Kanwar	2021-23	Design and analysis of secure user authentication protocol
7)	CUHP22IAM32	Urmika	2022-24	A Study of Quantum Digital Signature Schemes
8)	CUHP22IAM01	Akanksha Dhiman	2022-24	Designing Quantum Public Verifier Signature Scheme for Various Applications
9)	CUHP22IAM30	Sourav Thakur	2022-24	Application of Vedic Sutras in Algebra : A Review
10)	CUHP22IAM04	Ankit Kumar	2022-24	Exploring Katapayadi in Modern Data Compression Techniques
11)	CUHP22IAM33	Vivek Bharmaik	2022-24	Designing The Security Framework For Quantum Teleportation
12)	CUHP22IAM29	Shweta Thakur	2022-24	Signal processing techniques and pattern recognition algorithms in Brain-Computer Interfaces
13)	CUHP22IAM24	Samriti Thakur	2022-24	Study and Design of Machine Learning Algorithms for Brain-Computer Interfaces

14)	CUHP22IAM07	Anurag Dhiman	2022-24	Wheat Yield Using Machine Learning in Punjab region
15)	CUHP19IAM26	Udipta Phukon	2019-21	Survey on Certificateless Signcryption Scheme
16)	CUHP19IAM21	Sneha Yadav	2019-21	Certificateless Proxy Signature Scheme
17)	CUHP20IAM04	Anil kumar	2020-22	Review of applications of vedic sutras in computer science and algebra
18)	CUHP20IAM29	Shivani dhiman	2020-22	Review of applications of vedic sutras in computer science and algebra
19)	CUHP19IAM05	Deepika	2019-21	Review and analysis of pairing free certificateless signature scheme
20)	CUHP19IAM10	Lavlesh kumar	2019-21	The Applications of Vedic mathematics in Algebra
21)	CUHP20IAM09	Hitesh Thakur	2020-22	Effect of Co-curricular Activities on Student Education
22)	CUHP19IAM16	Priyanka	2019-21	Applications of Vedic Mathematics in Number System and Trigonometry
23)	CUHP20IAM24	Priti	2020-22	Effect Of Covid -19 Lockdown And Its Impact On Student Life And Social Media
24)	CUHP19IAM31	Manu Bala	2019-21	Vedic math in computer science
25)	CUHP20IAM19	Mansi pathania	2020-22	Compararative study of online and offline teaching modes among students
26)	CUHP20IAM14	Kapil joshi	2020-22	Compararative study of online and offline teaching modes among students

Administrative Activities

• Former Department In-charge of the Srinivasa Ramanujan Department of Mathematics.
• Former Coordinator of Hobby Classes in jyotish Ganit in Centre for Vedic Mathematics.
• Former Course Coordinator in Srinivasa Ramanujan Department of Mathematics.
•Chairman of the committee constituted by Department of Mathematics for implementation of NEP2020.
•Co-ordinator NIRF, SRDM.

- Co-ordinator of Training and Placement Cell, SRDM.
- Co-ordinator, Date Sheet, SRDM
- Coordinator, Two courses MCA 521 and MCA 522 for ODL
- Co-ordinator, Feedback analysis, SRDM
- Dean' Nominee of 8th BOS of Mathematics in SRDM
- Dean' Nominee of 1st BOS and 2nd BOS of Centre for Vedic Mathematics.
- Dean' Nominee member in the admission committee of Centre for Vedic Mathematics.
- Member of admission committee of the Srinivasa Ramanujan Department of Mathematics.
- Member of the Departmental Research Committee in Srinivasa Ramanujan Department of Mathematics.
- Member of the Master Research Committee in Srinivasa Ramanujan Department of Mathematics
- Member of IQAC Committee for preparing SSR Report.
- Former Member of Departmental BOS, SRDM
- Former Member of School BOS, SRDM
- Member of DSC, SRDM

Seminars & Conferences Organised

1. Convener of the one day National Webinar "Cryptography and Cyber Security" Conducted on 30 January 2022 in the celebration of foundation week of CUHP.
2. Convener of the one day National Webinar "Research in Vedic Mathematics" Conducted on 30 January 2022 in the celebration of foundation week of CUHP.
3. Co-Convener of the International Workshop "Srinivasa Ramanujan: The Man beyond Infinity" Conducted on 22 December 2020.
4. Organizing Secretary of the National Webinar "Role of Vedic Mathematics in today's context" held on 3 September 2021.
5. Organizing Secretary of the one week National Workshop "Principles of Vedic Mathematics" Conducted on 08 November 2021 to 12 November 2021.
6. Convener of food committee of the one day event for celebration "National Mathematics Day" conducted on 22 December 2021
7. Member of the organizing committee of the one day event for celebration "National Mathematics Day" conducted on 22 December 2022
8. Member of the organizing committee of the one day event for celebration "National Mathematics Day" conducted on 22 December 2023
9. Member of the organizing committee of week event for celebration "National Mathematics Day" conducted on 22 December 2024
10. Participated as a member of organizing committee of "International Seminar on History on Mathematics" in 2012 in Ramjas College, University of Delhi.
11. Participated as a member of organizing committee of "International Seminar on History on Mathematics" in 2013 in Ramjas College, University of Delhi.
12. Participated as a member of organizing committee and Convener of publicity committee of "International Conference on Mathematics and Applications" in 2017 in Ramjas College, University of Delhi
13. Member of Local Organizing Committee" Recent Advances in School Education (RASE 2023)," Held at NIT jalandhar.
14. Member of Local Organizing Committee" National conference on role of academic driven startup in economy," Held at NIT Kurukshetra 2023
15. Member of Local Organizing Committee" National conference on role of academic driven startup in economy," Held at NIT Srinagar 2024
16. Member in media committee in the conference "Transforming Education and Learning Systems DigiEdu-2024" organized by Srinivasa Ramanujan Department of Computer Science CUHP.
17. Convener of Food Committee in National Mathematics Week organized by Srinivasa Ramanujan Department of Mathematics, CUHP.
18. Member of Technical Programming Committee of CITS 2024 Held at Girona, Spain
19. Member of Technical Programming Committee of CCCI 2024 Held at Beijing, China
20. Member of Technical Programming Committee of CCCI 2025, October 15-17, 2025, Hangzhou, China.
21. Member of Adversary Committee of International Conference on Recent Trends in Mathematics" (ICRTM-25) in hybrid mode on February 7-8, 2025.
22. Member of Organizing Committee of International Conference on 3rd International Conference on Recent Trends in Mathematical Sciences (ICRTMS-2025)" scheduled to be held on 10th – 11th, May, 2025 at Himachal Pradesh University, Shimla, H. P.
23. Member of Local Organizing Committee" National conference on role of academic driven startup in economy," Held at Kurukshetra University.
24. Member of Technical Programming Committee of RASSE 2025, Singapore.

Membership:

1) Ramanujan mathematical society
2) IAENG
3) IACSIT
4) IEEE
5) Vigyan Bharti

Research Areas: Quantum Computing, Quantum Cryptography, Quantum Artificial intelligence, Quantum Error Correction, Indian Knowledge system (Vedic Maths), Post-Quantum Cryptography,

Editor/ Associate Editor in Journals:

1. International Journal of Communication System (SCI, IF 2.0)
2. Security and Privacy (ESCI, IF 1.5)
3. Viksit India
4. Viksit Bharat

Reviewer in journals:

IEEE transaction on IOT
IEEE transaction on networking and engineering
IEEE excess
IEEE system
IEEE Transactions on Intelligent Transportation Systems
IEEE transactionTelematics and Informatics
Journal of Array, Elsevier
IJCS, springer
Journal of Computational Methods in Sciences and Engineering (JCMSE) of IOS Press

M.E. Details

Project:
1 Find the complexity of a given program in software testing
2 Design for institute management system using UML diagram
3 Railway Reservation System
4 Make a shopping cart web site for purchasing orders

Thesis Topic: Design and Development of a Software Process Improvement Model
Supervisor: Dr. Seema Bawa (Professor, CSED Department, Thapar University)
University: Thapar University

PhD Details

Thesis Topic: Design and Analysis of Certificateless Signature Scheme for Various Applications
University: Galgotias University
Supervisor: Dr. Vishnu Sharma, Galgotias University

(PANKAJ KUMAR)