Curriculum Vitae

Title	Dr.	First Name	Manju	Last Name	Sharma	Photograph
Designation		Assistant Professor				
Address		Department of Mathematics Indraprastha College for Women 31, Sham Nath Marg, Delhi-110054				
Phone No. Office		011-47008184				
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Email		manjusharma@ip.du.ac.in; manju.sharma@outlook.com				
Web-Page		https://sites.google.com/a/ip.du.ac.in/math_department/faculty-profile/faculty-members?authuser=0				

ORCID ID	0000-0002-6549-8597	https://orcid.org/0000-0002-6549-8597
Vidwan ID	556226	https://vidwan.inflibnet.ac.in/profile/556226
Research Gate ID	Manju-Sharma-33	https://www.researchgate.net/profile/Manju-Sharma-33
Google Scholar ID	B9l5tVwAAAAJ	https://scholar.google.com/citations?hl=en&user=B9l5tVwAAAAJ&view_op=list_works&authuser=3

Educational Qualifications

Degree	Institution	Year
Doctor of Philosophy	Panjab University, Chandigarh	2018
Master of Science	Kurukshetra University, Kurukshetra	2009
Bachelor of Education	Kurukshetra University, Kurukshetra	2007
Bachelor of Science	Kurukshetra University, Kurukshetra	2006

Career Profile

- Assistant Professor – Indraprastha College for Women, Delhi : 2023 – Till Date
- Assistant Professor – KVA DAV College for Women, Karnal : 2013 – Till Date
- Assistant Professor – University Institute of Engineering and Technology, Kurukshetra University, Kurukshetra : 2010 – 2012

Administrative Assignments/Membership of Committees

- Government e-Marketplace (GeM) Committee (2024 – Till date)
- Time-Table Committee (2024 – Till Date)
- Entrepreneurship Cell (2023 – Till Date)
- Academic Advisor (2023 – 2024)
- Women Development Cell (2023 – Till Date)
- NSS Program Officer (2023 – 2023)
- NAAC Committee (2017 – 2023)
- Member of Legal Literacy Cell (2021 – 2023)
- Convener Red Ribbon Club (2021 – 2023)
- Member Red Cross (2020 – 2022)
- Convener NCC Army Wing (2018 – 2021)
- AISHE Nodal Officer (2017 – 2023)
- Member IQAC Core Committee (2017 – 2023)
- Member Red Cross (2017 – 2018)
- Member of Legal Literacy Cell (2016 – 2017)
- Member of Discipline/Grievances Redressal & Anti-Ragging Cell (2016 – 2018)
- Member of Career Guidance and Placement Cell (2016 – 2018)
- Member of Time-Table Committee (2015 – 2023)
- Member of Admission Committee (2016 – 2023)
- NAAC Committee (2015 – 2016)
- Member of Eco Club (2014 – 2015)
- Member Science Forum (2013 – 2023)
- Co-convener NCC Army Wing (2013 – 2018)
- Member IQAC Core Committee (2013 – 2014)
- Member Sports Club (2013 – 2015)

Areas of Interest/Specialization

- Differential Equations & Numerical Methods

Subjects Taught

1. Real Analysis
2. Calculus
3. Differential Equations
4. Partial Differential Equations
5. Numerical Analysis
6. Elements of Real Analysis
7. Statistics Software Package
8. Basic IT Tools
9. Elementary Linear Algebra
10. Introduction to Linear Algebra

Research Guidance and Examination

1. Shagun (2K23/PhD/AM/511), Department of Applied Mathematics, Delhi Technological University, Delhi.
2. Mamta Godara (23/PhD/AM/501), Department of Applied Mathematics, Delhi Technological University, Delhi.

Publications Profile in APA Format

Books/Edited Volume

1. Ordinary Differential Equations, Jeevan-Sons Publication, ISSN/ISBN No. 9380896 15-8.

List of International Publication

1. A parameter uniform difference scheme for parabolic partial differential equation with a retarded argument, Applied Mathematical Modeling Vol. 34 (12) (2010) 4232-4242.
   Elsevier (Science Direct), ISSN 1872-8480, SCI/SCIE, IF 5.0, https://doi.org/10.1016/j.apm.2010.04.020
2. Analysis of factorization method for elliptic differential equation, Computational Mathematics and Modeling Vol. 22 (1) (2011) 98-110.
   Springer, ISSN-1573-837X, Scopus Indexed, https://doi.org/10.1007/s10598-011-9092-z
3. Convergence analysis of weighted difference approximations on piecewise uniform grids to a singularly perturbed functional differential equation, Journal of Optimization Theory and Application Vol. 155 (1) (2012) 252-272.
   Springer, ISSN- 1573-2878, SCI/SCIE, IF 1.9, https://doi.org/10.1007/s10957-011-9965-5
4. Analytic approximation to delayed convection dominated systems through transforms, Journal of Mathematical Chemistry Vol. 52 (9) (2014) 2459-2474.
   Springer, ISSN- 1572-8897, SCI/SCIE, IF 1.7, https://doi.org/10.1007/s10910-014-0394-1
5. An optimal asymptotic-numerical method for convection dominated systems having exponential boundary layers, Journal of Difference Equations and Application Vol. 22 (9) (2016) 1307-1324.
   Taylor & Francis, ISSN-1563-5120, SCI/SCIE, IF 1.1, https://doi.org/10.1080/10236198.2016.1194408
6. A robust numerical approach for singularly perturbed time delayed parabolic partial differential equations, Differential Equations and Dynamical Systems Vol. 25 (2) (2017) 287-300.
   Springer, ISSN-0974-6870, ESCI, IF 1.0, https://doi.org/10.1007/s12591-016-0280-3
7. A wavelet based rationalized approach for the numerical solution of differential and integral equations, Differential Equation and Dynamical Systems Vol. 27 (1-3) (2019) 181-202.
   Springer, ISSN-0974-6870, ESCI, IF 1.0, https://doi.org/10.1007/s12591-017-0393-3
8. An asymptotic-numerical method for a class of weakly coupled convection dominated systems, Numerical Functional Analysis and Optimization Vol. 40 (13) (2019) 1550-1571.
   Taylor & Francis, ISSN- 1532-2467, SCI/SCIE, IF 1.2, https://doi.org/10.1080/01630563.2019.1615946
9. A modified graded mesh and higher order finite element approximation for singular perturbation problems, Journal of Computational Physics Vol. 395 (2019) 275-285.
   Elsevier (Science Direct), ISSN- 0021-9991, SCI/SCIE, IF 4.1, https://doi.org/10.1016/j.jcp.2019.04.073

10. A semi-analytical method for solving problems on the role of prey taxis in a biological control-mathematical model, Journal of Multiscale Modelling Vol. 10 (2019) 1-20.

    World Scientific, ISSN- 1756-9745, ESCI, IF 1.5, https://doi.org/10.1142/S1756973718500099

11. Singular perturbed vector field (SPVF) applied to complex ode system with hidden hierarchy application to turbocharger engine model, International Journal of Nonlinear Sciences and Numerical Simulation Vol. 21 (2020) 99-113.

    De Gruyter, ISSN- 2191-0294, SCI/SCIE, IF 1.5, https://doi.org/10.1515/ijnsns-2019-0024

12. A higher order finite element method with modified graded mesh for singularly perturbed two-parameter problems, Mathematical Methods in the Applied Sciences Vol. 43 (2020) 8644-8656.

    John Wiley & Sons, ISSN- 1099-1476, SCI/SCIE, IF 2.9, https://doi.org/10.1002/mma.6523

13. Iterative analytic approximation to one-dimensional nonlinear reaction-diffusion equations, Mathematical Methods in the Applied Sciences, Vol. 44 (16) (2021) 12152-12168.

    John Wiley & Sons, ISSN- 1099-1476, SCI/SCIE, IF 2.9, https://doi.org/10.1002/mma.6840

14. A modified graded mesh and higher order finite element method for singularly perturbed reaction–diffusion problems, Mathematics and Computers in Simulation Vol. 185 (2021) 486-496.

    Elsevier, ISSN- 0378-4754, SCI/SCIE, IF 4.6, https://doi.org/10.1016/j.matcom.2021.01.006

15. A higher-order hybrid spline difference method on adaptive mesh for solving singularly perturbed parabolic reaction-diffusion problems with robin-boundary conditions, Numerical Methods for Partial Differential Equations, Vol. 39 (2023) 1220-1250.

    John Wiley & Sons, ISSN 1098-2426, SCI/SCIE, IF 3.9, https://doi.org/10.1002/num.22931

16. A parameter-robust numerical method based on a defect-correction technique for parabolic singular perturbation problems with discontinuous convection coefficient and source, International Journal of Computational Methods, Vol. 20 (2023) 2350016.

    World Scientific, ISSN 1793-6969, SCI/SCIE, IF 1.7, https://doi.org/10.1142/S0219876223500172

17. A weak Galerkin finite element method for singularly perturbed problems with two small parameters on Bakhvalov-type meshes, Numerical Algorithms, Vol. 97 (2024) 727–751.

    Springer, ISSN 1572-9265, SCI/SCIE, IF 2.1, https://doi.org/10.1007/s11075-023-01721-8

18. An adaptive mesh generation and higher-order difference approximation for the system of singularly perturbed reaction-diffusion problems, Partial Differential Equations in the Applied Mathematics, Vol.11 (2024) 100750.

    Elsevier, ISSN 2666-8181, Scopus, https://doi.org/10.1016/j.padiff.2024.100750

19. A uniformly convergent method for two-parameter singularly perturbed parabolic partial differential equations with a large shift, Journal of Difference Equations and Applications (2024).

    Taylor & Francis, ISSN-1563-5120, SCI/SCIE, IF 1.1, https://doi.org/10.1080/10236198.2024.2376565

Communication

20. An adaptive moving mesh and hybrid difference approximation for time-dependent reaction-diffusion equations with a shift and integral boundary conditions.
21. A uniformly accurate hybrid difference approximation of a system of singularly perturbed reaction-diffusion equations with delay using grid equidistribution.

Conference and Workshop

Conferences – Paper Presentation

1. A semi-analytical approximation for a coupled system of singularly perturbed convection diffusion equations with shifts, International Conference on Recent Advancements in Mathematical Sciences, DAV College, Sadhaura, 28 April 2024.
2. Defect correction methods for singular perturbation problems, National Conference on Emerging Trends in Modern Science and Technology, S.D. (PG) College, Panipat, 29-30 March 2023.
3. Post Corona Effects on Psycho Socio Situation of Women, National Seminar on Women Empowerment: Post COVID Challenges and Hurdles, Bhagwan Parshu Ram College, Kurukshetra, 20 March 2023.
4. A parameter uniformly convergent hybrid numerical scheme for a singularly perturbed parabolic partial differential equation with time-delay, International Conference on Scientific Developments in the Current Era (ICSDCE-2021), I.B. College, Panipat, 09-10 April 2021.
5. A modified graded mesh and higher order finite element approximation for singular perturbation problems with two parameters, National Conference on Application of Mathematics in Physical Sciences in Today's Era, Department of Mathematics of Arya Kanya Mahavidyalya, Shahabad, 07 March 2020.
6. An Iterative Analytic Approximation of Non-Linear Singular Perturbation Problems, National Conference on Recent Advances in Mathematical Sciences, Dyal Singh College, Karnal, 29 February 2020.
7. Adaptive stabilization of discrete nonlinear singularly perturbed system with a time delay, National Conference on Multidisciplinary Approach in Sciences: Present Trends and Future Prospects, I.B(PG) College, Panipat & International Academy of Physical Sciences (IAPS), Allahabad, 08 November 2019.
8. An asymptotic numerical method for a class of weakly coupled systems, 4th International Conference on Recent Developments in Theory, Computation & Application of Differential Equation, South Asian University, New Delhi, 21 – 23 January 2019.
9. A posteriori error estimation technique for a class of partial functional differential equations, International Conference on Recent Advances in Theoretical & Computational Partial Differential Equations with Applications, Panjab University, Chandigarh, 05 – 09 December 2016.
10. Convergence Analysis of finite difference methods for partial functional differential equations, National Workshop on Current Developments in Mathematics & Computer Science, S.D. College Ambala, 18 March 2016.
11. Nonstandard perturbation approximation and travelling wave solutions of nonlinear reaction diffusion equations, National Conference on Role of Mathematics and Computer Science in Advancement of Physics, Govt. Degree College, Kathua (J&K), 26 – 27 February 2016.
12. A robust grid equidistribution method for singularly perturbed semi-linear functional differential equations, National Conference on Innovative Trends in Mathematical Sciences, M.M. University, Mullana, 30 March 2015.
13. Interior penalty discontinuous approximations of convection dominated problems with exponential boundary layers, International Conference on Modeling, Simulation & Optimizing Techniques, DAV College, Jalandhar, 12 – 14 February 2015.
14. Parameter uniform error estimates for a class of nonlinear singularly perturbed partial functional differential equation, Mathematical Modeling and Computational Techniques, Panjab University, Chandigarh, 27 – 28 September 2013.

15. Iterative analytic approximation to nonlinear convection dominated systems. Chandigarh Science Congress CHASCON-2013, Panjab University Chandigarh, 01 – 03 March 2013.

Seminars/Workshop/Conferences - Attended

1. National seminar on Importance of Technical Terms in Social Sciences, Indraprastha College for Women, University of Delhi, Delhi, 21 – 22 October 2024.
2. Workshop on Statistical Software R, Indraprastha College for Women, University of Delhi, Delhi, 3 – 4 April 2024.
3. Workshop on Research Methodology, Sree Vidyanikethan Engineering College, Tirupati, 22 May 2021.
4. National seminar on Emerging Trends in Applied Mathematics, Panjab University, Chandigarh, 27 February 2021.
5. International Conference on Advances in Differential Equations and Mathematical Modelling, Jawaharlal Nehru University, New Delhi, 18 – 20 December 2020.
6. National webinar on Mathematical Modelling and Applications, RMK College of Engineering & Technology, 27 – 28 July 2020.
7. International Conference on Recent Trends in Mathematics and its Applications to Graphs, Networks and Petri Nets (ICRTMA-GPN-2020), Jawaharlal Nehru University, New Delhi, 20 – 24 July 2020.
8. International Conference on Advances in Differential Equations and Mathematical Modelling, Jawaharlal Nehru University (JNU), New Delhi during 18 – 20 December 2020.
9. National Conference on Latest Trends in Algebra and Analysis, Guru Nanak Khalsa College, Karnal, 19 March, 2016.
10. Colloquium in Mathematics in the thrust areas of Algebra, Number Theory and Applied Mathematics. Department of Mathematics, Punjab University Chandigarh, 22 – 23 February 2013.
11. International Conference of FIM on Interdisciplinary Mathematics, Statistics and Computational Techniques (IMSCT 2012 FIM XXI), Department of Statistics, Panjab University Chandigarh 15 – 17 Dec. 2012.

Research Projects

1. On the development of numerical methods for singularly perturbed convection dominated problems, UGC Minor Project, 2015 – 2017.

Association with Professional Bodies

- Indian Society of Industrial & Applied Mathematics
- International Association of Engineers

Other Activities

Invited Talks/Session Chair

1. Chaired a session on Differential Equations and Mathematical Modelling, International Conference on Advances in Differential Equations and Mathematical Modelling, Jawahar Lal Nehru University (JNU), New Delhi, 18 – 20 December 2020.

2. Asymptotic-numerical method for a class of weakly coupled systems, International Conference on Recent Developments in Theory and Computation & Application of Differential Equations, South Asian University, New Delhi, 21 – 23 January 2019.
3. Algorithms for constructing Lyapunov functions: An Overview, International Conference on Recent Advances in Theoretical & Computational Partial Differential Equations with Applications, Panjab University, Chandigarh, 05 – 09 December 2016.
4. Chaired a session on Singular Perturbation, International Conference on Recent Advances in Theoretical & Computational Partial Differential Equations with Applications, Panjab University, Chandigarh, 05 – 09 December 2016.

Professional Training – Orientation Program/Refresher Program/FDPs/STTPs

1. Faculty Development Programme on Quantitative and Qualitative Research Methods, Birla Insitute of Technology, Mesra, 20-31 May 2024.
2. Short-Term Training/Faculty Development Programme on Introduction to High Performance Computing and its Application in Artificial Intelligence, Delhi Technological University, Delhi, 07-11 August 2023.
3. Five days International Workshop on Nutritious Diet for Well Being, KVA DAV College for Women, Karnal, 26-30 December 2022.
4. Faculty Development Programme on Vocational Education in NEP-2020, Govt P.G. College Morena, Madhya Pradesh, 12-17 December 2022.
5. Faculty Development Program on Data Analytics & Mathematical Software Tools, Ramanujan College, University of Delhi, Delhi, 25 February – 03 March 2022.
6. Short-Term Training Program on Information Security in the Era of Deep Learning: Challenges & Opportunities, Delhi Technological University, Delhi, 08-12 February 2021.
7. UGC sponsored Refresher Course on Mathematics & Statistics, UGC-HRDC, Guru Jambheshwar University of Science & Technology, Hisar, 14-27 January 2021.
8. Faculty Development Program on Exploring Science and Technology Interconnection, Panjab University, Chandigarh, 03-08 August 2020.
9. Faculty Development Program on Outcome-Based Engineering Education and Accreditation, National Institute of Technology, Meghalaya, 21-23 September 2020.
10. Faculty development program on Emerging Trends in Data Science & IoT, Arka Jain University, Jamshedpur, 20-25 July 2020.
11. Faculty Development Program on Power Quality and Reactive Power Management, Delhi Technological University, Delhi, 06-10 July 2020.
12. Faculty Development Program on Python Programming, Department of Computer Science & Engineering, K.L. University, Hyderabad, 15-18 July 2020.
13. Short-Term Training Program on Recent Trends in Security and Cryptography, Department of Applied Mathematics, Delhi Technological University, Delhi, 18-22 November 2019.
14. Three-week Refresher Course of UGC on Information and Communication Technology, Academic Staff College, G.J.U. of Science and Technology, Hisar, 21 June – 11 July 2018.
15. Four-week Orientation Course of UGC, Academic Staff College, Kurukshetra University Kurukshetra.
16. One Week advanced Workshop on Finite Difference Methods for Differential Equations (AWFDMDEs-2015), South Asian University, New Delhi, 13-17 March 2015.