

## BIO-DATA

### Name and Home Address

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### Educational Qualifications

- B.A. from Lala Lajpat Rai D. A. V. College, Jagraon (Ludhiana). (Punjab University, Chandigarh)
- M.Sc. (Mathematics) from Satish Chander Dhawan Government College, Ludhiana. (Punjab University, Chandigarh)
- B.Ed. (Mathematics/Economics) from S.D.S.College of Education for Women, Lopon, Moga. (Panjab University, Chandigarh)
- UGC-CSIR Qualified in 2003.
- Ph.D in Fluid Dynamics from IKG Punjab Technical University, Kapurthala.

### Teaching Experience: 18 years

- Presently working as **Assistant Professor** (Mathematics) at Yadwindra Department of Sciences, Punjabi University Punjabi University Guru Kashi Campus, Talwandi Sabo, Bathinda (Punjab) from October 06, 2022 to till date.
- Worked as **Assistant Professor** (Mathematics) at Punjabi University College of Engineering and Management, Rampuraphul, Bathinda (Punjab) from August 01, 2005 to October 05, 2022.
- Worked as **Assistant Professor** (Mathematics) at S. D. College, Moga (Punjab) from August, 2004 to March, 2005.

## **Awards**

1. Young Researcher Award (Female) Mathematics during I2OR Awards-2018 organised by International Institute of Organised Research.
2. Best Educator Award during RACE-2019 Bangkok Award on 10 February, 2019 at KU Home, Kasetsart University, Chatuchak, Bangkok, Thailand.
3. Best Teacher Award (Female) Mathematics during ITSr Foundation Award-2019 on March 31, 2019 at Jaipur (Rajasthan) India.

## **Membership**

1. Life membership of The Indian Society for Technical Education, 2012. (LM-80823 )
2. Life Membership of Punjab Academy of Sciences (L-1098)

## **National & International Conferences**

1. “Mathematical Modeling”, Third National Conference on Innovative Developments in Engineering Applications at B.G.I.E.T, Sangrur on 14-15, March, 2008.
2. “Applications of Mathematical Modelling” International conference on Information and Mathematical Sciences organized by D. A. V College, Bathinda on Oct 24-26, 2013.
3. “Role of Women in Sustainable Development”, presented in 5th International conference on Women and Development at WSC, Punjabi University, Patiala on Nov22-23, 2013.
4. “The Challenges of Female Education”, presented in 6th International conference on Women and Development on Oct-30-31, 2014 at WSC, Punjabi University, Patiala.
5. “Goal Programming-Introduction and Applications”, National conference Role of Information Technology In Management & Engineering organized by Malout Institute of Management and Information Technology, Malout (2015)
6. “Technology vs Human Values” presented in National Conference Human Values in Professional Education (HVPE’15) on 11-12 August, 2015 at Department of Applied Sciences, SVIET, Banur.

7. "Challenges of Globalization on Education", presented in National Conference Skill Development in Higher Education on 22nd August, 2015 at A. S. College, Khanna.
8. "Science Behind Hindu Traditions", presented in 3rd South Asian History Conference on Oct 16-18, 2015 at Department of History, Punjabi University, Patiala.
9. "The Role of Education in Women Empowerment", presented in 7th International conference on Women and Development on Dec 11-12, 2015 at WSC, Punjabi University, Patiala.
10. "Radiation Effect on MHD Flow Past an Impulsively Started Vertical Plate with Heat Source/Sink" presented in National Conference Advances in Wireless Communications and Mathematics on Dec 2, 2018 organised by Punjabi University Guru Kashi College, Talwandi Sabo, Dist - Bathinda.
11. "Heat Source/Sink Effect on Flow Past an Impulsively Started Vertical Plate with Radiations in presence of Variable Heat and Mass Transfer" presented in 2nd international conference in innovative computing on Dec. 14-15, 2018 at CGC College of Engineering, Mohali.
12. "Spherical Particles in Newtonian and Non-Newtonian Fluids" presented in National Seminar on Increasing Participation of Women in Science and Technology on March 16, 2019 at Hans Raj Mahila Vidyala, Jalandhar.
13. "Effect of Heat Source/Sink on Velocity and Temperature of MHD Flow Past an Infinite Vertical Plate", presented in International Multidisciplinary Seminar on India's March Towards Development Through UN's Sustainable Developments Goal 2030 on April 20, 2019 at D. A. V. College, Hoshiarpur.
14. "Effect of Heat Source/Sink on MHD Free- Convective Flow Past an Exponentially Accelerated Infinite Vertical Plate with Mass Diffusion and Chemical Reaction" presented in international conference ICCS 2019 on July 26-27, 2019 at Chandigarh Engineering College, Landran, Mohali (Punjab).
15. "MHD Free Convective Flow Past a Flat Plate in Presence of Transverse Magnetic Field and Thermal Radiation with Ramped Wall" presented in National Seminar

“Advances in Mathematical Sciences-2019” on Nov.15, 2019 at D.A.V. College, Abohar.

16. “Effect of Inclined Magnetic Field on Free Convective Fluid Flow Past a Vertical Plate” presented in 2<sup>nd</sup> National Conference “ Wireless, Communication and Mathematics (NCWCM’19)” on Dec 1, 2019 at Punjabi University Guru Kashi Campus, Talwandi Sabol.
17. “Influence of Heat Source/Sink and Magnetic Field on Fluid Flow Past an Infinite Vertical Plate” at International Web Conference on Science, Engineering and Technology (IWCSET-2020) organised by Society of Technologically Advanced Materials of India(STAMI) on May 15-16, 2020.
18. “Free Convective Fluid Flow near a Moving Vertical Plate with Uniform Magnetic Field ” at International Conference on Advances in Computing Communication and Control (ICA3C-2020) organised by School of Computer Science and Applications, IIMT University, Meerut, Utter Pradesh on 17-06-2020.
19. “MHD Effects on Rotating Fluid Flow Past an Accelerated Vertical Plate” at International Conference on “Recent Trends in Computer Science & Information Technology” organised by Guru Nanak College Budhlada, Punjab India on 9-10 April, 2021.
20. “Rotation and Thermal Radiation Effect on Fluid Flow: A Review.” At “4<sup>th</sup> International Conference on Mathematical Modelling, Applied Analysis and Computation -2021 ( ICMMAAC-21)” organised by Department of Mathematics, Faculty of Science, JECRC University, Jaipur, Rajasthan India on 5-7 August, 2021.
21. “Role of Mathematics in Higher Education” Interdisciplinary National Conference on “Higher Education in India: Perspectives and Prospects” organised by IQAC, Akal Degree College Mastuana, Sangrur on 11 September, 2021.

22. “Flow Analysis of Fluid Past a vertically Enhanced Plate” at 25th National Punjab Science Congress -2022 on Future Endeavours of Science and Technology for Sustainable Growth on Feb 7-9, 2022 held at Shri Guru Teg Bahadur Khalsa College, Shri Anandpur Sahib, Punjab.

23. “Flow Analysis of Fluid Past a vertically Enhanced Plate” at 9th International conference on Advance Research and Innovation on March 4-5 , 2022 held at CT University, Ferozpur Road, Ludhiana.

### **Publications in Proceeding, National and International Journals**

1. Shipra and Sandeep Gupta, “Multiobjective Optimization and Fuzzy Linear Programming Techniques”, published in proceeding of National conference on Advanced Mathematics and its applications (ISBN 978-81-920674-0-7) organized by Department of Mathematics, DAV College, Bathinda, 25-26 February, 2011 Page no 184-187.
2. Shipra and Rajeev Varshney, “Computer and Research-Applications and Limitations”, An International Journal of Engineering Sciences, Vol. 3, 2014, pp.65-69. ISSN: 2229-6913(Print) 2320-0332(online).
3. Shipra, Priyanka and Vibha Aggarwal, “Ant System of Optimization: Introduction and Review of Applications”, International Journal of Electronics Engineering Research (IJEER), Volume 9, Number 2, 2017, pp. 275-279. (UGC List no. 16752).
4. Priyanka, Shipra and Vibha Aggarwal, “Goal Programming for Decision Making: Review of Applications”, International Journal of Engineering Sciences and Technology (IJEST) , Vol. 9 No.05, 2017, pp.295-298. ISSN: 0975-5462. (UGC List no. 16781).
5. Vibha Aggarwal, Sandeep Gupta and Shipra, “Enactment Evaluation of Discrete Sine Transform (DST) for Blood Pressure Signal Compression in Salt Sensitive Dahl Rat”, International Journal of Computational Intelligence Research Volume 13, Number 6, 2017, pp. 1355-1359. ISSN: 0973-1873 (Print), 0974-1259(online). (UGC List no. 16569).
6. Vibha Aggarwal, Sandeep Gupta and Shipra, “Quality Controlled Blood Pressure Signal Compression in Salt Sensitive Dahl Rat using Fractional Fourier Transform”, International

- Journal of Electronics Engineering Research, Vol. 9, number 2, pp. 267-273, 2017. ISSN 0975- 6450. (UGC List no. 16752).
7. Shipra, Priyanka and Neetika (2018), "Swarm Intelligence- Overview and Applications", *International Journal of Advance and Innovative Research (IJAIR)*, 5(4(XII)), pp. 62-67. ISSN-2394-7780. (UGC List no. 63571).
  8. Garg, B. P., and Shipra, (2018), "MHD Flow Past an Impulsively Started Infinite Vertical Plate with Heat Source/Sink'', *Journal of Rajasthan Academy of Physical Sciences*, 17(3&4), pp. 151-164. ISSN: 0972-6306. (ESCI- Web of Science)
  9. Garg, B. P., Shipra and Neeraj, (2019), "Heat Source/Sink Effect on Flow Past an Impulsively Started Vertical Plate with Variable Heat and Mass Transfer'', *International Journal of Advance and Innovative Research (IJAIR)*, 6(1-V), pp. 36-45. ISSN-2394-7780. (UGC List no. 63571).
  10. Garg, B. P., and Shipra, (2019), "Heat Source/Sink Effect on MHD Free-Convective Mass Transfer Flow Past an Accelerated Vertical Plate'', *i-Manager's Journal on Future Engineering and Technology ( JFET)*, 14(3), pp. 35-42. ISSN: 0973-2632 (print), 2230-7184 (online).
  11. Garg, B. P., and Shipra, (2019), " Exact Solution of MHD Free-Convective and Mass Transfer Flow Near a Moving Vertical Plate in the Presence of Heat Source/Sink'', *Journal of Rajasthan Academy of Physical Sciences*, 18(1&2), pp. 25-44 ISSN: 0972-6306. (ESCI- Web of Science).
  12. Garg, B. P., and Shipra, (2019), "Effect of Heat Source/Sink on Unsteady Free Convective MHD Flow Past a Linearly Accelerated Vertical Plate with Mass Diffusion'', *International Journal of Scientific Research and Reviews*, 8(2), pp. 1437-1454. ISSN : 2279-0543
  13. Garg, B. P., and Shipra, (2019), "Effect of Heat Source/Sink on Free Convective MHD Flow Past an Exponentially Accelerated Infinite Plate with Mass Diffusion and Chemical Reaction'', *International Journal of Innovative Technology and Exploring Engineering*. 8(9S), pp. 696-702. ISSN: 2278-3075. (Scopus)
  14. Vibha Aggarwal, Sandeep Gupta, Shipra and Priyanka, "Seismocardiogram Signal Compression using DCT and DWT'', *Journal of Critical Reviews*, Vol. 7, issue 9, pp. 3406-3409, sep 2020. ISSN: 2394-5125. (Scopus).

15. Shipra, "An analysis of heat source/sink influence on MHD fluid flow past a vertically enhanced plate with radiations", Journal of Engineering Research, DOI : 10.36909/jer.17737. (SCI-Scopus).
16. Shipra, "Numerical investigation of MHD parabolic flow past an isothermal plate with heat source/sink", Materials Today, June 23, <https://doi.org/10.1016/j.matpr.2023.01.358>. (Scopus).

## **Books**

1. Garg, B. P., and Bansal, S., (2020), "Advances in Fluid Dynamics-1 (A Mathematical Analysis)" with ISBN: 978-620-0-54870-2 published by LAP LAMBERT Academic Publishing.
2. "Recent Trends in Mathematical and Statistical Science" with ISBN: 978-93-88901-17-8, Bhumi Publication, Maharashtra, India, April, 2021. (as Editor)

## **Book Chapters**

1. "Use of Vedic Mathematics in Today's Era" published in book "Advances in Wireless Communications and Mathematics on chapter 26, pp 170-176, Dec 2, 2018 with ISBN 978-93-85446-98-6, TWENTY FIRST CENTURY PUBLICATIONS, Punjabi University, Patiala.
2. "Utility of Nanotechnology in various Disciplines" published in book "Nanotechnology-Advances and Real Life Applications" chapter 5, pp 61-70, on 19 Oct, 2020 with ISBN 9781003082859, CRC Press, Taylor & Francis Group.
3. "An Introduction to Some Nature Based Optimization Techniques" published in book "Recent Trends in Mathematical and Statistical Science" Chapter 1, pp 1-6 on April, 2021 with ISBN : 978-93-88901-17-8, Bhumi Publication, Maharashtra, India.
4. "L1 convergence of Modified Trigonometric Sums" published in book "Recent Trends in Mathematical and Statistical Science" Chapter 3, pp 15-21 on April, 2021 with ISBN : 978-93-88901-17-8, Bhumi Publication, Maharashtra, India.
5. "Impact of Nanotechnology on Human Life" published in book "The Era of Nanotechnology- Emergence and Essentials" chapter 3, pp 51-62, ISBN 9781771889858, CRC Press, Taylor & Francis Group, Dec. 2021.
6. "Analysis of Domestic Cars in India for Middle-Income Group Using TOPSIS" published in book "Autonomous Vehicles: Volume 2 Smart Vehicles" chapter 10, Print ISBN:

9781394152254 |Online ISBN: 9781394152636, Wiley online library, November 2022.  
DOI:10.1002/9781394152636

7. Optimization Practices Based on the Environment in Image Processing” published in book “The Impact of Thrust Technologies on Image Processing” chapter 12, pp 253-268, ISBN: 979-8-88697-832-2, Nova Science Publishers, New York, June 2023.
8. Comparison of Digital Image Watermarking Methods: An Overview” published in book “The Impact of Thrust Technologies on Image Processing” chapter 12, pp 149-166, ISBN: 979-8-88697-832-2, Nova Science Publishers, New York, June 2023.

## **Patents**

1. Title “SPATO-TEMPORAL MODELLING TECHNIQUES FOR PREDICTING COVID-19 INFECTION RISK THROUGH WEARABLE” granted on 21st October, 2020 by Australian Government with Patent number: 2020102363.
2. Title “IOT BASED TRUST MODELING APPROACH FOR COOPERATIVE AUTONOMOUS DRIVING AND INTELLIGENT TRANSPORT SYSTEMS (ITS)” granted on 4th November, 2020 by Australian Government with Patent number: 2020102543.
3. Title “ARTIFICIAL INTELLIGENCE FOR IOT BASED NETWORKS DESIGNED 5G NETWORKS” granted on 3<sup>rd</sup> March, 2021 by Australian Government with Patent number: 2020104081.

## **FDP, STC, Webinar, Seminar, Online Courses Attended**

1. Orientation Course organized by UGC- ASC, P.U. Chandigarh from 2.12.2008 to 29.12.2008.
2. Refresher Course in Mathematics organized by UGC- ASC, G.N.D.U. Amritsar from 4.12.2009 to 24.12.2009.
3. Third Science Conclave organized by IIIT, Allahabad from 8.12.2010 to 14.12.2010.
4. Capacity building of Women Mangers in higher education organized by WSC, Punjabi University, Patiala from 17.1.2011 to 21.1.2011.



5. Short Term Training Programme on “Teaching with Matlab and Simulink” , organized by GGS college of Engineering and Technology,Guru Kashi University, Talwandi Sabo(Bathinda) from 17th -22nd June,2013.
6. Faculty Development Programme on “Introduction to Labview and its Applications in Digital Signal Processing organized by Malout Institute of Management & Information Technology, Malout from 16th -20th June, 2014.
7. STTP on “Renewable Energy Applications:Practices and Challenges” , organized by Department of Electrical &Instrumentation Engineering at SLIET,Longowal from December21-25,2015.
8. Refresher Course in Basics of Applied Sciences organized by UGC- ASC, G.N.D.U. Amritsar from 26.5.16 to 15.6.16
9. Workshop on “Mathematical Modeling and Statistical Techniques” organized by Department of Applied Science, SLIET, Longowal ,Dist-Sangrur from 30.7.18 to 3.8.18.
10. Workshop “Engineering Today” organized by Yadwindra College of Engineering, Punjabi University Guru Kashi Campus, Talwandi Sabo, Dist- Bathinda from 07.01.19 to 11.01.19.
11. Online course on “Hands-On-Training for Managing the References using Endnote X9 Software“ organized by International Journal of Advance Study and Research Work on 23 April 2020.
12. Training on Diksha App. By IGOT, Department of Personnal and Tranning
  - (i) “Psychological care of Patients with COVID-19” on 24<sup>th</sup> April, 2020.
  - (ii) “Basics of COVID-19” on 25<sup>th</sup> April, 2020.
  - (iii) “Infection Prevention and Control” on 28<sup>th</sup> April, 2020.
13. Webinar on “TEACHING AND LEARNING MODES POST COVID – 19 held on 29th April 2020 (11:00AM to 12:30 PM) conducted by the department Electronics and Communication Engineering, Punjabi University, Rajpura Road, Patiala, Punjab, India.
14. Five Days National E- Workshop on “Research Methodology” organized by University Business School, Maharaja Ranjit Singh Punjab Technical University, Bathinda held on 4<sup>th</sup> May to 8<sup>th</sup> May, 2020.

15. Online Programme on “NAAC Awareness Programme for Faculty” organized by Marathwada Mitra Mandal Institute of Technology (MMIT), Lohgaon, Pune - 47 conducted online during the period 08/05/2020 to 14/05/2020.
16. One Day FDP on “CHALLENGES IN BUILDING COLLABORATIONS IN RESEARCH AND INNOVATIONS” on 9.05. 2020 organised by Faculty of Humanities and Science, ADAYALAMPATTU Phase II Campus and Abdul Kalam Centre Innovation and Entrepreneurship Development.
17. Online Technical Seminar on “Trends in Digital Signal Processing and Its Applications in Industry” Organized by Department of Electronics & Communication Engineering, Sri Venkateshwara College of Engineering, Bengaluru held on 10/05/2020.
18. National Webinar Series on “Knowledge Generation in Education During COVID-19 Pandemic” organized by Bombay Teacher’s Training College, HSNC University and Department of Education, University of Mumbai from 12<sup>th</sup> May to 16<sup>th</sup> May, 2020.
19. National Webinar on “Impact of COVID-19 on Global Economy” organized by Inspira Research Association(IRA), Jaipur and Indian Accounting Association(IAA), Jaipur on 15<sup>th</sup> May, 2020.
20. Online workshop on “Multimedia Tools and Design Elements” organized by Hans Raj Mahila Maha Vidyala, Jalandhar on 17<sup>th</sup> May, 2020.
21. Three Days National Level Online Course on “Operation Research” organized by Department of Mathematics, Virudhunagar Hindu Nadars Senthikumara Nadar College, Virudhunagar, Tamilnadu from 18<sup>th</sup> May to 20<sup>th</sup> May, 2020.
22. One Day National Online Seminar on “Advances in Material Science” organized by Department of Chemistry, Maharashi Dayanand College of Arts, Science & Commerce, Parel, Mumbai held on 20<sup>th</sup> May,2020.
23. National Level Webinar on “Action Research” organized by Dnyan Ganga Education Trust’s, College of Education (B. Ed.), Thane on 23<sup>rd</sup> May, 2020.
24. Webinar on “How to ace online teaching using free tools “ held on 26th May 2020 organized by the Department of Business Administration , Shift I ,St.Thomas College of Arts and Science, Chennai in Association with IQAC.

25. One Day National Webinar on “New API Format of UGC 2019 for Professor, Associate Professor and Assistant Professor” organized by Dr. M. K. Umathe College, Nagpur and Shri Niketan Arts and Science College, Nagpur on 29<sup>th</sup> May, 2020.
26. One Day International Webinar on “MATLAB Applications in Sciences and Engineering” organized by Baba Farid College, Bathinda on 29<sup>th</sup> May, 2020.
27. National Level Webinar on “ Teaching with Technology” organized by IQAC of Bhavan’s Hazarimal Somani College & Jayaramdas College of Commerce and Management studies and Maharashtra College of Arts , Science and Commerce of Arts and Science affiliated to Mumbai University on 30<sup>th</sup> May, 2020.
28. AICTE & ISTE approved One Week Faculty Development Program on "Enhancing Research Capabilities" from 1<sup>st</sup> to 5<sup>th</sup> June, 2020, organized by Society of Materials and Mechanical Engineers (SOMME), Bathinda.
29. Participated in the One Day International Virtual Conference “Novel Corona and Novel Challenges:Life Ahead with Covid -19” held on 03 June, 2020 organised by Sri Guru Gobind Singh College Sector 26, Chandigarh.
30. Online Course “Remote Sensing & GIS Technology and Applications for University Teachers & Government Officials” held on 13.06.2020 to 01.07.2020 (19 Days) at Indian Institute of Remote Sensing (IIRS), ISRO Dehradun sponsored by The Indian Space Research Organization (ISRO).
31. STTP “Internet of Things and its Applications” organized by Department of Electronics and Communication Engineering, GZSCET Maharaja Ranjit Singh Punjab Technical University, Bathinda during 15<sup>th</sup>-20<sup>th</sup> February, 2021.
32. “Winter School in Mathematics, Computer Science and Information Technology” organized by UGC-HRDC, Kannur University, Kerela from 25.02.2021 to 10.03.2021.

**(SHIPRA)**