

BRIEF CURRICULUM-VITAE

Dr. Ram Naresh Tripathi
Professor and Head



Department of Mathematics
School of Basic and Applied Sciences
Harcourt Butler Technical University
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EDUCATIONAL QUALIFICATIONS :

- Ph.D., I.I.T. Kanpur, 1993, Mathematical Modeling – Air Pollution
- M. Sc.(Mathematics), Kanpur University, 1984, First
- B. Sc., Kanpur University, 1982, First
- Intermediate, U.P. Board, Allahabad, 1980, First
- High School, U.P. Board, Allahabad, 1978, First

TEACHING EXPERIENCE:

- Lecturer, Aug.23, 1993- Aug.22, 1997
- Senior Lecturer, Aug.23, 1997-Aug.22, 2002
- Assistant Professor Aug.23, 2002 – Dec.31, 2005
- Associate Professor Jan.01, 2006 – Aug.22, 2010
- Professor, Since Aug. 23, 2010 - continue
Department of Mathematics, HBTU Kanpur

COURSES TAUGHT:

- B. Tech, - Mathematics I, II, III, Computer Oriented Numerical Methods, Computer Oriented Numerical and Statistical Techniques, CONM Lab, Numerical Techniques Lab., Operations Research
- MCA – Mathematical Foundations of Computer Science, Linear Algebra, Computer Based Optimization Techniques, Operations Research
- M. Tech. – Numerical Methods and Operations Research
- Ph.D. – Operations Research
- M.Sc. - Complex Analysis

ACADEMIC DISTINCTIONS/AWARDS AND HONOURS

- Awarded ‘ **Outstanding Researcher Award** ’ in the field of Mathematics by Scientific Laurels on 19th November 2025

- Actively involved in research in the area of Mathematical modeling of the spread of infectious diseases and control, HIV/AIDS transmission, Environmental pollution and its abatement, Global warming and its control
- Published more than **One hundred** research papers in international and national journals
- Awarded **Eight** Ph.D. and **two** student registered
- Delivered many **invited talks** and attended many international and national conferences
- Attended various Refresher courses, summer/winter schools and online webinars
- Member of various learned Societies/Academies viz National academy of Sciences India, Indian Mathematical Society, Indian Science Congress Association, Bharat Ganit Parishad, Indian Society for Mathematical Modeling & Computer Simulation etc.
- Awarded **Certificate of Appreciation** by *Rajbhawan Uttar Pradesh* for working successfully in a team for NAAC accreditation June 2023
- **Chief Guest**, National Mathematics Day celebration, BND (PG) College, Kanpur, Dec. 22, 2020
- Awarded **Certificate of Appreciation** for successfully organizing and managing the Annual Cultural Fest “**Odyssey – 2018**”, April 27-29, 2018 as Dean Students’ Welfare/Chairman University Students Activity Council, HBTU Kanpur
- Awarded **Certificate of Appreciation** for delivering lecture on Mathematical Modeling as Resource Person in *Short Term Training Programme on Research Methodology*, Sept. 05-09, 2016, UPTTI Kanpur
- **Chief Guest**, National Mathematics Day Seminar, Shri Shakti Degree College, Kanpur, Dec. 22, 2015
- **Guest of Honour**, Ramanujan Lecture Series, BND(PG) College, Kanpur, Dec. 19, 2015
- **Judge**, National Level Science Exhibition (Mathematical Models), 2015-16, Jawahar Navodaya Vidyalaya, Sarsaul, Kanpur
- **Judge**, Uttar Pradesh and Uttranchal Science Level Exhibition, Puran Chandra Vidya Niketan, Kanpur, Aug. 22, 2008
- Won “**Best Paper Prize**”, Conference of Bharat Ganit Parishad, Nov.23-24, 2002, Lucknow University, Lucknow
- Won “**Best Paper Award**”, 7th Annual Conference of VPI, Oct. 24-26, 1997, HBTI, Kanpur
- **Awarded** CSIR JRF and SRF during Ph.D. program, 1987-1992, IIT Kanpur
- Qualified CSIR JRF examination 1986-87.
- Qualified Common Examination for Research Admission, 1985

ADMINISTRATIVE ASSIGNMENTS

- **Dean**, School of Entrepreneurship & Management, HBTU Kanpur, May 05, 2023 – continue
- **Head**, Department of Mathematics, HBTU Kanpur, March 01, 2024 - continue

- **Professor-in-Charge**, Tagore Central Library, HBTU Kanpur, April 06, 2022 – Dec.27, 2023
- **Finance Controller**, HBTU Kanpur, April 06. 2021 – July 28. 2021
- **Coordinator (Director), STEP-HBTI** (An institute offering management courses affiliated to APJ Abdul Kalam Technical University, Lucknow), Aug. 04, 2020 - **continue**
- **Dean of Students' Welfare**, June 03, 2017- June 02, 2019, Sept. 14, 2019 – Sept.13, 2021, HBTU Kanpur
- **Chief Proctor**, July 5, 2017 – June 02, 2019, Sept.28, 2019 – Sept.13, 2021, HBTU Kanpur
- **Chairman**, University Students Activity Council, August 26, 2017- June 02, 2019, Sept. 14, 2019 – Sept.13, 2021, HBTU Kanpur
- **Chairman**, Council of Hostel Activities, June 03, 2017 – June 02, 2019, Sept. 14, 2019 – Sept.13, 2021, HBTU Kanpur
- **Mentor**, Induction Programme for Ist year B. Tech students, 2017-18, 2018-19, HBTU Kanpur
- **Coordinator**, Committee for hostel fees restructuring and policy framing for its utilization, HBTU Kanpur, 2019
- **Coordinator**, Committee for head wise fees collection/distribution and remuneration for examination related work, HBTU Kanpur, 2019
- **Coordinator**, RUSA/DDU scheme, July 11, 2019 - Feb. 05, 2020, HBTU Kanpur
- **Member**, Committee for proposing changes in ordinance to convert 3-year MCA programme into 2-year MCA programme, March 2020, HBTU Kanpur
- **Officer-in-charge**, University Canteen, July 25, 2017- June 02, 2019, HBTU Kanpur
- **Member**, Committee for DPR preparation for income-expenditure statement of students' fee structure, HBTU Kanpur, 2019
- **Member, Committee** for framing rules/regulations for expenditure of fees under the head 'Economically Weaker Section Fund', 16/08/2019
- **Member**, Committee for branch-wise allocation of number of guest faculty, June 2019, HBTU Kanpur
- **Co-Coordinator**, Guest Faculty selection. 2019, HBTU Kanpur
- **Convener**, Committee for catering services in University through rate contract E – tender, 01/07/2019, HBTU Kanpur
- **Member**, Committee for furniture requirement and specifications in University hostels, HBTU Kanpur, 2019
- **Chairman**, Cell for J & K students for higher studies, June 05, 2018 – June 02, 2019, HBTU Kanpur
- **Convener**, Student Grievance Redressal Cell, 2018-19, HBTU Kanpur
- **Convener**, Search Committee for appointment of Ombudsman in University, May 17, 2018, HBTU Kanpur
- **Member**, Academic Council, HBTU Kanpur, 2017-18, 2018-19, 2019-20, 2020-21, 2022-23, 2023-24

- **Chairman**, Committee for preparation of *Information Brochure* 2017-18, HBTU Kanpur
- **Member**, Central Purchase Committee, 2017-18, 2018-19, 2019-20, 2020-21, 2021-22, 2022-23, 2023-24 HBTU Kanpur
- **Member**, Board of Studies (Mathematics), 2018, 2019, 2020, 2022-23, 2023-24 HBTU Kanpur
- **Convener**, Inquiry committee on class IV *suspended* employees, July 2017, HBTU Kanpur
- **Flying Squad Member**, End Semester (Even) Examination 2017-18, End Semester (Odd & Even) Examination 2018-19, 2023-24, 2024-25 HBTU Kanpur
- **Professor-in-Charge**, Central Evaluation, Even semester, 2015-2016, HBTU Kanpur
- **Professor-in-Charge**, Central Evaluation, Odd and Even semester, 2016-17, HBTU Kanpur
- **Convener**, Screening Committee for promotion of employees from class four to class three (Tech. grade), Jan. 2016, HBTU Kanpur
- **Assistant Dean of Students' Welfare**, Sept. 29, 2014 – Oct. 29, 2015, HBTU Kanpur
- **Head**, Department of Mathematics, HBTU Kanpur, March 23, 2012- March 23, 2015
- **Chairman**, Board of Studies (Mathematics), HBTU Kanpur, 2012-2015
- **Member**, Academic Committee, HBTU Kanpur, 2012
- **Member**, Academic Council, HBTU Kanpur, 2012
- **Assistant Superintendent**, UPTU Odd Semester Examination, 2009-10 at HBTU Kanpur
- **Warden**, West Campus Hostel II, Dec.2004 – July 2007, HBTU Kanpur.
- **Officer- in- Charge, Institute Guest House**, May 2007- April 2010, HBTU Kanpur.
- **Warden**, Lake View (New) Hostel, Nov. 2001- July 2004, HBTU Kanpur.
- **Senator**, Students' Senate, 1989-90, 1990-91, IIT Kanpur.
- **Student Representative**, Department Post Graduate Committee (DPGC), 1989-90, 1990-91, Department of Mathematics, IIT Kanpur.
- **Student Representative**, Senate Post Graduate Committee (SPGC), 1990-91, IIT Kanpur.

MAJOR CONTRIBUTIONS AS DEAN STUDENTS' WELFARE /CHIEF PROCTOR / CHAIRMAN USAC , HBTU KANPUR

- Member Secretary, Committee on Economically Weaker Section Fund Rules-2019 and Student Aid Fund Rules-2019
- Managed and supervised all hostel affairs including hostel allotment, mess facility with assured food quality, hostel maintenance, hygiene, compliance of hostel rules, ambulance facility round the clock etc.

- All hostel messes brought under the ambit of Food Safety and Standards Authority of India (FSSAI).
- Started Bus facility for students between East and West campus, 2019-20
- For overall development of students, various activities were organized under University Students Activity Council (USAC) through its Sub-Councils viz NSS, Yoga, Photography, Literary, Hobby, Sports, Technical, Cultural and Social & Print Media etc.
- Formation of Anti-ragging committee and Anti-ragging squads and its wide publicity to make University campus ragging-free with strict compliance of UGC/AICTE directives.
- Adoption of 10 TB infected children and constitution of a task force for their medicine, nutrition and motivation, 2019-20
- Organized Fit India Movement programme including ‘Cyclothan’ (Cycling), Dec. 07-31, 2020
- Organized Annual Sports Fest “Aagaz-20”, Feb. 15-17, 2020
- Organized Annual Techno-cultural Fest “ADHYAAY – 2019”, Nov. 28-30, 2019
- Established ‘Print and Social Media Sub-Council’ under University Students Activity Council (USAC), Sept. 2019
- Publication of fortnightly news letter “The Pulse of HBTU” since Sept. 2019
- Organized Intercollegiate Annual Athletic cum Sports Fest “Aagaz-19”, March 08-10, 2019 with Fun Fair, EDM night and inter-hostel competitive events.
- Organized an Outreach Programme for Research Scholars and teachers on Fulbright-Nehru and other Fulbright Fellowships by United States India Educational Foundation (USIEF), Jan. 31, 2019 (Speaker: Dr. Inumulu Jaya Bharti, Indian Programme Coordinator).
- Organized One day Workshop on “Self Defense through various Techniques of Martial art” for girl students, Feb. 10, 2019.
- Organized Annual Techno-cultural Fest “ADHYAAY – 2018”, Oct. 26-28, 2018
- Organized One day Workshop on “Enhancement of Professional Skills for Placement” and University Teachers’ Day Function, Sept.05, 2018.
- Organized One day Ideation Workshop, Fresher Function and University day celebration, September 01, 2018.
- Organized Three weeks Induction Programme for First Year B. Tech. Students, July 31-August 18, 2018, HBTU Kanpur as **Coordinator**.
- Organized Annual Cultural Fest “ODYSSEY – 2018”, April 27-29, 2018
- Organized Annual Sports Meet & Prize distribution March 24-25, 2018.
- Organized One week Induction Programme for First Year B. Tech Students, Jan. 15-21, 2018, as **Mentor**.
- Started and managed ‘Online hostel & mess fees payment’ for University hostels, 2018.
- Started and managed CCTV and Biometric systems in University hostels, East Campus, 2018.

- Managed to install RO plants in West Campus University hostels by Ms. Kamdhenu Ltd., Gurugram, Haryana, 2018.
- Newly constructed Gymnasium became functional for students, 2018.
- Completion of cricket *turf pitch* on West Campus sports ground, 2018.
- Tree plantation drive in University hostels.
- Organized frequent medical camps in the University premises for students.
- Arranged Cashless treatment in hospitals and mediclaim policy for all students.
- PNG supply installation in all University hostels through MOU between CUGL and HBTU Kanpur.
- Organized One day Workshop on Awareness Programme under Rastriya Swachhata Mission with Kanpur Nagar Nigam and HBTU Kanpur, Dec. 22, 2017,
- Organized Prime Minister's live telecast address, Student Leader's Convention on the occasion of Pt. Deendayal Upadhyay Centenary Celebrations & 125th year of Swami Vivekanand's Chicago Address, Young India, New India A Resurgent Nation: From Sankalp to Siddhi, September 11, 2017, HBTU Kanpur,
- Organized several Jayantis, Run for freedom and functions on other important days viz Shahid diwas (March 23, 2018), Ambedkar Jayanti, (April 14, 2018), Ravidas Jayanti (Jan. 31, 2018), Matrabhasha diwas (Feb. 21, 2018), Hemvati Nandan Bahuguna Shatabdi Varsh Samaroh (April 25, 2018), Kisan diwas (Dec. 23, 2018), Atal Jayanti (Dec. 25, 2018), Teachers day celebration (Sept.05, 2019), Rastriya Ekta Diwas, Sardar Patel Jayanti (Oct. 31, 2019), Matdata Shapath Samaroh (Jan. 25, 2019, Jan.25, 2020), Vigyan Diwas (Feb. 28, 2020), Parakram Diwas, Netaji Subhas Jayanti (Jan.23, 2021) etc.

EXTRA-CURRICULAR / CO-CURRICULAR ASSIGNMENTS

- **Member**, Academic Council, PSIT Kanpur (Letter dated Jan. 14, 2026)
- **Vice President**, Indian Society for Mathematical Modeling and Computer Simulation (ISMMAACS), 2022-24, 2024 - Continue (HQ: IIT Kanpur)
- **General Secretary**, Indian Society for Mathematical Modeling and Computer Simulation (ISMMAACS), 2018-20, 2020–2022 (HQ: IIT Kanpur)
- **Convener**, Welcome and Stage Conduction Committee, Seventh Convocation of University, Sept. 19, 2025, HBTU Kanpur
- **Member**, National Advisory Committee, International Conference on 'Recent Advances in Mathematics, Mathematical Modelling and Banach Fixed Point Theory', Dec. 13-14, 2025, DAV College Kanpur
- **Member**, Core Committee and Convocation Procession Committee, Seventh Convocation of University, Sept. 19, 2025, HBTU Kanpur
- **Member**, Committee for Program, Annual Report, Messages and Convocation Address, Seventh Convocation of University, Sept. 19, 2025, HBTU Kanpur

- **Member**, Screening Committee for faculty recruitment in Mathematics (Professor), HBTU Kanpur, 2025 (Office order dated Feb.05, 2025)
- **Member**, Screening Committee for promotion in Mathematics, June 28, 2025, REC Kannauj
- **Subject Expert**, Selection committee for guest faculty in Mathematics at AITH Kanpur, July 23, 2025
- **Vice Chairman**, Committee for Guest Faculty selection in School of Entrepreneurship & Management, July 24, Sept.30, 2024, HBTU Kanpur
- **Chairman**, Students Research Advisory Committee (SRAC) in Mathematics, April & Nov. 2024, May 2025, HBTU Kanpur
- **Member**, Core Committee, Alumni Meet, Nov.23-24, 2024, HBTU Kanpur
- **Convener**, Stage Conduction/Compering Committee, Alumni Meet, Nov.23-24, 2024, HBTU Kanpur
- **Member**, Valedictory Function Committee, Alumni Meet, Nov.23-24, 2024, HBTU Kanpur
- **Member**, Committee for Guest Faculty selection in Mathematics, July 24, 2024, HBTU Kanpur
- **Member**, Committee for framing new ordinance of BS-MS and revision of existing B.Tech./M.Tech. ordinances, June 29, 2024, HBTU Kanpur
- **Chairman**, Research Scholars Selection Committee in management studies, Jan, 11, 2024, July 01, 2025, HBTU Kanpur
- **Member**, Research scholars selection committee, Sept. 06, 2020, Dec. 2024, July 01, 2025 HBTU Kanpur
- **Convener**, Welcome and Stage Conduction Committee, Sixth Convocation of University, Sept. 27, 2024, HBTU Kanpur
- **Member**, Committee for Program, Annual Report, Messages and Convocation Address, Sixth Convocation of University, Sept. 27, 2024, HBTU Kanpur
- **Member**, Core Committee and Convocation Procession Committee, Sixth Convocation of University, Sept. 27, 2024, HBTU Kanpur
- **Convener**, Welcome and Stage Conduction Committee, Fifth Convocation of University, Sept. 29, 2023, HBTU Kanpur
- **Member**, Committee for Program, Annual Report, Messages and Convocation Address, Fifth Convocation of University, Sept. 29, 2023, HBTU Kanpur
- **Member**, Core Committee and Convocation Procession Committee, Fifth Convocation of University, Sept. 29, 2023, HBTU Kanpur
- **Convener**, Welcome Committee, NAAC visit, May 16-18, 2023, HBTU Kanpur
- **Convener**, Committee for selection of Apprenticeship Trainees in Tagore Central Library, March 15, 2023, HBTU Kanpur
- **Convener**, Welcome and Stage Conduction Committee, Fourth Convocation of University, Nov.24, 2022, HBTU Kanpur

- **Member**, University Admission Committee 2023-24 as Dean School of Entrepreneurship and Management, HBTU Kanpur (20/06/2023, 22/11/2023)
- **Member**, Central Purchase Committee, 2023-24, HBTU Kanpur
- **Member**, Committee for finalization of Screening and Selection Criteria for recruitment of Teaching /Administrative positions, HBTU Kanpur (letter dated June 07, 2023)
- **Member**, Committee for finalization of recruitment rules for administrative positions, HBTU Kanpur (letter dated June 05, 2023)
- **Chairman**, Committee for Screening/Scrutiny of applications for the post of Librarian, HBTU Kanpur (letter dated July 26, 2023)
- **Member**, Committee for testing of software format for Online applications for recruitment of teachers and administrative positions as per AICTE/UGC norms, HBTU Kanpur (letter dated May 25, 2023)
- **Member**, Result Preparation Committee after written test for direct recruitment of Assistant Professors/ Non-teaching positions in University, HBTU Kanpur (letter dated August 19, 2023)
- **Subject Expert**, Selection Committee for Guest Faculty interview (Mathematics), IET Lucknow, Nov.07, 2022
- **Subject Expert**, Selection Committee for Guest Faculty interview (Mathematics), AITH Kanpur, Aug. 26, 2022
- **Subject Expert**, Interview Committee for selection of faculty under self finance scheme (Mathematics), CSJM University Kanpur, Aug.23, 2022
- **Subject Expert**, Selection Committee for promotion of faculty under CAS (Mathematics), BIET Jhansi, Aug.06, 2022 (Online)
- **Member**, Screening and Assessment Committee for promotion of faculty under CAS (Mathematics), BIET Jhansi, July 14, 2022
- **Member**, Selection Committee of Research Scholars, CSJM University Kanpur, June 14, 2022 (Online)
- **Member**, RDC (Mathematics), CSJM University Kanpur, March 02, 2022 (Online)
- **Member**, Task Force Committee to implement NEP2020, HBTU Kanpur, Jan. 13, 2022
- **Convener**, Welcome and Stage Conduction Committee, Third Convocation of University, Dec. 27, 2021
- **Member**, Committee for Program, Annual Progress Report, Convocation Address, Third Convocation of University, Dec. 27, 2021
- **Chairperson**, Fifth National Conference on Global Challenges in Business, Economy & Society: For Sustainability & Growth in New Normal, Dec. 21-22, 2021, STEP-HBTI Kanpur
- **Convener**, Committee for speech preparation of Chief Guest and other dignitaries, Centenary Year Celebration, Nov. 25, 2021
- **Member**, Stage Conduction Committee, Centenary Year Celebration, Nov. 25, 2021

- **Chairperson**, e-Conference on Innovative and Sustainable Business Practices in Social Sciences & Technology in Prevailing COVID Era, Nov.11, 2021, STEP-HBTI Kanpur
- **Subject Expert**, Interview Committee for selection of Research Scholars, CSJM University Kanpur, Sept. 16, 2021
- **General Secretary**, Indian Academy of Mathematical Modeling and Simulation (IAMMS), 2018-20, 2020-22 (HQ: IIT Kanpur)
- **Convener**, Committee for Welcome and Stage conduction, Second Convocation-2020 held on Jan.29, 2021, HBTU Kanpur
- **Convener**, Committee for Discipline and Students management, Second Convocation-2020 held on Jan.29, 2021, HBTU Kanpur
- **Member**, Committee for Program Details, Annual Report, Messages and Convocation Address, Second Convocation-2020 held on Jan.29, 2021, HBTU Kanpur
- **Chairperson**, Fourth National Conference (Online) on Covid-19 Pandemic: Management of Human Aspirations, Dec. 28-29, 2020, STEP-HBTI Kanpur
- **Member**, Internal Quality Assurance Cell (IQAC), Christ Church College, Kanpur, 2020-21, 2021-22, 2022-23
- **Member**, Committee for organizing Guest Faculty selection, HBTU Kanpur, Jan. 2020, Oct. 2020
- **Subject Expert**, Guest Faculty selection committee (Mathematics), AITH Kanpur, Oct. 17, 2020
- **Member Secretary**, Programme Conduction Committee, First Convocation, Dec.07, 2019 HBTU Kanpur
- **Convener**, Committee for discipline and students management, First Convocation, Dec.07, 2019 HBTU Kanpur
- **Member**, Committee for preparation of Annual report, Convocation address, agenda and messages, First Convocation, Dec.07, 2019 HBTU Kanpur
- **Convener**, Cultural Committee and Discipline Committee, 15th International Alumni Meet 2019, Nov. 23-24, 2019
- **Member**, Reception Committee, 15th International Alumni Meet 2019, Nov. 23-24, 2019
- **Member**, Research and Development Council (RDC), 2019, 2020, HBTU Kanpur
- **Convener**, Committee for preparation of documents for Criteria 09 (Student Support System) regarding NBA Accreditation team visit, Nov.15-17, 2019
- **Member**, Committee for reception, University presentation preparation, central facilities, labs and first year teaching faculty regarding NBA Accreditation team visit, Nov.15-17, 2019
- **Member**, National Advisory Committee, National Conference on Modeling, Analysis & Simulation (MAS-2019), Dec.16-18, 2019, IIT (ISM) Dhanbad, Jharkhand

- **Member**, National Advisory Board, 3rd International Conference on Soft Computing & Mathematical Modeling (ICSCMM-19), Dec.22-23, 2019, KIET Ghaziabad
- **Member**, Reception Committee, International Alumni Meet, Nov. 24-25, 2018, HBTU Kanpur
- **Convener**, Cultural Committee and Discipline Committee, International Alumni Meet, Nov. 24-25, 2018, HBTU Kanpur
- **Member**, Selection Committee for Ph.D. students, July 17, 2018, July 12, 2020, HBTU Kanpur
- **Subject Expert**, Board of Studies (Basic Sciences), Uttar Pradesh Textile Technology Institute, July 20, 2018
- **Convener**, Cultural Committee and Discipline Committee, 13th International Alumni Meet, Nov. 25-26, 2017, HBTU Kanpur
- **Subject Expert**, Board of Studies (Mathematics), Uttar Pradesh Textile Technology Institute, July 14, 2017
- **Subject Expert**, Guest Faculty selection committee in Mathematics, July 13, 2017, Rajkiya Engineering College, Mainpuri
- **Subject Expert**, Guest Faculty selection committee in Mathematics, July 11, 2017, Rajkiya Engineering College, Kannauj
- **Subject Expert and Vice Chancellor nominee**, recruitment and promotion under CAS of Assistant Professors, Dr.Bhim Rao Ambedkar University, Agra, 2017
- **Member**, Board of Studies (Mathematics), 2017, CSJM University, Kanpur
- **Subject Expert**, Board of Studies (Mathematics), Uttar Pradesh Textile Technology Institute, Nov. 09, 2016
- **Member**, Institute Information Brochure Printing Committee, 2015-16
- **Member**, Committee on Faculty matters for draft proposal submitted to U.P.Govt. for converting HBTI into a University, 2015
- **Judge** in National Level Science Exhibition (Mathematics) at Jawahar Navodaya Vidyalaya, Sarsaul, Sept. 15, 2015
- **Member**, Reception Committee, Workshop on State level Faculty Interaction Seminar under the aegis of Department of Technical Education, Govt. of U.P., June 8-9, 2015, H.B.T.I.Kanpur
- **Subject expert**, Syllabus modification committee for Applied Mathematics I & II courses in polytechnics, IRDT Kanpur, Sept. 23, 2014
- **Subject expert**, Ph.D. admission interview committee, UPTU Lucknow, Dec. 23, 2013
- **Convener**, Guest Lecturers selection committee in Mathematics, HBTI Kanpur and Dr BRAECIT, Bijnore, July 18, 2013
- **Member**, Syllabus Moderation Committee for Mathematics Courses in I. B. Tech., GBTU Lucknow 2012-13 (April 18, 2013)
- **Convener**, Guest Lecturer selection committee in Mathematics, HBTI Kanpur and Dr BRAECIT, Bijnore, Jan.02, 2013

- **Convener**, Guest Lecturers selection committee in Mathematics, Dr. BRAECIT, Bijnore, July 19, 2012
- **Convener**, Guest Lecturers selection committee in Mathematics, HBTI Kanpur, July 18, 2012
- **Expert member**, Selection Committee (Mathematics), Axis Institute of Technology Kanpur, Jan. 2012.
- **Expert Member**, Guest Lecturers Selection Committee in Mathematics, HBTI Kanpur, Jan. , 2008, August 2008, August 2010, Jan.2011.
- **Member**, Draft Committee for Convocation 2010 held on Dec.18, 2010 HBTI Kanpur
- **Member**, Accommodation and Transport Committee for Convocation 2010 held on Dec.18, 2010 HBTI Kanpur
- **Expert member**, syllabus modification committee of Mathematics I and II for Diploma courses, IRDT Kanpur, April 22, 2010
- **Member**, Accommodation and Transport Committee for Convocation 2009 held on March 16, 2010. HBTI Kanpur
- **Member**, Board of Studies (Mathematics), HBTI Kanpur, 2009-2023
- **Expert member**, Selection Committee (Mathematics), P S Institute of Technology Kanpur, June 07, 2009.
- **Expert member**, Selection Committee (Mathematics), Eshan Institute of Engineering Technology and Management, Agra, May 08, 2009.
- **Expert member**, Selection Committee (Mathematics), Sunrise Institute of Engineering Technology and Management, Unnao, , May 03, 2009,
- **Judge**, Uttar Pradesh and Uttaranchal Science level Exhibition, held at Puran Chandra Vidya Niketan Kanpur, Aug. 22, 2008.
- **Member**, Accommodation and Transportation Committee, IIIrd International Alumni Meet, Nov.24-25, 2007, HBTI Kanpur
- **Expert Member**, Guest Lecturers Selection Committee in Mathematics, HBTI Kanpur, Feb.14, 2005
- **Expert Member**, Guest Lecturers Selection Committee in Mathematics, Dr Ambedkar Institute of Technology for Handicapped, Feb.12, 2005.
- **Subject Expert** in Mathematics, U.P. Intermediate Education Services Selection Board, Allahabad, July 2-3, 2004.
- **Expert Member**, Lecturers Selection Committee in Mathematics, Kanpur Institute of Technology, Feb.29, 2004
- **Member**, Audio Video Committee, Conference on “Recent Development of Polymers”, August 16-17, 2002, Department of Plastic Technology, HBTI Kanpur
- **Member**, Program Conduction Committee, Symposium on “Environmental Challenges for the New Millennium”, Nov.24-25, 2000, Department of Chemical Engineering, HBTI Kanpur
- **Member**, Selection Committee for Research Scholars, 2003-04, HBTI Kanpur.
- **Member**, Antiragging Committee, 1997, 1999, 2000- 2007, 2008-09, 2009- 20, 2010-11, 2011-12, 2012-13 HBTI Kanpur.
- **Member**, Convocation Sub Committee, 1996-97, HBTI Kanpur

RESEARCH ACTIVITIES

PH.D THESIS TITLE

Modeling the Fate of Air Pollutants emitted from a Time Dependent Point Source: Effects of Removal Mechanisms, Department of Mathematics, IIT Kanpur

RESEARCH INTEREST

- Mathematical Modelling of Environmental & Ecological systems.
- Mathematical Epidemiology, Transmission dynamics of HIV/AIDS.
- Nonlinear Dynamics

Ph.D. THESIS SUPERVISION (Awarded- 08, In Progress - 02)

- **The transmission dynamics of AIDS epidemic: Some nonlinear mathematical models**, Sandip Omar, CSJM University Kanpur, 2004.
- **Removal of air pollutants from the atmosphere by precipitation: Mathematical models and their analyses**, Shyam Sundar, U. P. Technical University, Lucknow, 2008.
- **Mathematical modeling of the transmission of AIDS epidemic: Nonlinear models and their analyses**, Agraj Tripathi, U. P. Technical University, Lucknow, 2009.
- **Mathematical modeling of the spread of infectious diseases: demographic and environmental effects**, Surabhi Pandey, G.B. Technical University, Lucknow, August 2012.
- **Mathematical modeling of the spread of AIDS epidemic in a variable size population**, Dileep Sharma, G. B. Technical University, Lucknow, March 2013.
- **Modeling the spread and control of infectious diseases in a variable size population**, Sandhya Rani Verma, Dr APJ Abdul Kalam Technical University, Lucknow, Dec.2022. Degree awarded in Convocation on Dec.26, 2023.
- **Stability and control mechanism for the growth of biological species in a stressed environment**, Niranjan Swaroop, Dr APJ Abdul Kalam Technical University, Lucknow, Thesis submitted, May 2022, Viva held on June 08, 2023. Degree awarded in Convocation on Dec.26, 2023.
- **Modeling and analysis of the effects of air pollutants on the survival of biological species**, Monika Trivedi, HBTU Kanpur, Viva to be held shortly, 2026

- **Artificial Neural Network and Computational Methods in Fluid Flow Problems**, Anjali Srivastava, HBTU Kanpur, Work in Progress, 2024
- **Application of Fuzzy Set Theory in Decision Making Problems**, Vibha Yadav, HBTU Kanpur, Work in Progress, 2024

M.Sc. DISSERTATION SUPERVISION: (Awarded- 05)

- **Modelling the Dynamics of the Zika Virus with Public Health Education and Transgenic Mosquitoes as Control Measures**, Dotto Azizi, University of Dar Es Salaam, Sept. 2017
- **Real time Object Detection with OPENCV for Navigation Assistance**, Anshika Shastri & Deeksha Mishra, HBTU Kanpur, May 2025
- **Sign Language Recognition with Detection of Facial Expression**, Divyanshi Tiwari & Zoya Nizam Mansoori, HBTU Kanpur, May 2025
- **Detection of Parkinson's disease using AI**, Akanksha Sharma & Abhishek Kumar, HBTU Kanpur, Dec.2025
- **Exam invigilation using computer vision**, Vaishnavi Srivastava & Vanya Sinha, HBTU Kanpur, Dec. 2025

INVITED EXPERT LECTURES DELIVERED

- Delivered a talk on “**Contributions and Legacy of the man Who Knew Infinity**” on the eve of National Mathematics Day, Dec.22, 2025, HBTU Kanpur
- Delivered an invited lecture on “ **Introduction to Mathematical Modeling and Research Methodology**” in One Week Faculty Development Program on “**Advances in Scientific Computing**” jointly organized by Department of Computer Science & Engineering and Department of Mathematics, November 10-14, 2025, HBTU Kanpur (On 11.11.2025)
- Delivered Keynote Lecture on “**Mathematical Modeling: An alternative approach to study real life systems**” on Aug.22, 2025 in an International Conference on Next Generation Technology in Science and Engineering, and **Chaired a technical session, Aug-22-23, 2025, PSIT Kanpur**
- Delivered **Keynote Address** on “**Mathematical Modeling and its Applications in Real Life**” on March 18, 2024 in a Two Day National Seminar, on “**Mathematical Modeling and its Applications**”, DAV(PG) College, Kanpur

- Delivered a talk on “**Tribute to Srinivasa Ramanujan: The Man Who Knew Infinity**” on the eve of National Mathematics Day, Dec.22, 2023, HBTU Kanpur
- Delivered an expert talk on “**Introduction to Mathematical Modeling and Research Methodology**”, One week Online Faculty Development Program on Challenges and Recent Trends in Mathematical Modeling and Scientific Computing, Dec.18-22, 2023, HBTU Kanpur
- Delivered an invited talk on “**Mathematical Modeling as a Research Tool: A General Framework**”, Short Term Course on Research Methodology and Quantitative Techniques, Oct. 13-19, 2022, HBTU Kanpur
- Delivered an invited talk on “**Outcome Based Education: A modern Approach to Teaching – Learning**” in a one day online National Webinar on “**Pedagogy**”, July 28, 2021, Department of Paint technology, HBTU Kanpur
- Delivered an invited talk on “**Outcome Based Education: An integrated approach to Learning**”, in The Summer/Winter School [Multidisciplinary] through virtual mode (Jan. 16 - 29, 2021), organized by the UGC-Human Resource Development Centre, BHU Varanasi for College and University teachers, Jan.18, 2021
- Delivered an invited talk in the valedictory function of National Mathematics Week (22-30th December 2020), Dec.30, 2020, VIT Bhopal,
- Delivered a talk on “**Contributions of Great Mathematician Srinivasa Ramanujan**” in Webinar on “**Modeling and Simulation**” organized on the eve of National Mathematics Day, Dec.22, 2020, HBTU Kanpur
- Delivered an invited talk on “**Mathematical modeling of air pollutants removal**” in one week **online FDP on Mathematical Modeling and its Applications in Engineering**, July 6-10, 2020, IET Lucknow
- Delivered an invited talk at National Conference on Mathematical Structures and Models in Science, Nehru Gram Bharti University, Prayagraj, Nov. 23, 2019
- **Invited** to deliver a talk in the **7th China-India-Japan-Korea International Conference on Mathematical Biology (CIJKMB-2019)**, August 23- 27, 2019, University of Science and Technology, Beijing, P.R. China.
- Delivered an invited talk on “**Outcome based education: An integrated approach to teaching learning process**”, in the National Seminar on “Need for Research and Innovation in Teaching Methodology” sponsored by National Assessment and Accreditation Council (NAAC), Jan. 27-28, 2019, Shri Shakti Degree College, Ghatampur, Kanpur and *Chaired a Technical Session*.
- Delivered an invited talk on “**Modeling the spread of HIV/AIDS: Role of media awareness programs**”, International Conference of Mathematical Modeling and Computations under the aegis of IAMMS, Dec. 01-03, 2018, South Asian University, New Delhi
- Delivered an invited talk on “**Modeling the effect of sanitation on the spread of infectious diseases**” in 6th China India Japan Korea Mathematical Biology Colloquium (CIJKMB) under the aegis of IAMMS, Aug.23-26, 2017, IIT Kanpur.

- Delivered an invited lecture on “**Mathematical Modeling**” in a Short Term Training Programme on “Research Methodology”, Sept. 05-09, 2016, UPTTI Kanpur.
- Delivered an invited talk on “**Modeling the spread of HIV/AIDS with treatment and delay**”, in International Conference on Mathematical Modeling and Simulation, BHU Varanasi, Aug.29-31, 2016.
- Delivered invited lectures on Environmental Pollution and Mathematical Epidemiology in a workshop, BHU Varanasi, Aug. 24-28, 2016.
- Delivered an invited talk on “ **Modeling the dynamics of dust scavenging from the near earth atmosphere**” in International Conference on Mathematical Modeling, Differential Equations, Scientific Computing & Applications (ICMMDESCA-2016), March 27-29, 2016, IIT Kanpur and **Chaired a Technical Session** (March 29, 2016).
- Delivered an invited talk on “**Role of ecological factors on the spread of tuberculosis and its control using disinfectants**” in Twentieth Annual Conference of Gwalior Academy of Mathematical Sciences and Symposium on Mathematics in Real Life Problems with Special Reference to Life Sciences, Feb.5-7, 2016, Jiwaji University, Gwalior.
- Delivered lecture as **Chief Guest** on the eve of **National Mathematics Day Seminar**, Dec. 22, 2015, Shri Shakti Degree College, Ghatampur, Kanpur
- Delivered an invited talk as a **Guest of Honour** in Ramanujan Memorial Lecture series, Dec. 19, 2015, B.N.D.College Kanpur
- Delivered an invited talk on “**Environmental Pollution**” in National Workshop on ‘Theory and Applications of Mathematical and Computational Biology’, Jan. 22-24, 2015, ABV-IIIT Gwalior.
- Delivered an invited talk on “**AIDS Modeling: Epidemiological and Mathematical Considerations**” in National Workshop on ‘Theory and Applications of Mathematical and Computational Biology’, Jan. 22-24, 2015, ABV-IIIT Gwalior.
- Delivered an invited talk on “**Modelling the control of tuberculosis using disinfectants**” in National Conference on Recent Advancements in Mathematics, Beant College of Engineering and Technology, Gurdaspur, Punjab, Feb. 01-02, 2014 and **chaired a technical session**.
- Delivered an invited talk on “**Modelling the removal of carbon dioxide from the atmosphere to reduce global warming**” in International Conference on Mathematical Modelling and Computer Simulation with Applications (ICMMCSA) at IIT Kanpur, Dec. 31, 2013- Jan. 02, 2014 and **chaired a technical session**.
- Delivered an invited talk on “**Modeling the removal of carbon dioxide to reduce global warming by introducing aqueous ammonia solution near the source and external liquid species in the atmosphere**” in National Conference of Mathematics, University of Lucknow, Lucknow, Nov.29-Dec.01, 2013
- Participated in Panel discussion on **Research Meet on Social Needs** related to Ecology, Environment, Epidemic, Resource Conservation, Awareness Program, Terrorism and IT at BGI Kanpur, June 8, 2013 and delivered lecture on **Environmental Conservation**.

- Invited to deliver talk on "**Modelling the effect of disinfectants in controlling the bacterial disease-tuberculosis**", Symposium on Biomathematics, Annual Conference of Indian Mathematical Society, Banaras Hindu University, Varanasi, Jan.22-25, 2013. (*Could not attend*)
- Delivered an invited talk on "**Survival of resource dependent species in a polluted environment**" in **International Conference on Mathematical Modelling and Computer Simulation**, Bhabha Group of Institutions, Kanpur(D), Feb.17-18, 2012
- Delivered an invited talk on "**Modelling the biological control of Malaria**" and chaired two sessions on Environmental and Social Systems in a National Conference on Mathematical Modelling and Computer Simulation, Bhabha Group of Institutions, Kanpur(D), July 7-9, 2011
- Delivered invited lecture on "**Role of environmental and ecological factors on the spread of infectious diseases**" in a *National Seminar on Recent Advances in Mathematics and its Applications*, BND College Kanpur, Feb. 12, 2011.
- Delivered lecture on "**Role of Mathematics in Real Life Applications**" at DAV College, Kanpur, Oct. 11, 2010.
- Delivered lecture on "**Mathematics and Environmental Pollution**" at Bhabha Institute of Technology, Kanpur, Oct. 10, 2010.
- Delivered lecture on "**Mathematical Modelling-A General Framework**" in a Lecture Series on "Mathematical Modelling and Systems Simulation", Feb.19-March 31, 2010, HBTI Kanpur.
- Delivered lecture on "**Mathematical Modelling- Real Life Applications**" in a Lecture Series on "Mathematical Modelling and Systems Simulation", Feb.19-March 31, 2010, HBTI Kanpur
- Delivered invited lecture on "**Mathematical Modelling**" in a Conference on the eve of Birth day celebration of Prof. Harish Chandra, the great mathematician, at VSSD College, Kanpur, Oct. 11, 2007
- Delivered invited lecture on "**Removal of air pollutants from the atmosphere of an industrial city by monsoon rain: Nonlinear Modeling and Analysis**" in "Symposium on Recent Advances in Mathematical Sciences" at IIT Kanpur Feb.16-17, 2007.
- Delivered two invited lectures on "**Modelling of Environmental Systems and effects of removal mechanisms**" in a Short Term Training Programme on "Modelling and Simulation of Engineering and Environmental Systems" at Beant College of Engineering and Technology, Gurdaspur, Punjab, March 15-19, 2004.
- Delivered two invited expert lectures on "**Environmental Pollution**" at IIT Kanpur during UNESCO Regional Training Programme in "Mathematical Modelling of Fluid Flows, Diffusion and Environmental Pollution", March 12-24, 2001

RESEARCH CONTRIBUTION

Environmental pollution, global warming and spread of infectious diseases including the transmission of HIV/AIDS are major issues today before the

mankind. These issues have been addressed in the form of research papers. The scientific contributions are significant and well recognized both at national and international level as is evident from the research publications in international journals. Presently, we are also studying the role of media awareness/campaign in containing the spread of infectious diseases. Some specific issues that have been addressed are summarized below.

1. Global Warming

Global warming is a serious threat to our planet due to emission of greenhouse gases into the atmosphere. Due to continuous increase in the concentration of greenhouse gases, emitted into the atmosphere from natural as well as anthropogenic sources, the temperature of the earth's atmosphere is increasing leading to various environmental consequences including climate change. The CO₂ gas is the largest contributor to global warming. We have suggested mechanisms to reduce the concentration of carbon dioxide gas in the atmosphere. One of my paper "***Removal of carbon dioxide from the atmosphere to reduce global warming: A modeling study***" published in *International Journal of Global Warming*, 7(2), 270-292, 2015, was selected (**Article Featured in Press**) as potentially being of broad interest to non-specialists audience and a news item was prepared by the publisher, based on the results described in the paper, to run it via an appropriate news wire service in international media. The findings suggest that the carbon dioxide would be removed from the atmosphere through the introduction of aerosols or particulates (calcium oxide) that would sequester carbon dioxide so that it would precipitate out of the atmosphere. The greenhouse gases could then be eliminated from the atmosphere. Further, the absorption of carbon dioxide would be carried out by plant photosynthesizing species.

2. Removal of air pollutants and effects on biological species

Air pollution is one of the most challenging problems which our industrial cities face today as their atmospheres are getting highly polluted due to discharges of gaseous and particulate matters from various household, industrial and vehicular sources. One such example is the city of Kanpur in India which is highly polluted by various kinds of gases and particulate matters emitted from different types of industries and vehicular exhausts. Gases like SO₂ and NO₂ released from industries, power plants etc., when reach high into the atmosphere and combine with moisture, form acid rain which is very harmful to ecosystems. When rainy season comes, the rain washes the city lanes, streets, buildings and cleans the atmosphere at least for a few months. We have developed nonlinear mathematical models and suggested mechanisms for removal of air pollutants from the atmosphere in the form of precipitation scavenging, greenbelt plantation etc. through these models. The work and inferences drawn are of immense use to scientists and mathematicians working in the area to understand the dynamics of nonlinear phenomenon of interactions of pollutants with raindrops, which in turn, may suggest method for cloud seeding leading to artificial rain. The effect of

pollutants/toxicants and acid rain on plant and biological species have also been studied. The analysis of above work also suggests a mechanism by which toxic gases leaked out in the atmosphere due to accidental discharge etc. can be removed by introducing suitable liquid or gaseous phase in the environment.

3. Transmission of HIV/AIDS and other infectious diseases

The human immunodeficiency virus (HIV) infection, which can cause acquired immunodeficiency syndrome (AIDS), has shown a high degree of prevalence in populations all over the world. The most susceptible individuals at risk of acquiring infection include people having sexual contacts with HIV infecteds, homosexual and bisexual men, intravenous drug abusers and persons transfused with contaminated blood. Mathematical models of transmission dynamics of HIV play an important role in better understanding of epidemiological patterns for disease control as they provide short and long term prediction of HIV and AIDS incidence. Several papers have been published to understand the spread of HIV/AIDS under various epidemiological conditions addressing issues like mother-to-child transmission, immigration of HIV infectives in susceptible population, screening of unaware infectives, HIV-TB co-infection, contact tracing, vaccination threshold, risky sexual behavior and subsequent control measures. The study of other infectious diseases like Japanese encephalitis, tuberculosis, malaria etc. under the influence of degraded environmental conditions and subsequent control measures have also been taken up and various suggestions given.

EXTERNAL EXAMINER: M.Phil/ Ph.D Thesis

- (i) National University of Science and Technology, Zimbabwe
- (ii) IKG Punjab Technical University, Kapurthala
- (iii) Manipur University, Imphal
- (iv) Jiwaji University, Gwalior
- (v) CSJM University Kanpur

SPONSORED RESEARCH PROJECT

1. A major research project on “**Mathematical modeling of air pollutants removal by precipitation**” sponsored by University Grants Commission, New Delhi is completed (Feb.2011-Jan 31, 2014) as Principal Investigator. Sanctioned amount Rs 703800/.
2. Collaborative Research Project entitled “**Development and Analysis of Miniaturized Heat Transfer Devices**” sanctioned by National Project Implementation Unit (NPIU), Govt. of India under Technical Quality Improvement Program (TEQIP-III) (18 June 2019- 30 Sept. 2020) as Co-Principal Investigator, Sanctioned amount Rs. 1863000/.

PEER REVIEWER OF JOURNALS

- Applied Mathematical Modeling (Elsevier)
- Applied Mathematics and Computation (Elsevier)
- Nonlinear Analysis: Modeling and Control (Vilnius Univ.Press)
- AIMS Mathematics (AIMS Press)
- International Journal of Modeling Simulation and Scientific Computing (World Scientific Publishing Co.)
- Journal of Mathematical Control Science and Applications
- Mathematics and Computers in Simulation (Elsevier)
- International Journal of Biomathematics (World Scientific Publishing Co.)
- International Journal of Statistics and Applications (Scientific & Academic Publishing)
- Journal of Applied Mathematics and Computing (Springer)
- Discrete Dynamics in Nature and Society (Hindawi)
- Bulletin of Mathematical Biology (Springer)
- World Journal of Modeling and Simulation (World Academic Union)
- International Journal of Applied Mathematics and Computation (Darbose)
- Mathematical and Computer Modeling (Elsevier)
- Chaos, Solitons and Fractals (Elsevier)
- Differential Equations and Dynamical Systems (Springer)
- International Journal of Bifurcation and Chaos (World Scientific Publishing Co.)
- Global Journal of Science Frontier Research
- American Journal of Computational and Applied Mathematics
- Applied Mathematics (Scientific & Academic Publishers, USA)
- Journal of Biomathematics (Scientific & Academic Publishers, USA)
- Nonlinear Analysis: Real World Applications (Elsevier)
- Journal of Biological Physics (Springer)
- Natural Resource Modeling (Wiley)
- International Journal of System Science
- Theory in Biosciences
- IEEE Transactions on Systems, Man and Cybernetics: Systems
- International Journal of Mathematical Modeling and Computations
- International Journal of Applied and Computational Mathematics
- International Journal of Statistics & Applications
- Applications and Applied Mathematics: An International Journal
- Journal of Operations Research
- The Journal of Indian Mathematical Society
- Far East Journal of Mathematical Sciences
- Proceedings of the National Academy of Sciences, India

RESEARCH PAPERS PUBLISHED IN JOURNALS

- Environmental Modelling and Assessment (Elsevier)
- Mathematical and Computer Modelling (Elsevier)
- Applied Mathematical Modelling (Elsevier)
- Nonlinear Analysis: Real World Applications (Elsevier)
- Natural Resource Modelling (Wiley Blackwell)
- Meteorology and Atmospheric Physics (Springer)
- Modeling Earth Systems and Environment (Springer)
- International Journal of Global Warming (Inderscience)
- Applied Mathematics and Computation (Elsevier)
- Computers and Mathematics with Applications (Elsevier)
- Journal of Theoretical Biology (Elsevier)
- International Journal of Nonlinear Sciences and Numerical Simulation (Freund Pub., Israel))
- Mathematical Modelling and Analysis (Taylor & Francis)
- International Journal of Biomathematics (World Scientific)
- International Journal of Dynamics and Control (Springer Nature)
- Journal of Environmental Informatics Letters
- International Journal of Big Data Mining for Global Warming (World Scientific)
- World Journal of Modeling and Simulation (World Academic Union)
- International Journal of Nonlinear Sciences (World Academic Union)
- Nonlinear Analysis: Modeling and Control
- Applications and Applied Mathematics: An International Journal
- Journal of Nature Science and Sustainable Technology (Nova Sc. Pub.)
- Journal of Mathematical Control Science and Applications
- Earth Moon and Planets (Kluwar)
- International Journal of Applied Mathematics and Computation
- Iranian Journal of Optimization
- American Journal of Computational and Applied Mathematics
- Computational Ecology and Software
- Computational and Mathematical Biophysics
- American Journal of applied Mathematics and Statistics
- European Journal of Engineering Research and Science
- Journal of International Academy of Physical Sciences
- Journal of Applied Nonlinear Dynamics

RESEARCH PAPERS PUBLISHED (International – 100, National -10)

1. A Nonlinear Mathematical Model to Study the Dynamics of Acid Rain Formation in the Atmosphere and its Control using Mitigation Strategies, Monika Trivedi, Shyam Sundar, *Ram Naresh Tripathi*, *Journal of Applied Nonlinear Dynamics*, 2026 (Accepted)

2. A dynamical model describing how acid rain affects the growth of plants in a habitat, Niranjana Swaroop, **Ram Naresh Tripathi** and Shyam Sundar, *Computational Ecology and Software*, 16(1), 35-57, 2026
3. Dynamical modeling of pollution control in industrial areas through reforestation, Monika Trivedi, Shyam Sundar and **Ram Naresh Tripathi**, *International Journal of Dynamics and Control*, 13 (213) 2025
4. A mathematical model to unravel the acid rain impact on the growth of plant biomass, Monika Trivedi, Shyam Sundar, **Ram Naresh Tripathi**, *Journal of Environmental Informatics Letters*, 13(2), 83-94, 2025
5. Stability analysis of a model to study the effect of indoor air pollution on human population with optimal control, Monika Trivedi, Shyam Sundar, **Ram Naresh Tripathi** and Agraj Tripathi, *Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy, Lecture Notes in Networks and Systems 1192* (Eds: M. Sahni, J.M.Merigo, G.L.Annamaria, E. Leon-castro, R.K.Verma and R.N.Saraswat) Springer Nature, pp. 577-592, 2025
6. Modeling the spread and control of COVID-19 with sanitization, **Ram Naresh Tripathi**, Sandhya Rani Verma & J.B.Shukla, *Computational Techniques in Engineering, Science and Technology* (Eds: Tripathi R.N., Tripathi A., Sharma D. and Shukla M.) Rubicon Publications, Edition 1st, pp. 33-57, 2024
7. Modeling the spread of Corona virus with quarantine and isolation effect, Dileep Sharma, Agraj Tripathi, **Ram Naresh Tripathi** & Amit Chauhan, *Computational Techniques in Engineering, Science and Technology* (Eds: Tripathi R.N., Tripathi A., Sharma D. and Shukla M.) Rubicon Publications, Edition 1st, pp. 59-90, 2024
8. Modeling the effects of awareness programs by media to control the spread of infectious diseases, Agraj Tripathi, **Ram Naresh Tripathi**, Dileep Sharma & Manmohan Shukla, *Computational Techniques in Engineering, Science and Technology* (Eds: Tripathi R.N., Tripathi A., Sharma D. and Shukla M.) Rubicon Publications, Edition 1st, pp. 91-106, 2024
9. Modeling the spread of Corona virus with self-protection and quarantine effect, Dileep Sharma, Agraj Tripathi and **Ram Naresh Tripathi**, *Applications and Applied Mathematics: An International journal*, 19(1), 1-24, 2024
10. Modeling and Stability Analysis of the Effect of Awareness Programs on the Control of Atmospheric Pollutants Emitted from Various Pollutant Emitting Sources to Reduce Global Warming, Shyam Sundar, Niranjana Swaroop and **Ram Naresh**, *Journal of Environmental Informatics Letters*, 12(1), 26-33, 2024
11. Influence of media campaigns efforts to control spread of COVID-19 pandemic with vaccination: A modeling study, Sandhya Rani Verma, Vinay Verma, Rachana

- Pathak, Manju Agarwal, and **Ram Naresh**, *Computational and Mathematical Biophysics*, 12: 20230107, 2024
12. Modeling the removal by rain of two interacting gases forming distinct particulate matters in the atmosphere, Monika Trivedi, **Ram Naresh Tripathi** and Shyam Sundar, *Advances in Mathematical Modeling, Applied Analysis and Computation, Lecture Notes in Networks and Systems*, (Eds: Singh J., Anastassiou G.A. Baleanu D., Kumar D.) Springer, vol. 953, pp. 126-142, 2024
 13. Modeling the Effect of Sanitation Efforts on the Spread of Carrier-dependent Infectious Diseases due to Environmental Degradation, **Ram Naresh**, Sandhya Rani Verma, J.B.Shukla and Manju Agarwal, *Applications and Applied Mathematics: An International journal*, 18(2), Article 6, 1-24, 2023
 14. Modeling the effect of washout of hot pollutants for increasing rain in an industrial area, Shyam Sundar, A. K. Misra, **Ram Naresh**, J.B. Shukla, *Environmental Modeling and Assessment*, 28, 1083-1091, 2023
 15. A mathematical model to study the spread of COVID-19 and its control in India, **Ram Naresh**, Sandhya Rani Verma, Shyam Sundar & J.B.Shukla, *Computational and Mathematical Biophysics*, 11(1), 20220149, 2023
 16. Modeling the spread of HIV infection via long distance truck drivers, Agraj Tripathi, Dileep Sharma & **Ram Naresh**, *Advances in Science and Technology*, (Ed: Sharma D., Tripathi, A.), Weser Books, Germany, (ISBN: 978-3-96492-521-3), pp.33-49, 2023
 17. Enhancement of heat transfer rate in shell & tube heat exchanger using CuO/Al₂O₃-water based nanofluids, Bushra Khatoon, Vikas Kumar Choudhary, Rajesh Kumar, M. Siraj Alam, Shailendra K. Pandey, Raghwendra Singh & **Ram Naresh**, *Material Today: Proceedings* (In Press), 2023
 18. Dynamical modeling and analysis of methane emissions abatement, J. B. Shukla, Shyam Sundar, Ashish Kumar Mishra and **Ram Naresh**, *International Journal of Big Data Mining for Global Warming*, 4(2), 2250003-19, 2022
 19. Modeling the effect of media awareness campaigns on the spread of HIV/AIDS, Agraj Tripathi and **Ram Naresh**, *Advances in Mathematical and Computational Modeling of Engineering Systems* (Eds: Mukesh Kumar Awasthi, Maitri Verma & Mangey Ram, A book by CRC Press, Taylor & Francis, NY), 83-107, 2022
 20. Role of environmental degradation on the spread of bacterial diseases in a human habitat: The effect of sanitation, Sandhya Rani Verma, **Ram Naresh**, J.B. Shukla & Manju Agarwal, *Journal of Mathematical Control Science and Applications*, 8(1), 71-90, 2022

21. Impact of carbon dioxide emissions caused by human activities on atmospheric temperature: A mathematical model, Shyam Sundar, Ashish Kumar Mishra, **Ram Naresh** & J.B. Shukla, *Computational Ecology and Software*, 12(2), 23-37, 2022
22. A mathematical model to study the COVID-19 pandemic in India, Agraj Tripathi, **Ram Naresh** & Dileep Sharma, *Modeling Earth Systems and Environment*, 8, 3047-3058, 2022
23. Modeling and analysis of the effects of gaseous pollutants and particulate matters on human health with control mechanisms, Shyam Sundar, Niranjana Swaroop, **Ram Naresh** and J.B.Shukla, *Computational Ecology and Software*, 11(3), 100-125, 2021
24. Stability analysis of a mathematical model for the abatement of methane: Effect of mitigation options, Ashish Kumar Mishra, Shyam Sundar, **Ram Naresh** and J.B.Shukla, *Computational Ecology and Software*, 11(2), 54-68, 2021
25. Modeling the survival of human population in a stressed environment: Effect of global warming due to traffic emissions, Shyam Sundar, **Ram Naresh** and Niranjana Swaroop, *International Journal of Big Data Mining for Global Warming*, 3(1), 2150001, 2021
26. Analysis of a model for carrier dependent infectious diseases with sanitation as a control strategy, **Ram Naresh**, Sandhya Rani Verma, J. B. Shukla and Manju Agarwal, *Computational Ecology and Software*, 11(1), 1-20, 2021
27. Modeling the effect of malicious objects in sensor networks and its control by anti-malicious software, Shyam Sundar, **Ram Naresh**, Amit K.Awasthi & Atul Chaturvedi, *Proceedings of International Conference on Scientific and Natural Computing: Algorithms for Intelligent Systems, Springer, Singapore (eds: Singh D., Awasthi A.K., Zelinka I. & Deep K.)*, pp.57-72, 2021, DOI: https://doi.org/10.1007/978-981-16-1528-3_6
28. Mathematical modelling of the control of methane emissions caused by rice paddies and human activities: Effects of mitigation options, Shyam Sundar, Ashish Kumar Mishra, **Ram Naresh**, J. B. Shukla, *World Journal of Modeling and Simulation*, 16(4), 308-320, 2020
29. Modeling the removal of two gaseous pollutants and a mixture of particulate matters formed by these gases in a rain system, Shyam Sundar, S. N. Mishra and **Ram Naresh**, *Journal of International Academy of Physical Sciences*, 24(3), 227-246, 2020
30. Modeling and analysis of an HIV/AIDS model with treatment and time delay, Agraj Tripathi, Dileep Sharma, S. N. Mishra and **Ram Naresh**, *Journal of International Academy of Physical Sciences*, 24(3), 263-287, 2020

31. Numerical model on methane emissions from agriculture sector, J.B. Shukla, Shyam Sundar, Ashish Kumar Mishra, & **Ram Naresh**, *International Journal of Big Data Mining for Global Warming*, 2(1), 2050003-1-18, 2020
32. Modeling the effect of traffic pollutants on human population with a control strategy, J.B.Shukla, Niranjana Swaroop, Shyam Sundar & **Ram Naresh**, *Modeling Earth Systems and Environment*, 6, 2129-2140, 2020
33. Role of environmental factors on the spread of bacterial diseases: A modeling study, Sandhya Rani Verma, **Ram Naresh**, Manju Agarwal & Shyam Sundar, *Computational Ecology and Software*, 10(2), 59-73, 2020
34. Modeling the dynamics of methane emission from rice paddies and livestock populations and its effects on global warming: A comparison of model with data, Shyam Sundar, Ashish Kumar Misra, **Ram Naresh** & J.B.Shukla, *Computational Ecology and Software*, 10(1), 1-14, 2020
35. Modeling the effect of sanitation in a human habitat to control the spread of bacterial diseases, J.B.Shukla, **Ram Naresh**, Sandhya Rani Verma & Manju Agarwal, *Modeling Earth Systems and Environment*, 6, 39-49, 2020
36. Modeling the role of media awareness programs on the spread of HIV/AIDS, Agraj Tripathi and **Ram Naresh**, *World Journal of Modeling and Simulation*, 15(1), 12-24, 2019
37. Modeling the impact of population density on carbon dioxide emission and its control: Effects of greenbelt plantation and seaweed cultivation, Shyam Sundar, Ashish Kumar Mishra, **Ram Naresh**, J B Shukla, *Modeling Earth Systems and Environment*, 5, 833-841, 2019
38. Modeling and analysis of the population density dependent industrial emissions of toxic air pollutants and their control by external species sprayed in the atmosphere, Shyam Sundar, Niranjana Swaroop and **Ram Naresh**, *American Journal of Applied Mathematics and Statistics*, 7(2), 65-74, 2019
39. Modeling the impact of biolarvicides on malaria transmission, Surabhi Pandey, Seema Nanda, Amit Vutha and **Ram Naresh**, *Journal of Theoretical Biology*, 454, 396-409, 2018
40. Modeling the impact of media awareness programs on mitigation of carbon dioxide emitted from automobiles, Shyam Sundar, Ashish Kumar Mishra and **Ram Naresh**, *Modeling Earth Systems and Environment*, 4(1), 349-357, 2018
41. Does unemployment induce crime in society? A mathematical study, Shyam Sundar, Agraj Tripathi and **Ram Naresh**, *American Journal of Applied Mathematics and Statistics*, 6(2), 44-53, 2018
42. Effect of automobiles on global warming: A modeling study, Shyam Sundar, Ashish Kumar Mishra and **Ram Naresh**, *Computational Ecology and Software*, 7(3), 100-108, 2017

43. Modeling the effect of dust pollutants on plant biomass and their abatement from the near earth atmosphere, Shyam Sundar and **Ram Naresh**, *Modeling Earth Systems and Environment*, 3(1), 42, 2017
44. Modeling the effect of population and population augmented industrialization on forestry resources, Shyam Sundar, Niranjana Swaroop and **Ram Naresh**, *European Journal of Engineering Research and Science*, 2(1), 65-70, 2017
45. Modeling and analysis of the effects of aerosols in making artificial rain, A.K.Misra, Amita Tripathi, **Ram Naresh** and J.B.Shukla, *Modeling Earth Systems and Environment*, 2, 179-189, 2016
46. Effect of environmental tax on carbon dioxide emission: A mathematical model, Shyam Sundar, Ashish Kumar Mishra and **Ram Naresh**, *American Journal of Applied Mathematics and Statistics*, 49(1), 16-23, 2016
47. Removal of carbon dioxide from the atmosphere to reduce global warming: A modeling study, J.B.Shukla, M.S.Chauhan, Shyam Sundar, **Ram Naresh**, *International Journal of Global Warming*, 7(2), 270-292, 2015
48. Modeling and analysis of the survival of a biological species in a polluted environment: Effect of environmental tax, Shyam Sundar & **Ram Naresh**, *Computational Ecology and Software*, 5(1), 201-221, 2015
49. Modeling the removal of carbon dioxide from the atmosphere by spraying external species above the sources of emissions: A mechanism to reduce global warming, J.B.Shukla, Ashish Kumar Mishra, Shyam Sundar & **Ram Naresh**, *International Journal of Mathematical Modeling and Analysis of Complex Systems: Nature and Society*, 1(1), 7-21, 2015
50. Modeling the removal of carbon dioxide from the near earth atmosphere using external species and greenbelt plantations around sources of emissions, J.B.Shukla, Shyam Sundar, Ashish Kumar Mishra & **Ram Naresh**, *International Journal of Mathematical Modeling and Analysis of Complex Systems: Nature and Society*, 1(1), 22-35, 2015
51. Effects of emissions of hot pollutants from thermal power stations on suppression of rainfall: A nonlinear modeling study, J.B.Shukla, Shyam Sundar, A.K.Misra & **Ram Naresh**, *International Journal of Mathematical Modeling and Analysis of Complex Systems: Nature and Society*, 1(1), 36-51, 2015
52. Modeling the removal of cement dust particles from a chimney by water sprays and greenbelt plantation, Shyam Sundar, **Ram Naresh**, B. Dubey & J.B.Shukla, *International Journal of Mathematical Modeling and Analysis of Complex Systems: Nature and Society*, 1(1), 52-68, 2015
53. Modeling the dynamics of carbon dioxide removal in the atmosphere, Shyam Sundar, **Ram Naresh**, Ashish Kumar Misra & Agraj Tripathi, *Computational Ecology and Software*, 4(4), 248-268, 2014
54. Modeling the effect of toxicant on plant biomass with time delay, **Ram Naresh**, Dileep Sharma and Shyam Sundar, *International Journal of Nonlinear Sciences*, 17(3), 254-267, 2014 (World Academic Press, UK)

55. Modelling and analysis of acid rain formation due to precipitation and its effects on plant species, J. B. Shukla, Shyam Sundar, Shivangi and **Ram Naresh**, *Natural Resource Modelling*, 26(1), 53-65, 2013
56. Modeling the effects of aerosols to increase rainfall in regions with shortage, J.B.Shukla, Shyam Sundar, A. K. Misra and **Ram Naresh**, *Meteorology and Atmospheric Physics*, 120(3-4), 157-163, 2013
57. Modelling the dynamics of HIV-TB co-infection in a variable size population, Agraj Tripathi, **Ram Naresh** and Dileep Sharma, In: *Dynamical Systems: Theory, Applications and Future Directions* (Ed: J. M. Tchuente) NOVA Science Publishers Inc. USA, Chapter 12, pp. 315-334, 2013. ISBN: 978-1-62808-001-8
58. Modeling the role of cloud density on the removal of gaseous pollutants and particulate matters from the atmosphere, Shyam Sundar, Rajan K. Sharma and **Ram Naresh**, *Applications and Applied Mathematics: An International Journal*, 8(2), 416-435, 2013
59. Modelling the spread of HIV/AIDS with infective immigrants and time delay, Agraj Tripathi, **Ram Naresh**, Jean M. Tchuente and Dileep Sharma, *International Journal of Nonlinear Sciences*, 16(4), 313-322, 2013
60. Modelling the removal by rain of two gaseous pollutants and a particulate matter formed by these two reacting gases in the atmosphere: A model, J. B. Shukla, **Ram Naresh** and Shyam Sundar, *International Journal of Applied Mathematics and Computation*, 4(2), 183-193, 2012
61. Effect of intermediate toxic product on the survival of a resource dependent species: A modeling study, **Ram Naresh** and Shyam Sundar, *American Journal of Computational and Applied Mathematics*, 2(5), 197-205, 2012
62. Role of vapor and cloud droplets on the removal of primary gaseous pollutants forming secondary species from the atmosphere: A modeling study, Shyam Sundar and **Ram Naresh**, *International Journal of Nonlinear Sciences*, 14(2), 131-141, 2012
63. Modeling the effect of environmental factors on the spread of bacterial disease in an economically structured population, **Ram Naresh** and Surabhi Pandey, *Applications and Applied Mathematics: An International Journal*, 7(1), 426-454, 2012
64. Modeling the effect of time delay in controlling the carrier dependent infectious disease-cholera, A. K. Misra, S. N. Misra, A. L. Pathak, Peeyush Misra and **Ram Naresh**, *Applied Mathematics and Computation*, 218(23), 11547-11557, 2012
65. A nonlinear AIDS epidemic model with screening and time delay, **Ram Naresh**, Agraj Tripathi and Dileep Sharma, *Applied Mathematics and Computation*, 217(9), 4416-4426, 2011
66. A nonlinear HIV/AIDS model with contact tracing, **Ram Naresh**, Agraj Tripathi and Dileep Sharma, *Applied Mathematics and Computation*, 217, 9575-9591, 2011.
67. An HIV/AIDS model with vertical transmission and time delay, **Ram Naresh** and Dileep Sharma, *World Journal of Modelling and Simulation*, 7(3), 230-240, 2011.

68. Role of cloud droplets on the removal of gaseous pollutants from the atmosphere: A nonlinear model, Shyam Sundar and **Ram Naresh**, *International Journal of Applied Mathematics and Computation*, 3(4), 272-282, 2011.
69. How artificial rain can be produced? A mathematical model, J. B. Shukla, A. K. Misra, **Ram Naresh** and Peeyush Chandra, *Nonlinear Analysis: Real World Applications*, 11, 2659-2668, 2010.
70. AIDS epidemic modeling with different demographic structures, Agraj Tripathi and **Ram Naresh**, *Iranian Journal of Optimization*, 2(1), 270-307, 2010.
71. Mathematical modeling and analysis of the removal of gaseous pollutants by precipitation using general nonlinear interaction, Shyam Sundar and **Ram Naresh**, *International Journal of Applied Mathematics and Computation*, 2(2), 45-56, 2010
72. An epidemic model for the transmission dynamics of HIV/AIDS and another infection, Sandip Omar and **Ram Naresh**, *International Journal of Mathematical Archive*, 1(3), 68-72, 2010
73. Modelling and analysis of the spread of AIDS epidemic with immigration of HIV infectives, **Ram Naresh**, Agraj Tripathi and Dileep Sharma, *Mathematical and Computer Modelling*, 49, 880-892, 2009
74. Modelling the cumulative effect of ecological factors in the habitat on the spread of tuberculosis, **Ram Naresh**, Surabhi Pandey and J. B. Shukla, *International Journal of Biomathematics*, 2(3), 339-355, 2009.
75. Stability Analysis of a time delayed SIR epidemic model with nonlinear incidence rate, **Ram Naresh**, Agraj Tripathi, J. M. Tchuente and Dileep Sharma, *Computers and Mathematics with Applications*, 58, 348-359, 2009
76. Modelling the effect of tuberculosis on the spread of HIV infection in a population with density dependent birth and death rate, **Ram Naresh**, Dileep Sharma and Agraj Tripathi, *Mathematical and Computer Modelling*, 50, 1154-1166, 2009.
77. A nonlinear mathematical model to study the interactions of hot gases with cloud droplets and raindrops, Shyam Sundar, **Ram Naresh**, A. K. Misra and J. B. Shukla, *Applied Mathematical Modelling*, 33(7), 3015-3024, 2009
78. Modelling and analysis of the spread of Japanese Encephalitis with environmental effects, **Ram Naresh** and Surabhi Pandey, *Applications and Applied Mathematics: An International Journal*, 4(1), 155-175, 2009
79. A nonlinear mathematical model for Asthma: Effect of environmental pollution, **Ram Naresh** and Agraj Tripathi, *Iranian Journal of Optimization*, 1, 24-56, 2009.
80. Modelling the effect of risky sexual behaviour on the spread of HIV/AIDS, **Ram Naresh**, Dileep Sharma and Agraj Tripathi, *International Journal of Applied Mathematics and Computation*, 1(3), 132-147, 2009.
81. A model for HIV/AIDS transmission in a two sex population, **Ram Naresh**, Agraj Tripathi and Dileep Sharma, In: *Advances in Disease Epidemiology* (Ed: J. M. Tchuente and Z. Mukandavire), NOVA Science Publishers, USA, 2009, pp.243-270. ISBN :978-1-60741-452-0

82. Analysis of a vaccination model for carrier dependent infectious diseases with environmental effects, **Ram Naresh**, Surabhi Pandey and A. K. Misra, *Nonlinear Analysis: Modelling and Control*, 13(3), 331-350, 2008
83. Analysis of the effect of vaccination on the spread of AIDS epidemic using Adomian Decomposition Method, **Ram Naresh**, Agraj Tripathi, J. Biazar and Dileep Sharma, *Int. J. Nature Science and Sustainable Technology*, 2(1/2), 183-214, 2008.
84. Modelling the removal of gaseous pollutants and particulate matters from the atmosphere of a city by rain: Effect of cloud density, J. B. Shukla, Shyam Sundar, A. K. Misra and **Ram Naresh**, *Environmental Modelling and Assessment*, 13, 255-263, 2008
85. Effect of rain on removal of a gaseous pollutant and two different particulate matters from the atmosphere of a city, J. B. Shukla, A. K. Misra, Shyam Sundar and **Ram Naresh**, *Mathematical and Computer Modelling*, 48, 832-844, 2008.
86. Modelling the removal of gaseous pollutants and particulate matters from the atmosphere of a city, **Ram Naresh**, Shyam Sundar and J. B. Shukla, *Nonlinear Analysis: Real World Applications*, 8, 337-344, 2007.
87. Modelling the effect of screening of unaware infectives on the spread of HIV infection, Agraj Tripathi, **Ram Naresh** and Dileep Sharma, *Applied Mathematics and Computation*, 184, 1053-1068, 2007
88. A nonlinear dynamical model to study the removal of gaseous and particulate pollutants in a rain system, **Ram Naresh** and Shyam Sundar, *Nonlinear Analysis: Modelling and Control*, 12(2), 227-243, 2007
89. Modelling the effect of precipitation on the removal of gaseous pollutants forming secondary species and particulate matters, **Ram Naresh** and Shyam Sundar, *Journal of Mathematical Control Science and Applications*, 1(2), 223-239, 2007
90. Modelling the removal of primary and secondary air pollutants by precipitation, **Ram Naresh**, Shyam Sundar and R. K. Upadhaya, *Int. J. Nonlinear Sciences and Numerical Simulation*, 7(3), 285-294, 2006.
91. Modelling the removal of primary and secondary pollutants from the atmosphere of a city by rain, **Ram Naresh**, Shyam Sundar and J. B. Shukla, *Applied Mathematics and Computation*, 179, 282-295, 2006.
92. Modeling the spread of AIDS epidemic with vertical transmission, **Ram Naresh**, Agraj Tripathi and Sandip Omar, *Applied Mathematics and Computation*, 178, 262-272, 2006.
93. Modelling the effect of an intermediate toxic product formed by uptake of a toxicant on plant biomass, **Ram Naresh**, Shyam Sundar and J. B. Shukla, *Applied Mathematics and Computation*, 182, 151-160, 2006.
94. Modelling and analysis of HIV-TB co-infection in a variable size population, **Ram Naresh** and Agraj Tripathi, *Mathematical Modeling and Analysis*, 10(3), 275-286, 2005.
95. Modelling the removal of gaseous pollutants and particulate matters by heavy rain, **Ram Naresh** and Shyam Sundar, *Far East J. Appl. Math.*, 20(2), 169-178, 2005.

96. Modelling and analysis of HIV/AIDS in a variable size population, **Ram Naresh**, Sandip Omar and Agraj Tripathi, *Far East J. Appl. Math.*, 18(3), 345-360, 2005.
97. Effect of toxicants on plant biomass : a nonlinear model, **Ram Naresh**, Shyam Sundar and J. B. Shukla, Edited Volume on *Mathematical Biology* (eds. P. Chandra & B. V. Rathish Kumar) Anamaya Publishers, New Delhi, pp. 260-265, 2005.
98. An analytical approach to study the problem of air pollutants removal in a two patch environment, **Ram Naresh**, *Ultra Science* (Int. J. Physical Sc.), 16(1)M, 83-96, 2004.
99. Qualitative analysis of a nonlinear model for removal of air pollutants, **Ram Naresh**, *Int. J. Nonlinear Sciences and Numerical Simulation*, 4(4), 379-386, 2003.
100. Analysis of a nonlinear AIDS epidemic model with standard incidence, **Ram Naresh** and Sandip Omar, *Ultra Science* (Int. J. Physical Sc.), 15(1)M, 63-70, 2003.
101. The transmission of AIDS epidemic : A mathematical model, **Ram Naresh** & Sandip Omar, *Ultra Science* (Int. J. Physical Sc.), 13(1), 87-93, 2001.
102. Understanding the transmission of HIV/AIDS : Some epidemiological considerations, **Ram Naresh** & Sandip Omar, *Appl. Sc. Pl.*, Vol. II, 1-9, 2000.
103. Dispersion of heavier air pollutant in a two patch environment : Effect of removal mechanism, **Ram Naresh**, *Math. Analysis & Applications*. (Dwivedi A. P. ed) 140-150, Narosa Publ. House, New Delhi, India, 2000.
104. The transmission dynamics of HIV/AIDS : Some basic models, **Ram Naresh**, *Math. Analysis & Applications* (Dwivedi, A.P. ed). 166-173, Narosa Publ. House, New Delhi, India, 2000.
105. Modelling the dispersion of air pollutant from a time dependent point source : Effect of precipitation scavenging, **Ram Naresh**, *J. MACT*, 32, 77-91, 1999.
106. Modelling the removal of pollutants from the atmosphere of an industrial city by monsoon rain, J. B. Shukla, A. Agarwal, **Ram Naresh** & B. Dubey, *Recent Trends in Industrial & Applied Mathematics*, (M. Kumar, ed) 184-198, 1998.
107. Effect of removal mechanism on dispersion of air pollutant from a time dependent point source, J. B. Shukla, **Ram Naresh**, R. S. Chauhan & M. Agarwal, *Precipitation Scavenging and Atmosphere-Surface Exchange*, vol.3 (Schwartz S.E. & Slinn W.G.N., ed.) 1233-1243, 1992, Hemisphere Pub. Corp., USA.
108. Effect of rain washout on dispersion of air pollutant in the atmosphere, J.B. Shukla, **Ram Naresh** & R.S.Chauhan, *Precipitation Scavenging and Atmosphere-Surface Exchange*, vol.3 (Schwartz S.E. & Slinn W.G.N., ed.) 1245-1253, 1992, Hemisphere Pub. Corp., USA
109. An ecological type non-linear model for removal mechanism of air pollutant, J. B. Shukla, M. Agarwal & **Ram Naresh**, *Precipitation Scavenging and Atmosphere-Surface Exchange*, vol.3 (Schwartz S.E. & Slinn W.G.N., ed.) 1255-1263, 1992, Hemisphere Pub. Corp., USA

110. The effects of chemical reactions on dispersion of air pollutants over area sources, **Ram Naresh** & R. Nath, *Earth Moon & Planets* (An International Journal of Comparative Planetology) The Netherlands, 48 (2), 99-111, 1990.
111. Dispersion of air pollutant from a time dependent point source : Effect of greenbelt, J. B. Shukla, M. Agarwal, R.S. Chauhan, Raj Nath & **Ram Naresh**, *Proceedings Int. Conf. On Tropical Micro-Meteorology & Air Pollution*, pp.257-259, 1988.

PAPERS PRESENTED IN CONFERENCES (by me or by my students)

1. A nonlinear mathematical model to study the removal of gaseous pollutants by rain: Effect of density of cloud droplets, **Ram Naresh** and Shyam Sundar, Conference of International Academy of Physical Sciences, Feb. 20-22, 2010, University of Allahabad, India
2. A nonlinear HIV/AIDS model with contact tracing, **Ram Naresh**, Agraj Tripathi and Dileep Sharma, Conference of International Academy of Physical Sciences, Feb. 20-22, 2010, University of Allahabad, India
3. Removal of air pollutants from the atmosphere of an industrial city by precipitation : Nonlinear modelling and analysis, **Ram Naresh** and Shyam Sundar, Symposium on Recent Advances in Mathematical Sciences, Feb.16-17, 2007, IIT Kanpur.
4. Modelling the effect of contact tracing of infectives on the spread of HIV/AIDS, **Ram Naresh**, Sandip Omer and Agraj Tripathi, International Conference on Mathematical Modelling and Computer Simulation, Dec. 12-15, 2006, LNM IIT Jaipur
5. Modelling the removal of primary, secondary and particulate air pollutants by rain, **Ram Naresh**, Shyam Sundar and J.B.Shukla, International Conference on Mathematical Modelling and Computer Simulation, Dec. 12-15, 2006, LNM IIT Jaipur
6. Effect of tuberculosis on the transmission of HIV in a variable size population, **Ram Naresh** & Agraj Tripathi, Symposium on Current Trends in Biomathematics, March 14, 2005, IIT Roorkee.
7. Removal of gaseous and particulate air pollutants from the atmosphere by precipitation: Nonlinear models and their analyses, **Ram Naresh** & Shyam Sundar, Symposium on Current Trends in Biomathematics, March 14, 2005, IIT Roorkee.
8. Analysis on a nonlinear AIDS epidemic model with vertical transmission, **Ram Naresh**, Sandip Omar & Agraj Tripathi, Symposium on Current Trends in Biomathematics, March 14, 2005, IIT Roorkee.

9. An epidemic model for the transmission dynamics of HIV/AIDS, **Ram Naresh** & Sandip Omar, Symposium on Current Trends in Biomathematics, March 14, 2005, IIT Roorkee.
10. Modelling the transmission of HIV/AIDS in a variable size population, **Ram Naresh**, Sandip Omar & Agraj Tripathi, International Conference on Mathematical Biology, Feb. 19-21, 2004, IIT Kanpur
11. Analysis of a nonlinear model for removal of pollutants by precipitation, **Ram Naresh**, Shyam Sundar & J.B.Shukla, International Conference on Mathematical Biology, Feb. 19-21, 2004, IIT Kanpur
12. Nonlinear modeling of the removal of pollutants (Gases and Particulate matters) from the atmosphere, J.B.Shukla, **Ram Naresh** & Shyam Sundar, International Symposium on Nonlinear Analysis and Applications, Jan. 2-4, 2003, Science City, Kolkata.
13. Modelling the effect of chemical defense mechanism on two competing species, J.B.Shukla, Shalini Sharma, **Ram Naresh** & P. Sinha, Conference on Mathematical Modelling and Computer Simulation, Nov. 14-15, 2002, NAL, Bangalore.
14. Removal of a reactive pollutant from the atmosphere by green belt, J.B.Shukla and **Ram Naresh**, Conference on Mathematical Modelling and Computer Simulation, Nov. 14-15, 2002, NAL, Bangalore.
15. Models for removal of pollutants from the atmosphere of an industrial city by rain, J.B.Shukla, Shyam Sundar & **Ram Naresh**, Conference on Mathematical Modelling and Computer Simulation, Nov. 14-15, 2002, NAL, Bangalore.
16. Qualitative analysis of nonlinear AIDS epidemic model, **Ram Naresh**, Sandip Omar & J.B.Shukla, Conference on Mathematical Modelling and Computer Simulation, Nov. 14-15, 2002, NAL, Bangalore.
17. A mathematical model for removal of air pollutants by precipitation, **Ram Naresh**, Bharat Ganit Parishad Conference on Mathematics, Nov. 23-24, 2002, Lucknow University, Lucknow.
18. Some models for removal of pollutants from the atmosphere of industrial city by rain, **Ram Naresh** & J.B.Shukla, Conference on Mathematical Modelling and Computer Simulation, Oct. 23-24, 2000, NEERI, Nagpur.
19. Removal of air pollutants and control of its dispersal in the atmosphere by greenbelt, **Ram Naresh** & J.B.Shukla, Conference on Mathematical Modelling and Computer Simulation, Oct. 23-24, 2000, NEERI, Nagpur.

20. Dispersion of heavier air pollutants forming secondary species: effect of removal mechanism, *Ram Naresh*, VIIth Annual Conference of VPI, Oct. 24-26, 1997, HBTU Kanpur.

BOOK PUBLISHED

1. **Editor**, “**Computational Techniques in Engineering, Science and Technology**”, Rubicon Publications, England, 2024
2. **Joint Editor**, Book “**Mathematical Analysis & Applications**”, Narosa Publishing House, New Delhi, 2000.
3. **Co-Editor**, “**The History Book**” of HBTU Kanpur, released on the eve of Centenary Year Celebration, Nov. 25, 2021
4. **Author**, Hindi Poetry Book “कल्पना की उड़ान” and “अंतर्ध्वनि”, published by BookFylo, Noida, India 2025

MEMBERSHIP OF PROFESSIONAL SOCIETIES

- (i) Life Member, National Academy of Sciences, India
- (ii) Life Member, Indian Science Congress Association (ISCA: L33396)
- (iii) Life Member, Indian Mathematical Society (L/2019/2)
- (iv) Life Member, Bharat Ganit Parishad (BGP)
- (v) Life Member, Indian Society for Mathematical Modelling and Computer Simulation (ISMMACS)
- (vi) Fellow, Indian Society for Mathematical Modelling and Computer Simulation (ISMMACS)
- (vii) Member, Indian Society of Nonlinear Analysts, 2002-03
- (viii) Annual Member, Indian Society for Technical Education, 2009-10

CONFERENCE/REFRESHER COURSE ORGANISED/CO-ORGANISED

- (i) **Chairperson**, One Week Faculty Development Program on “**Advances in Scientific Computing**” jointly organized by Department of Computer Science & Engineering and Department of Mathematics, November 10-14, 2025, HBTU Kanpur
- (ii) **Chairman & Convener**, Two days Online International Conference on **Frontiers of Pure and Applied Mathematics (FPAM – 2025)**, November 6-7, 2025, HBTU Kanpur
- (iii) **Chairman & Convener**, Two days Workshop (online) on **Mathematical and Statistical Methods in Engineering, Science and Management**, July 7-8, 2025, HBTU Kanpur
- (iv) **Convener**, One week Short Term Course on “Research Methodology and Quantitative Techniques”, Oct. 13-19, 2022, HBTU Kanpur
- (v) **Co-Convener**, International Conference on Advances in Biomathematics (ICABM-2022), July 21-23, 2022, Amity University, Lucknow

- (vi) **Member**, Technical Program Committee and **Chaired** a technical session (online) in “**International Conference on Computational Mathematics and Engineering Applications (ICCMEA)**” on June 25, 2022, PSIT Kanpur, June 24-26, 2022.
- (vii) **Convener**, Webinar on “Career Opportunities after B.Tech.”, July 27, 2021, HBTU Kanpur (Prof. Anand Kumar, Motivational Speaker, ACE Engineering Academy)
- (viii) **Coordinator**, 26th International Conference of IAPS (online) on “**Advances in Differential Equations & Mathematical Modeling**” jointly organized by School of Computational and Integrative Sciences, JNU, New Delhi and International Academy of Physical Sciences (IAPS), Prayagraj, Dec. 18-20, 2020 and **chaired a session** on Dec. 20, 2020
- (ix) **Coordinator**, One week Short Term Training Programme on “Data Analysis and SPSS Software”, sponsored by TEQIP-III, Oct. 21-25, 2019. HBTU Kanpur
- (x) **Coordinator**, Faculty Development Programme on Mathematical Modeling and Research Methodology, Oct. 08-12, 2018, HBTU Kanpur
- (xi) **Member**, National Advisory Committee, International Conference on Mathematical Modeling and Simulation, Aug. 29-31, 2016.
- (xii) **Convener**, Symposium on Biomathematics, 74th Annual Conference of Indian Mathematical Society, Jan.22-25, 2013, Banaras Hindu University, Varanasi.
- (xiii) **Member**, National Advisory Committee, National Seminar on Recent Advances in Mathematics and its Applications, Feb.12, 2011, BND College, Kanpur
- (xiv) **Member**, Organizing Committee in the Workshop on “Role of Mathematics in Science and Technology”, Oct.24, 2007, HBTI Kanpur.
- (xv) **Member**, Organizing Committee in the Workshop on “Applications of Mathematics in Engineering and Technology”, Sept.8, 2007, HBTI Kanpur
- (xvi) **Convener**, Refresher Course on “Applied Mathematical Techniques for Chemical Sciences”, April 11-15, 2007, HBTI Kanpur
- (xvii) **Assistant Organizing Secretary**, Seventh Annual Conference of Vijnana Parishad of India, Oct.24-26, 1997, HBTI, Kanpur.

SYMPOSIA/CONFERENCE/ATTENDED/INVITED

- (i) Attended International Conference on Mathematical Modeling and Simulation, BHU Varanasi, Aug.29-31, 2016 and delivered an invited talk on “Modeling the spread of HIV/AIDS with time delay and treatment”.
- (ii) Attended International Conference of Mathematical Modelling and Computer Simulation with Applications (ICMMCSA), IIT Kanpur, Dec. 31, 2013-Jan. 2, 2014 and delivered an invited talk on “ Modeling the removal of carbon dioxide from the atmosphere to reduce global warming”
- (iii) Invited to attend the BIT’s second Annual World AIDS Day (HIV-2011), Parallel summit of Ist Annual World Congress of microbes-2011, Dec.1-3, Beijing, China

- (iv) Invited to deliver an 'Invited talk' in the Third International Conference on Analytic Mathematics and its Applications, Xinyang Normal University, Xinyang-464000, Henan, P.R.China, Aug.08-12, 2011.
- (v) Symposium on Recent Advances in Mathematical Sciences, Feb.16-17, 2007, IIT Kanpur.
- (vi) International Conference on Mathematical Modelling and Computer Simulation, Dec.12-15, 2006, LNMIIT, Jaipur
- (vii) Recent Developments in Biomathematics, Feb.14, 2005, IIT Roorkee.
- (viii) International Conference on Mathematical Biology, Feb.19-21, 2004, IIT Kanpur
- (ix) International Symposium on "Nonlinear Analysis and Applications", Jan.02-04, 2003, Organized by Indian Society of Nonlinear Analysts, Science City, Kolkata.
- (x) Conference on Mathematics, Bharat Ganit Parishad, Nov.23-24, 2002 Lucknow University, Lucknow.
- (xi) International Conference on "Current Trends in Differential Equations and Dynamical Systems", Dec.15-17, 2001, IIT Kanpur.
- (xii) Seminar, World Mathematical Year, Dec.30, 2000, Department of Mathematics, HBTI, Kanpur.
- (xiii) ISMMACS Annual Conference on Mathematical Modelling and Computer Simulation, Oct.23-24, 2000, National Environmental Engineering Research Institute, Nagpur.
- (xiv) Seminar to Commemorate the 78th Birthday of Prof. Harish Chandra, Oct 11, 2000, Department of Mathematics, HBTI, Kanpur.
- (xv) Seventh Annual Conference of Vijnana Parishad of India, Oct.24-26, 1997, HBTI, Kanpur
- (xvi) Fifth International Conference on Atmospheric Science and Application to Air Quality, June 18-20, 1996, Seattle, Washington, USA (Invited to present a paper but could not attend).
- (xvii) Conference on "Recent Trends in Mathematics and Applications" & National Symposium on "Dedication of Prof. J.N. Kapur to Mathematics and Mathematics Education", Sep. 7, 1993, HBTI, Kanpur.
- (xviii) Fifth International Conference on Precipitation Scavenging and Atmosphere-Surface Exchange Processes, July 15-19, 1991, Richland, Washington, USA (Invited to present a paper but could not attend)
- (xix) All India Symposium on System Science: Theory and Application to Biology, March 10-11, 1986. Jiwaji University, Gwalior.
- (xx) International Symposium on Mathematical Modelling of Ecological, Environmental & Biological Systems, August 27-30, 1985, IIT, Kanpur.

SUMMER/WINTER SCHOOLS/WORKSHOPS ATTENDED

- (i) Completed successfully Two weeks Faculty Development Programme on "Managing Online Classes and Co-Creating MOOCS 2.0", May18-June 03, 2020, Teaching Learning Center, Ramanujan College, University of Delhi, Sponsored by MHRD, Pandit Madan Mohan Malviya National Mission on Teachers and Teaching.

- (ii) Summer Training Program on “Active Learning for Senior Faculty”, June 11-15, 2018, IIT Kanpur, Sponsored by TEQIP-III
- (iii) Workshop on “Outcome Based Accreditation for Undergraduate Training Programs”, March 22-23, 2018, Organized by HBTU Kanpur and UPTTI Kanpur, Sponsored by TEQIP-III
- (iv) Workshop on Management Capacity Enhancement Programme – In Compliance with NBA and NAAC Accreditation, March 29-31, 2017, HBTU Kanpur (With ESCI Hyderabad, The Institution of Engineers (India) Sponsored by TEQIP-II)
- (v) Training Workshop for Faculty Mentors “Induction Programme for New Students”, Organized by National Project Implementation Unit under TEQIP-III, Sept. 22-24, 2017, HBTU Kanpur.
- (vi) Workshop on Effective Pedagogy for Engineering Faculties, March 26-28, 2017, HBTU Kanpur (With ESCI Hyderabad, The Institution of Engineers (India) Sponsored by TEQIP-II)
- (vii) Workshop on “Energy Conservation and Energy Audit in Academic Institutions”, March 07-09, 2017, HBTU Kanpur (With ESCI Hyderabad, The Institution of Engineers (India) Sponsored by TEQIP-II)
- (viii) Workshop on State level Faculty Interaction Seminar under the aegis of Department of Technical Education, Govt. of U.P., June 8-9, 2015, H.B.T.I. Kanpur
- (ix) Faculty Development Program on Modeling, Simulation and Analysis of Engineering Systems, Oct. 25-30, 2013, HBTI Kanpur
- (x) Workshop on Curriculum Development and Evaluation Methods in Technical Education, July 1-6, 2013, HBTI Kanpur.
- (xi) AICTE-ISTE sponsored Short Term Training Programme on “Optimization Techniques for Engineers”, March 23-28, 2009 HBTI Kanpur.
- (xii) Workshop on Disaster Management and Mitigation, March 17-21, 2009, HBTI Kanpur.
- (xiii) Workshop on Modeling and Simulation of Chemical Processes, Feb.24-28, 2009, HBTI Kanpur
- (xiv) Workshop on ‘Pedagogy’ Feb. 24, 2008, HBTI Kanpur.
- (xv) Short Term Course on Mathematical Methods in Engineering and Science, July 3-15, 2006, IIT Kanpur.
- (xvi) Short Term Training Programme on “Intellectual Property Rights and Patent Information” conducted by Applied Science Department, National Institute of Technical Teachers Training and Research, Chandigarh, Sept.27-Oct.01, 2004 at HBTI Kanpur.
- (xvii) Short Term Training Programme on “Eco-Friendly Chemical Technologies”, March 11-24, 2002, HBTI Kanpur.
- (xviii) UNESCO Regional Training Programme on “Mathematical Modelling of Fluid Flows, Diffusion and Environmental Pollution” March 12 – 24, 2001, IIT Kanpur.
- (xix) Summer Course on “Probability, Random Processes and Elements of Information Theory”, June 14-26, 1999, IIT Kanpur.
- (xx) Refresher Course on “Sobolev Spaces and its Applications” Dec. 3-20, 1998, IIT, Kanpur.

- (xxi) Short Term Course on “Reliability and Safety in Process Industries,” Sep. 28-Oct. 10, 1998, HBTI, Kanpur.
- (xxii) Summer School on “Mathematical Modelling,” May 19-28, 1994, IIT, Kanpur.