

## Brief Curriculum Vitae



### **RAJ KUMAR**

**Ph.D. in 2014** (MNNIT Allahabad, Prayagraj), **M.Sc. in 1998** (I.I.T. Roorkee formally **University of Roorkee**), Email: [rsoniraj2@gmail.com](mailto:rsoniraj2@gmail.com), [rajsoni@vbspu.ac.in](mailto:rajsoni@vbspu.ac.in)

**Professor** (AGP-10,000) in Mathematics from Sep 2022

Joined Veer Bahadur Singh Purvanchal Univ., Jaunpur-222003 as a **Lecturer** in March, 2004

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ORCID: 0000-0002-9650-5606, Web of Science ResearcherID [AGJ-2280-2022](https://orcid.org/0000-0002-9650-5606)

**Research Interests:** Similarity transformations method, Similarity reductions and closed form solutions of nonlinear differential Equations, Biomathematics and Fluid dynamics

## Biography

I did my Ph.D. in 2014 from MNNIT Allahabad and my M.Sc. in 1998 from I.I.T. Roorkee. My academic career is throughout first, received a national scholarship during 1991-92 and the first position in school in the 10th class. I was also honoured by the U.P. State Government for designing the syllabus for NEP-2020 and availed an Excellence Award by VBS Purvanchal University, Jaunpur for outstanding contribution in the field of Mathematics on 21/02/2023, Reviewer Award in 2016 by Computers & Mathematics with Applications (Elsevier). I am member of selection boards in UP and Uttarakhand, I also have national level achievements like qualified LS (Dec'2000, June'2006), and JRF (June'2000, Dec'2001) of the National Eligibility Test (CSIR- UGC) in Mathematical Sciences, qualified GATE-2000 with a percentile score of 96.02 and an All India Rank 30 in Mathematics. I have organised 18 national, international, and university level conferences, workshops, lecture series, and programs, published more than 35 research articles in SCI/Scopus/UGC listed journals, presented 25 papers, and gave more than 22 invited talks at international and national conferences. I have attended more than 40 FDPs, workshops, or training programs.

I successfully performed various responsibilities at V.B.S. Purvanchal University, Jaunpur like honorary Librarian, Proctor, Chief Warden; Incharge of Media Cell; Nodal officer of Kaushal Vikas & Prashikshan Kendra; Head of Department of Mathematics; Flying team coordinator, Central Vigilance team of Invigilation and Technical Cell; Organizing Secretary of Annual Sports Meet of Campus, Assistant Proctor, Dy. Coordinator of UGC Sponsored Remedial Coaching for SC/ST/OBC students, Dy. Coordinator of Academic activities of B.Tech. First year, and Members of various committees like Executive Council, IPR Cell, Academic Council, Board of Studies of Department of Mathematics, Sports Council, NIRF committee, Equal Opportunity Cell, Internal screening committee for regular teacher's post applications, E-tendering committee, E-tendering committee, and some others.

I am working on some tasks for university campus and social development, like as a coordinator of a free coaching programme "Prerna", which is running in nearby villages of the V.B.S. Purvanchal University, Jaunpur, to upgrade the knowledge of financially weak children. Since Feb. 2014, I have been thoroughly involved in improving the extension activity of the campus. We are constantly working to make the campus lush and green as a Coordinator of Green campus committee.

### **Hobbies:**

1. Gardening and striving to make lush green the V.B.S. P.U. campus
2. To work for society welfare providing them free coaching/ possible financial support or making them employable through Kaushal Vikas Kendra of P.U.

**Current Research Focus:** My primary research interest lies in the domain of nonlinear differential equations and getting their physically meaningful solutions utilising by Lie-symmetry analysis. Some of my

recent work includes the exact solutions of non-linear evolution equations occurring in fluids like (3+1)-KdV-BBME arising in oceanography, plasma and optics, and (3+1)-dimensional KP-BBM equation etc, and SEIR-P model. The STM is a good technique to solve system of PDE's analytically which is based on invariance property of PDE's that leaves PDE's invariant. The invariance reduces the number of independent variables by one in PDE's.

**Thesis title:** *ON SIMILARITY SOLUTIONS OF NONLINEAR FLUID PROBLEMS*

**Academic Experience:** More than 21 years teaching including 3 Yrs as Professor, 4 Yrs. as Associate Professor and 14 Yrs. as Assistant Professor in Department of Mathematics at V.B.S. Purvanchal University with effective from 15 March, 2004. Besides it 3 Years and 6 months as a lecturer in an intermediate college.

### Distinctions & scholarship:

1. Academic Career **throughout first**
2. Availed **National scholarship** during 1991-92.
3. **Distinction** in English, Science and Mathematics (10<sup>th</sup> class)
4. **Distinction** in Physics & Mathematics (12<sup>th</sup> Class)
5. **Distinction** in Mathematics (B.Sc.)
6. **Distinction** in 5 papers (M.Sc.)

### Awards & Honours:

1. **Excellence Award** by VBS Purvanchal University, Jaunpur for outstanding contribution in the field of Mathematics on 21/02/2023
2. पर्यावरण प्रहरी सम्मान-2022 by भारत विकास परिषद् शाखा, जौनपुर
3. Awarded by State Government for designing syllabus of NEP-2020: Course Title: Analytic Ability and Digital Awareness course is developed for National Education Policy-2020 Common Minimum Syllabus for all U.P. State Universities Co-curricular course: Semester-5 Course Title: Analytic Ability and Digital Awareness.
4. **Second Prize** on Best poster presentation in International Conference on Recent Trends in Electrical, Electronics and Computer Science Engineering-2020 during 10-11 Jan. 2020.
5. **Outstanding Reviewer Award 2016** by Computers & Mathematics with Applications (**Elsevier**).
6. Awarded **first position** at college level in 10<sup>th</sup> class.

### Expert in Mathematics of selection boards of the following commissions

Uttar Pradesh Madhyamik Shiksha Sewa Chayan Board, Prayagraj  
Uttarakhand PSC, Haridwar

### National Level Achievements:

1. Qualified **JRF (June'2000)**, **JRF (Dec'2001)** of National Eligibility Test (CSIR- UGC) in Mathematical Sciences
2. Qualified **GATE-2000** with Percentile score 96.02 and **All India Rank 30** in Mathematics

### Academic milestones:

Examinations	Name of the Board/ University	Year of passing	% of marks obtained	Subjects
<b>High School</b>	UP Board	1990	<b>74.89</b>	Mathematics, Science, Hindi, Social Science, Biology, English
<b>Intermediate</b>	UP Board	1992	<b>69.20</b>	Mathematics, Physics, Hindi, Chemistry, English
<b>B. Sc.</b>	C.C.S. Univ. Meerut	1996	<b>68.60</b>	Mathematics, Physics, Chemistry
<b>Master's Degree</b>	Univ. of Roorkee, Roorkee (Now IIT Roorkee)	1998	<b>67.50</b>	Applied Mathematics



- [7]. A study on analytical solutions and conservation laws of the cgKP occurring in straits, Shitesh Shukla, Mukesh Kumar and Raj Kumar\*, Phys. Scr. 98 (2023) 125238 (1-15) <https://doi.org/10.1088/1402-4896/ad0bbe> Impact factor **3.081** Q2
- [8]. Novel traveling wave solutions of Jaulent-Miodek equations and coupled Konno-Oono systems and their dynamics, **Raj Kumar\***, Kripa Shankar Pandey, Avneesh Kumar and Anshu Kumar, CHAOS Theory and Applications (DergiPark), e-ISSN: 2687-4539 Vol.5(4), (2023) 281-285 *Special Issue* <https://doi.org/10.51537/chaos.1322939> Q1
- [9]. On Similarity Solution of (3+1)-Dimensional Jimbo-Miwa Equations Arising in Fluids, **Raj Kumar\***, Indian Journal of Natural Sciences (**Web of science**, UGC listed), 14 (78), 57745-57751
- [10]. On similarity solutions to (2+1)-dispersive long-wave equations, **Raj Kumar\***, Ravi Shankar Verma, Atul Kumar Tiwari, Journal of Ocean Engineering and Science (Elsevier), 8(2), 2023, 111-123 Refereed/ESCI, Impact factor **13**,  
DOI: [10.1016/j.joes.2021.12.005](https://doi.org/10.1016/j.joes.2021.12.005) Q1

## 2022:

- [11]. Dynamical behavior of the solutions of coupled Boussinesq-Burgers equations occurring at the seaside beaches, **Raj Kumar**, Kripa Shanker Pandey and Avneesh Kumar, Brazilian Journal of Physics (Springer), ISSN 1678-4448, 52: article No. 201 (pages 1-16), 2022, Refereed/SCI, Impact factor 1.364, 10.1007/s13538-022-01195-4 Q4
- [12]. Some invariant solutions of coupled Konno-Oono equations arising in electromagnetic and quantum fields, **Raj Kumar** and Avneesh Kumar, Phys. Scr. (IOPScience) 97 (2022) 075501 (pages 1-11), 2022, Refereed/SCI, Impact factor **3.081**, DOI: 10.1088/1402-4896/ac71e1 Q2
- [13]. More solutions of coupled equal width wave equations arising in plasma and fluid dynamics, **Raj Kumar** and Avneesh Kumar\*, International Journal of Applied and Computational Mathematics 8:186, 1-13, 2022 DOI: 10.1007/s40819-022-01400-7 Q3
- [14]. Dynamics of invariant solutions of mKdV-ZK arising in a homogeneous magnetised plasma, **Raj Kumar**, Ravi Shankar Verma\*, Nonlinear Dynamics, 108, 4081-4092 (2022), Impact factor **5.6**, DOI: 10.1007/s11071-022-07389-4 Q1
- [15]. Dynamical behavior of similarity solutions of CKOEs with conservation law, **Raj Kumar** and Avneesh Kumar, Appl. Math. Comput. (Elsevier), 422, 2022, 126976, Refereed/SCI, Impact factor **4.00**, DOI: 10.1016/j.amc.2022.126976 Q1
- [16]. Optimal subalgebra of GKP by using Killing form, Conservation Law and some more solutions, **Raj Kumar**, Avneesh Kumar\*, International Journal of Applied and

Computational Mathematics (Springer), ISSN 1819-4966, Journal: 40819 Article No.: 1211, 8(11), 2022, SCOPUS DOI: 10.1007/s40819-021-01211-2 **Q3**

### 2021:

- [17]. Dynamics of some more invariant solutions of (3+1)-Burgers system, Raj Kumar\*, Mukesh Kumar, Atul Kumar Tiwari, International Journal for Computational Methods in Engineering Science and Mechanics (Taylor & Francis), ISSN 1550-2287, 22(3): 225-234, SCI, Impact factor **1.31**, DOI: [org/10.1080/15502287.2021.1916693](https://doi.org/10.1080/15502287.2021.1916693) **Q3**
- [18]. Some more invariant solutions of (2+1)-water waves, Mukesh Kumar, **Raj Kumar\***, Anshu Kumar, International Journal of Applied and Computational Mathematics (Springer), ISSN 1819-4966, 7 (18): 2021, SCOPUS  
DOI: Total Citations 1 **Q3**

### 2019:

- [19]. More solutions of coupled Whitham-Broer-Kaup equations, Mukesh Kumar, Atul Kumar Tiwari, **Raj Kumar**, Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci. (Springer), ISSN 2250-1762, (2019) 89: 747-755, **Impact factor 1.544**, SCI, DOI:10.1007/s40010-018-0527-1 Total Citations 2 **Q3**

### 2018:

- [20]. On closed form solutions of (2+1)-breaking soliton system by similarity transformations method, Mukesh Kumar, Dig Vijay Tanwar, **Raj Kumar**, Computers & Mathematics with Applications (Elsevier), Impact factor **3.476**, SCI, ISSN 0898-1221, 75 (2018), 218–234, DOI:10.1016/j.camwa.2017.09.005, Total Citations 15 **Q1**
- [21]. On Lie symmetries and soliton solutions of (2+1)-dimensional Bogoyavlenskii equations, Mukesh Kumar, Dig Vijay Tanwar, **Raj Kumar**, Nonlinear Dynamics (Springer), Impact factor **5.741**, SCI, ISSN 1573-269X, 94 (4), 2547-2561, Total Citations 13, DOI: 10.1080/17455030.2022.2042427 **Q1**

### 2017:

- [22]. Some More Solutions of Kedomtsev-Petviashvili Equation, Mukesh Kumar, Atul Kumar Tiwari, **Raj Kumar**, Computers & Mathematics with Applications (Elsevier), **Impact factor 3.476**, SCI, ISSN 0898-1221, 74 (2017), 2599-2607, DOI:10.1016/j.camwa.2017.07.034 **Total Citations 12** **Q1**
- [23]. Soliton solutions of KD system using similarity transformations method, Mukesh Kumar, **Raj Kumar**, Computers & Mathematics with Applications (Elsevier), Impact factor **3.476**, SCI, ISSN 0898-1221, 73, 2017, 701-712, Total Citations 20, doi.org/10.1016/j.camwa.2016.12.025 **Q1**

### 2016:

- [24]. Application of Lie-Group Theory for solving Calogero-Bogoyavlenskii-Schiff Equation, Raj Kumar, IOSR Journal of Mathematics (**IOSR-JM**), 12(4), **2016**, 144-147, **Non SCI, Total Citations 9**, DOI: 10.9790/5728-120402144147 issn 2278-5728
- [25]. Similarity Solutions of the Konopelchenko-Dubrovsky System Using Lie Group Theory, Mukesh Kumar, Raj Kumar, Anshu Kumar, Computers & Mathematics with Applications (Elsevier), Impact factor 3.476, SCI, ISSN 0898-1221, **Total Citations 18**, 71(10), **2016**, 2051-2059 , DOI/10.1016/J.CAMWA.2016.03.023 **Q1**
- 2015:**
- [26]. On Exact Solutions of (2+1)-Dissipative ZK Equation, Raj Kumar, International Journal of Science, Environment and Technology, 4(5), 2015, 1430-1437, Non SCI, Total Citations 1 **ISSN: 2278-3687, 2277-663X**
- [27]. Some more similarity solutions of the (2 + 1)-dimensional BLP system, Mukesh Kumar, Raj Kumar and Anshu Kumar, Computers & Mathematics with Applications (Elsevier), Impact factor **3.476**, SCI, ISSN 0898-1221, 70, 2015, 212-221, Total Citations 19 **Q1**
- [28]. Some More Solutions of Burgers' Equation, with Mukesh Kumar published in an International Conference: (ICMSQUARE-14) proceeding at Madrid, Spain from August 28-31, 2014. Phys.: Conf. Ser. Volume 574 (2015) 012038, IOP Publishing, ISSN: 1742-6588, SCI, doi:10.1088/1742-6596/574/1/012038 Total Citations 5
- 2014:**
- [29]. On Similarity Solutions of Zabolotskaya-Khokhlov Equation, Mukesh Kumar, Raj Kumar and Anshu Kumar, Computers & Mathematics with Applications (Elsevier), Impact factor 3.476, SCI, ISSN 0898-1221, 68, 2014, 454-463. Citations 30, Total Citations 39 <https://doi.org/10.1016/j.camwa.2014.06.020> **Q1**
- [30]. On new similarity solutions of the Boiti-Leon-Pempinelli system, Mukesh Kumar, Raj Kumar, Communications in Theoretical Physics (IOP Ltd.), 61(1), 2014, 121-126, Impact factor 1.178, SCI, Total Citations 18 DOI 10.1088/0253-6102/61/1/19 **Q2**
- 2013:**
- [31]. Some soliton solutions of Nonlinear partial differential equations by Tan-Cot Method, with Mukesh Kumar & Anshu Kumar, IOSR–Journal of Mathematics, 6, **2013**, 23-28, **Non-SCI, Total Citations 14** <https://www.iosrjournals.org/iosr-jm/papers/Vol6-issue6/E0662328.pdf>
- [32]. On some new exact solutions of incompressible steady state Navier-Stokes equations, Mukesh Kumar, **Raj Kumar**, Meccanica (**Springer**), 49, **2014**, 335-345, **Impact factor 2.7, SCI Total Citations 22 ISSN 1572-9648**

<https://doi.org/10.1007/s11012-013-9798-4>

Q2

2007:

[33]. Digital video authentication for forensic application, Saurabh Upadhyay, Raj Kumar and Sanjay Singh, Atmbodh, 4(1), 2007, 54-60 UGC listed **Total Citations 0**

Book chapter: <https://doi.org/10.1016/B978-0-443-16092-9.00021-7>

You can access the book on following link

<https://shop.elsevier.com/books/integrative-omics/gupta/978-0-443-16092-9>

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## Chapter 21 - Biomolecular networks

Shiv Kumar Yadav <sup>1</sup>, Atifa Hafeez <sup>2</sup>, Raj Kumar <sup>1</sup>, Manish Kumar Gupta <sup>2</sup>, Ravi Kumar Gutti <sup>3</sup>

<https://doi.org/10.1016/B978-0-443-16092-9.00021-7>

### Research Guidance:

**03 (ongoing)** Mr. Kripa Shankar Pandey,

Mr. Shiv Kumar Yadav (JRF), Mrs. Nidhi Asthana

**02 (Awarded)** September 2022

Mr. Avneesh Kumar

May 2023

Mr. Ravi Shanker Verma

**Sponsored Projects:** **01** Minor project funded by VBS PU

### Member of Editorial boards as Reviewer in SCI Journals:

1. International Journal of Modelling and Simulation
2. Proceedings of the National Academy of Sciences, India Section A: Physical Sciences (Springer Publisher)
3. The Asian Journal of Mathematics (A Journal by the **International Press**)
4. Computers & Mathematics with Applications (**Elsevier** Publisher)
5. Physica A: Statistical Mechanics and its Applications (Elsevier Publisher)

6. *Waves in Random and Complex Media* (formerly *Waves in Random Media*)
7. Phys. Scr. (IOPScience)
8. *International Journal of Modelling and Simulation*

### Conference/workshops/lecture series/ programmes organised etc.:

1. **Convener and Co Convener** of ‘**National Science Day (NSD-2017 to 2020)**’ organized on the occasion of **National Science day** 28 Feb. 2017, 2018, 2019, 2020
2. **Organizing Secretary, Webinar** on “वर्तमान परिप्रेक्ष्य में गाँधी चिंतन की प्रासंगिकता”, on 25<sup>th</sup> Aug, 2020 organized by VBSPU, Jaunpur.
3. **Convener, International Webinar** on Impact of Covid-19 on *Indian Economy: Challenges and Opportunities*, On June 09, 2020 organised by Department of Mathematics and Financial Studies
4. **Member** of Organizing Committee of a national webinar on *Intellectual Property Rights: Protection of Intellectual Property and Way Forward* during 22-23 May, 2020 and organised by Intellectual Property Rights Cell, VBS Purvanchal University Jaunpur.
5. **Convener, International Conference** on *Recent Trends in Electrical, Electronics and Computer Science Engineering-2020* during **10-11 Jan. 2020** organised by UNSIET
6. **Co-chair, an international conference** “*International Conference on Ultrasonics and Materials Science for Advanced Technology*” (ICUMSAT- 2019) during **16-18 November 2019** and jointly organised by Prof. Rajendra Singh Institute of Engineering of Physical Study and Research, VBS PU Jaunpur and Ultrasonics Society of India, New Delhi, India.
7. **Co Convener** of “**National Youth Day**” celebration on 12<sup>th</sup> January, 2019 on the occasion of 146<sup>th</sup> Jubilee of Swami Vivekanand in the campus of V.B.S. Purvanchal Univ. Jaunpur.
8. **Co-Convener** of **inaugural ceremony** of “कौशल विकास एवं प्रशिक्षण केंद्र” on 16/09/2019.
9. **Co-Convener** of **one day national seminar** on “विश्वविद्यालयीय शिक्षा की स्वायत्तता” on **14 August 2019**.
10. **Convener of National seminar** entitled “*Samsamyik Pridrasya men Ekatm Manavvad*” on 22<sup>th</sup> September, 2018 on inaugural day of Pt. Deen Dayal Shodh Peeth and organized by V.B.S. Purvanchal Univ. Jaunpur.
11. **Convener** of a **National seminar** entitled “*Ekatm Manavdarshan ka Yugbodh* (एकात्म मानव दर्शन का युगबोध)” on 25<sup>th</sup> September, 2019 in the campus of V.B.S. Purvanchal Univ. Jaunpur.
12. **Convener** of a **National workshop** entitled “*Growth of Science & Technology in the Campus of Purvanchal University (GSTCPU-2017)*” during 8-10<sup>th</sup> September, 2017 for discussions on new courses in the campus.
13. **Co Convener** of “**मतदाता जागरूकता अभियान**” in the V.B.S. Purvanchal University, Jaunpur campus on 18<sup>th</sup> Feb., 2017

14. **Convener of Workshop** entitled “*Communication Skills*” organized by V.B.S. Purvanchal University, Jaunpur during 17-18<sup>th</sup> September, 2016 for all students of campus.
15. **Convener** of Lecture series entitled “**Numerical Techniques and Programming in MATLAB**” during 22-28<sup>th</sup> July, 2016 for UG students.
16. **Convener** of Workshop “**Numerical Computation Using MATLAB**” during 26-30 November, 2015 for all CSE/IT students of campus.
17. **Convener** of Workshop on “**Better Engineer**” during 10-13 November, 2010.

### Invited Lectures /conference papers presented:

S. No.	Title of the Paper / talk presented	Title of Conference / Seminar With date	Organized by	Level
1.	<b>Paper:</b> Dynamical Behaviour of Coupled Burgers Equations Arising in Fluid	Advances in Applications of Analytical Methods in Solving Differential Equations (Symmetry2024) during January 22-26, 2024	jointly by Suranaree University of Technology, Stellenbosch University, the Lavrent'ev Institute of Hydrodynamics and the Moscow Center for Fundamental and Applied Mathematics, took place as a virtual conference	International
2.	<b>Paper:</b> Novel Travelling Wave Solutions of the Jaulent Miodek Equations and coupled Konno Oono Equations and their dynamics	ICAIM-2023 during 24-26 march 2023	Sharda University, Noida	International
3.	<b>Paper:</b> Novel Soliton Solutions of (3+1) dimensional Jaulent Miodek Equations arising in fluids	ICAIM-2023 during 24-26 march 2023	Sharda University, Noida	International
4.	<b>Paper:</b> Some More Travelling Wave Solutions of the Rosenau Equation	87 <sup>th</sup> Annual Conference of the Indian Mathematical Society An <b>International Meet</b> (Online Conference) 1 - 4 Dec., 2021	Jawaharlal Nehru Engineering College, MGM University, Aurangabad Page 82-83 <a href="http://www.mgmu.ac.in/ims/documents/abstract%20book.pdf">http://www.mgmu.ac.in/ims/documents/abstract%20book.pdf</a>	International
5.	<b>Paper:</b> Some more invariant solutions of Coupled Equal Width Wave Equation			
6.	<b>Paper:</b> Soliton solutions of the (2+1)-Coupled DLW equations			
7.	More invariant solutions to the Benny Luke equation	International Conference on Recent Developments in Mathematics and Mathematical Sciences (ICRDMMS 2021)	Calcutta Mathematical Society, Kolkata, Indian during 9-11 December, 2021.	National
8.	<b>Paper:</b> More analytical solutions of (2+1)-Gardner-Kadomtsev-Petviashvili equation	Online - International Conference on Advances in Applied Sciences &	RBVRR Women's College, Narayanguda, Hyderabad & IMRF Institute of Higher Education & Research, India.	International

		Advances in Sustainable Development 2021 during Nov. 24 <sup>th</sup> & 25 <sup>th</sup> , 2021		
9.	<b>Paper:</b> Exact solutions of mKdV-ZK in (3+1)-dimensional spaces'	a National Conference, "37th Annual National Conference of The Mathematical Society-Banaras Hindu University (MS-BHU) on Modern Mathematics and its Applications," January 29–30, 2022	Department of Mathematics, Institute of Science, Banaras Hindu University, Varanasi.	National
10.	<b>Paper:</b> Some Invariant Solutions of Konopelchenko-Dubrovsky System	International Conference on Recent Trends in Electrical, Electronics and Computer Science Engineering-2020 during 10-11 Jan. 2020	UNSIET, VBS PU Jaunpur	International
11.	<b>Paper:</b> Application of similarity transformations method to solve Kedomtsev-Petviashvili equation	International Conference on Recent Trends in Electrical, Electronics and Computer Science Engineering-2020 during 10-11 Jan. 2020	UNSIET, VBS PU Jaunpur	International
12.	Talk, "Basics and applications of Game Theory and Assignment Problems"	TEQIP-III 15-16 March 2019	Atal Bihary Vajpyee Govt. College of Engg. & Tech Himachal Pradesh	National
13.	2 Invited lectures on <b>Basics on Finite Groups &amp; Ring theory with Applications</b>	FDP on <b>Cryptography and Cyber Security</b> during 14-18 September, 2019	sponsored by TEQIP-III at UNSIET	National
14.	Invited Talk " <b>Introduction to LaTeX: A typing tool</b> " November 08-10, 2019	National Conference on " <b>Number Theory, Special Functions and Their Applications in Computer Science.</b> " November 08-10, 2019	Ramanujan Society of Mathematics and Mathematical Sciences & Department of Mathematics, TDPG College, Jaunpur-222002 (UP), India	National

15.	Invited Talk “ <b>Introduction to Congruence modulo, Sylow theory and their applications</b> ” November 08-10, 2019	National Conference on “ <b>Number Theory, Special Functions and Their Applications in Computer Science.</b> ” November 08-10, 2019	Ramanujan Society of Mathematics and Mathematical Sciences & Department of Mathematics, TDPG College, Jaunpur-222002 (UP), India	National
16.	Paper: “Similarity Solutions of Breaking Soliton Equation” November 08-10, 2019	National Conference on “ <b>Number Theory, Special Functions and Their Applications in Computer Science.</b> ” November 08-10, 2019	Ramanujan Society of Mathematics and Mathematical Sciences & Department of Mathematics, TDPG College, Jaunpur-222002 (UP), India	National
17.	Paper: Some Exact Solutions of (3+1)-Burgers system.	International Conference on Applied and Computational Mathematics. Nov 23-25, 2018.	IIT Kharagpur	International
18.	An <b>invited talk</b> “Concluding Lectures on Latex”, on 24 March 2017	One Week STTP “Latex for Academic writing” (20-24 <sup>th</sup> March, 2017)	Government Engineering College, Patan, Gujarat	National
19.	An <b>invited talk</b> “ <b>Tips to Crack GATE Examination.</b> ”	Government Engineering College, Patan, Gujarat (on 25 March 2017		National
20.	An <b>invited talk</b> “Similarity Transformation Method: A tool for solving Nonlinear PDEs.”	<b>National Conference on “Discrete Mathematics, Theoretical Computer Science, Computer Engineering and Applications.”</b> November 28-29, 2017	Ramanujan Society of Mathematics and Mathematical Sciences & Department of Mathematics, TDPG College, Jaunpur, India.	National
21.	<b>Paper:</b> Similarity Transformations to Solve (2+1)-Burgers’ Equation.	Silver Jubilee of ISIAM. 29-31 Jan, 2016	Sharda University, Greater Noida (UP).	International
22.	<b>Talk:</b> Similarity Transformations Method: Theory and Applications.	STTP on “Computational Techniques for Differential Equations (CTDE-2016)” May 2-6,	Department of Applied Maths. & Humanities, SVNIT Surat-Gujarat	National

		2016		
23.	An invited talk “Career Counselling.”	<b>National workshop</b> “Computational Techniques for Differential equations.” May 4, 2016	Department of Applied Mathematics and Humanities, SVNIT Surat.	National
24.	<b>Paper:</b> “On Similarity Solutions of Coupled Whitham-Broer-Kaup Equation.”	Recent Trends of Research in Mathematics and Applications in Diverse Fields. November 3-5, 2016	Department of Mathematics, TDPG College, Jaunpur, India.	National
25.	An invited talk “Application of Similarity Transformation method for solving nonlinear PDEs.”	Workshop on “Treasures of Great Indian Mathematician Srinivasa Ramanujan.” November 3-7, 2016	Department of Mathematics, TDPG College, Jaunpur, India.	National
26.	<b>Paper:</b> More Solutions of KD Equation.	Condensed Matter & Applied Physics. October 30-31, 2015	Govt. Engineering College, Bikaner-334004, Rajasthan, India	International
27.	A talk: Finite Element Method.	Govt. Engineering College, Bikaner. 31 Oct. 2015		National
28.	<b>Paper:</b> Similarity Solution of the CBS Equation.	18 <sup>th</sup> International Conference of Academy of Physical Sciences (CONIAPS XVIII). December 22-24, 2015	University of Allahabad, India	International
29.	On Similarity Transformation Methods and Some Applications,	On Role of Mathematics In Sustainable Development. October 17–18, 2014	Govt. Deg. College, Karanprayag (Chamoli), Utrtrakhand, India	National
30.	On Some Invariant Solutions of (2+1)-dimensional ZK dissipative Equation.	Applications of Mathematics in Engineering and Sciences (AMES–2014). November 29-30, 2014	MNNIT Allahabad, India	National
31.	Tan-Cot method for Soliton Solutions of BBM type Equations.	Mathematical Modelling and Applications In Sciences & Engineering. March 9-10, 2013	Department of Mathematics, NIT Patna	National
32.	<b>Paper:</b> New exact solutions of the (2+1)-dimensional Boiti-Leon-Pempinelli system.	Mathematical Modelling and Numerical Simulation	Babasaheb Bhimrao Ambedkar University, Lucknow (UP).	International

		(ICMMANS-2013). July 1-3, 2013		
33.	<b>Paper:</b> On Similarity Solutions of Burgers' Equation.	Advances in Mathematical Sciences (AMS-2012). October 5-7, 2012	MNNIT Allahabad	National
34.	<b>Paper:</b> On Invariant Solutions of Steady-State Navier-Stokes Equations.	South Eastern Atlantic Regional Conference on Differential Equations (SEARCDE-2012). October 19-20, 2012	Wake Forest University, Winston Salem, North Carolina, USA.	International
35.	<b>Paper:</b> Some Invariant solutions of Burgers' Equation.	Emerging Mathematical Methods, Models & Algorithms for Science and Technology" December 15-16, 2012	Gautam Buddha University, Greater Noida (NCR), India.	International
36.	<b>Paper:</b> Behaviour of Magnetic Tubes in Neutron star's Interior.	23rd Conference of IAGRG. December 7-10, 2004	University of Rajasthan, Jaipur, India	national

### Courses/Summer Institute/Training programme attended:

Name/Nature of the Course	Institute and Place	Dates/Period	Duration
<b>Orientation Program</b>	BHU, Varanasi	04/06/10 to 1/07/10	4 weeks
<b>Refresher Course</b> on Human Rights and Social Inclusion (Interdisciplinary)	Jamia Millia Islamia University, New Delhi	15/04/10 to 5/05/10	3 weeks
An <b>ATM school</b> "Numerical Methods on PDE's"	Panjab Univ. Chandigarh	18/06/12 to 7/07/12	20 days
An <b>Advanced Instructional school</b> "PDE's and Computations"	Jaypee Tech. Univ. Solan, Himachal Pradesh	June 4-16, 2012	13 Days
A short Term course "Research Skills & Methods in Computational Sciences with Engineering Applications"	Applied Sciences & Engg. Mathematics at the QIP Center, IIT Roorkee	From 12/06/17 to 16/06/17	One week
A short term course "Scientific Computing and Applications to Industrial Problems."	Department of Mathematics, IIT Kharagpur.	From 9/11/18 to 23/11/18	One week
Professional Development Training under TEQIP III	IIM Trichy	6 <sup>th</sup> -10 <sup>th</sup> August 2018	One week
Professional Development Training under TEQIP III	IIM Indore	11 <sup>th</sup> -15 <sup>th</sup> Dec. 2017	One week
Training Programme on Academic Leadership	Centre of Academic Leadership and Education Management, AMU, Aligarh and VBS Purvanchal University, Jaunpur.	31th Jan. 2018-3 <sup>rd</sup> Feb. 2018	One week
Training Programme on Academic Leadership	Centre of Academic Leadership and Education Management, AMU, Aligarh and VBS Purvanchal University, Jaunpur.	26 <sup>th</sup> -29 <sup>th</sup> March 2019	One week

Training Programme on Academic Leadership	Centre of Academic Leadership and Education Management, AMU, Aligarh and VBS Purvanchal University, Jaunpur.	23 <sup>th</sup> -29 <sup>th</sup> April 2019	One week
National Workshop “Trends and Challenges in Higher and Technical Education”	ESCI Haiderabad at Port Blair under the Industry-Institute Interface Programme	19-23th Jan. 2019	One week
“Mathematical Analysis and Applications”	Deptt. of Mathematics at the QIP Center, IIT Roorkee	4 <sup>th</sup> -8 <sup>th</sup> July 2016	One week
“Mathematical Modelling and Numerical Computation using MATLAB”	Deptt. of Mathematics & CSE at the QIP Center, IIT Roorkee	From 09/02/15 to 13/02/15	One week
A national workshop “Optimization Techniques & Their Applications (NWOTA-13)”	Department of Mathematics at the MNNIT Allahabad.	05/06/13 to 11/06/13	7 Days
Inspire Science Camp 2020 “Innovation in Science Pursuit For Inspired Research.”	Department of Science and Technology (DST) GOI atVBS Purvanchal University, Jaunpur.	27/0120 to 31/01/20	One week
FDP on Cryptography and Cyber Security	Department of CSE & IT Sponsored byTEQIP-III atVBS Purvanchal University, Jaunpur.	14/09/19 to 18/09/19	One week
Workshop on “Research Methodology and Ethical Issues in Research.”	Sponsored byTEQIP-III atVBS Purvanchal University, Jaunpur.	06/09/19 to 07/09/19	2 Days
Symposium on Collaborative Research	PES College of Engineering, Mandya with SPIU Karanataka and in association with SJCE Mysuru, NIE Mysuru and MCE Hassan	19/08/19 to 20/08/19	2 Days
Online FDP on Mathematica Software- “Hands on Experience: Tools & Techniques for Next Generation”	Department of Mathematics, Santhiram Engineering College in association with Wolfram Mathematica, Aaryman Geo Info, Bangalore	28/0/5/20 to 02/06/20	One week
International Webinar on “Impact of Covid-19 on Indian Economy: Challenges and Opportunities.”	Department of Mathematics and Department of Financial Studies VBS Purvanchal University, Jaunpur.	09/06/20	1 Day
National Webinar on “Intellectual Property Rights: Protection of Intellectual Property and Way Forward.”	Intellectual Property Rights Cell VBS Purvanchal University Jaunpur.	22/05/20 to 23/05/20	2 Days

### Membership of Professional Bodies/Societies etc.

1. Life Member Ship of Indian Mathematical Society
2. Annual membership of World Physics Association (WPA) From Nov. 2015 to Dec. 2016

### Portfolio at V.B.S. Purvanchal University, Jaunpur

1. Honorary librarian from July 2024 till date
2. **Proctor** from 16 Jan 2024 till date
3. **Green Campus Coordinator**, from Nov 2023 till date
4. **Member**, Executive Council from May 2021-May 2022
5. **Incharge**, Media Cell, VBS PU Campus from Jan 2020-Oct 2021
6. **Member**, IPR Cell from March 2019 to April 2022

7. **Nodal officer**, Kaushal Vikas & Prashikshan Kendra at campus from Sep. 2019 to Nov. 2024 years
8. **Chief Warden** from 14 Dec 2023 to 15 Jan 2024, and Oct 2017 to Oct 2021.
9. **Member of Academic Council** from last nine years
10. **Head, Department of Mathematics** during last 13 yrs (2004-2011, 2014-till date)
11. **Coordinator**, Purvanchal University Combined admission test (PUCAT)-2019,2016, member PUCAT 2017-18
12. **Assistant Dean of Students Welfare** for two Yrs (2014-2016)
13. **Programme Officer**: Unit-III of NSS for 2 Yrs (2014-2016)
14. **Convener, Board of Studies**, Department of Mathematics during last 13 yrs (2004-2011, 2014-till date)
15. **Coordinator, Technical cell** (Result preparation cell for the whole campus courses),
16. **Coordinator, B. Tech. OBC Scholarship Cell**, for 5 yrs (2005-2010)
17. **Organising Secretary, Sports meet of campus** from 2017 to July 2020.
18. **Assistant Proctor from last 13 years**
19. **Member of internal screening committee** for regular teacher's post applications.
20. **Dy. Coordinator**, UGC Sponsored **Remedial Coaching** for SC/ST/OBC students, etc. for 2 yrs.
21. **Dy. Coordinator**, Academic Activities of B. Tech First year from 2014 till date.
22. **Coordinator, Internet maintenance committee**
23. **Member of E-tendering committee, Infrastructure committee, Auction of disposable materials committee**, and some others

### **Tasks for University campus and social Development**

1. Free coaching "Prerna" has been taking place in the villages neighboring V.B.S. Purvanchal University, Jaunpur, since February 4, 2014. The aim is to enhance the knowledge of poor children. The students on our campus are offering complimentary assistance with tutoring there. Around 1800 children receive benefit. [www.vbspu.ac.in/en/article/prerna-coaching](http://www.vbspu.ac.in/en/article/prerna-coaching)
2. For the past 14 years, I have been devoted to making the campus into a lush green space. I have successfully planted over 3500 trees on the campus. As the coordinator for the green campus for the past three months, my colleagues have completed the geotagging of every tree and plant on campus. [www.youtube.com/watch?v=S6YhxfYhc9g](http://www.youtube.com/watch?v=S6YhxfYhc9g)
3. Skill Development and Training center of the University is running from last 4 years. 30 batches have been completed for the training of domestic data entry operator, sewing machine operator, micro-finance executive, domestic help desk attendant. The placement of trainers is under process. [www.vbspu.ac.in/en/article/skill-development-and-training-center](http://www.vbspu.ac.in/en/article/skill-development-and-training-center)

**(Dr. Raj Kumar)**