



• Rayat Shikshan Sanstha's •  
**KARMAVEER BHAURAO PATIL COLLEGE, VASHI**  
**(EMPOWERED AUTONOMOUS)**



Accredited by NAAC with Grade 'A++' (CGPA 3.51) | ISO 9001 : 2015 Certified Institute



Star College Status by Department of Biotechnology, Govt. of India



'Best College' Award by University of Mumbai



RUSA Beneficiary Institute Under Component 8



## Dr. Gajanan A. Dhanorkar

HOD, Assistant Professor  
Department of Mathematics



[Google Scholar](#)



[ResearchGate](#)

### Basic Information

|                     |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| Qualification       | M.Sc. (Mathematics), Ph.D.                                                                 |
| Designation         | Head of Department, Assistant Professor                                                    |
| Department          | Mathematics                                                                                |
| Specialization      | Functional Analysis and Cryptography.                                                      |
| Teaching Experience | 17 Years                                                                                   |
| Official Email      | <a href="mailto:gadhanorkar@kbpcollegevashi.edu.in">gadhanorkar@kbpcollegevashi.edu.in</a> |

### Research Publications

- Distance and Eccentricity Spectra of Compressed Zero-Divisor Graphs over  $\prod_{k=1}^n F_k$ ,**  
where  $F_k$  are any fields and  $2 \leq n \leq 5$ .  
*Advanced Engineering Sciences* (Scopus-indexed Journal).
- Data Security by Transform Technique (In Press).**  
*Advanced Engineering Sciences* (Scopus-indexed Journal).
- Spectral Properties and Energy Analysis of the Bishop Hypergraph on the  $8 \times 8$  Chessboard.**  
*Journal of Advances in Mathematics and Computer Science*, Vol. 41, No. 3, pp. 126–141, 2026.
- Structural Properties of Zero-Divisor Hypergraph and Superhypergraph over  $\mathbb{Z}_n$ : Girth and Helly Property.**  
*Panamerican Mathematical Journal*, Vol. 35, No. 4S, pp. 485–495, 2025.
- Harnessing Statistical Models for Enhanced Crop Production Forecasting.**  
*International Journal of Advance and Applied Research*, Vol. 6, No. 19, pp. 58–65, 2025.
- A Generalized Study of Zero Divisor Graphs of Boolean Rings  $\mathbb{Z}_2^n = \mathbb{Z}_2 \times \mathbb{Z}_2 \times \cdots \times \mathbb{Z}_2$ .**  
*Communications on Applied Nonlinear Analysis*, Vol. 32, No. 7, 2025.

7. **The Role of Extremes in Financial Decision-Making and Economic Policy Formulation.**  
*South Eastern European Journal of Public Health*, Vol. 26, Supplement 1, pp. 6688–6695, 2025.
8. **Linear Algebra and Image Processing Using Python.**  
*The Online Journal of Distance Education and e-Learning*, Vol. 11, Issue 2, 2023.
9. **On the First Set  $J_n(\alpha, \beta, K; x)$  of Bi-Orthogonal Polynomials Suggested by the Jacobi Polynomials.**  
*Rivista Italiana di Filosofia Analitica Junior*, Vol. 14, No. 2, pp. 1229–1234, 2023.
10. **Distance in Partial Metric Spaces and Common Fixed Point Theorems.**  
*Mathematical Statistician and Engineering Applications*, Vol. 71, No. 4, pp. 8319–8324, 2022.
11. **Partial Metric Space with Modulation of Fixed Point Theorems in Generalized Contractions Mapping.**  
*Webology*, Vol. 19, No. 2, 2022.
12. **Semicompatibility and Fixed Point Theorem in an Unbounded G-Metric Spaces.**  
*Bulletin of the Allahabad Mathematical Society*, Vol. 27, No. 2, pp. 143–158, 2022.
13. **A Fixed Point Theorem for OWC Mappings Satisfying a Contractive Condition of Integral Type.**  
*International Journal of Mathematical Archive*, Vol. 3, No. 1, pp. 342–346, 2022.
14. **A Generalization of Common Fixed Points on Cone Metric Spaces.**  
*International Journal of Mathematical Manuscripts*, Vol. 5, No. 1, pp. 1–5, 2022.
15. **Fixed Point Theory for Contractive Mappings Satisfying  $\Phi$ -Maps in Generalized Cone D-Metric Spaces.**  
*International Journal of Mathematical Archive*, Vol. 3, No. 2, pp. 804–809, 2022.
16. **Applying G-Metric Space for Cantor's Intersection and Baire's Category Theorem.**  
*Asian Research Journal of Mathematics*, Vol. 3, No. 2, pp. 1–8, 2017.
17. **A Generalization of Contraction Principle on Partial Metric Spaces.**  
*Kathmandu University Journal of Science and Engineering*, Vol. 9, No. 1, pp. 230–233, 2013.
18. **Simulation of Laplace Transform Using Python.**  
*SciPy India*, 2013.
19. **Solving Differential Equations with Graphical Data Visualization Using Python.**  
*SciPy India*, 2012.
20. **A Generalized Hill Cipher Using Matrix Transformation.**  
*International Journal of Mathematical Sciences and Engineering Applications (IJMSEA)*, Vol. 5, Issue IV, pp. 19–23, 2011.

21. **A Generalization on Fixed Point Theorem on Cone Metric Spaces with  $\omega$ -Distance.**  
*International Mathematical Forum*, Vol. 6, No. 39, pp. 1915–1919, 2011.

## Major / Minor Research Projects

### 1. Minor Research Project (RUSA)

**Title:** *Mathematical Modulation Technique for Diffusion of Blood*

**Funding Agency:** Rashtriya Uchchatar Shiksha Abhiyan (RUSA)

**Sanction Letter No.:** 629\_2020–2021

**Duration:** 02 February 2021 – 01 February 2023

**Project Status:** Completed

### 2. Ongoing Minor Research Project (Institutional Seed Money), Academic Year 2025–26

**Title:** Mathematical Programming for Scheduling Theory applied to Timetabling

**Funding Agency:** Institutional Seed Money

**Project Status:** Ongoing

## Patents

### 1. HOLOGRAPHIC TRAFFIC LIGHT

**Design No.:** 377648–001

### 2. ROUTER

**Design No.:** 377649–001

## Courses / Training Programmes Completed

1. Participated in the **Third Online Two-Week Refresher Course in Basic Sciences**, organized by the **UGC-HRDC, Jamia Millia Islamia, New Delhi**, from **02 August 2022 to 18 August 2022**.
2. Completed a **One-Week Faculty Development Programme (FDP)** on “*Developing Consciousness*” under the **AICTE Training and Learning (ATAL) Academy**, organized by **Dayalbagh Educational Institute**, from **26 November 2021 to 30 November 2021**.
3. Completed a **One-Week Faculty Development Programme (FDP)** on “*Effective Leadership and Excellence in Technical Education*” under the **AICTE Training and Learning (ATAL) Academy**, organized by **Women Engineering College, Ajmer**, from **15 November 2021 to 19 November 2021**.
4. Completed a **One-Week Faculty Development Programme (FDP)** on “*Quality Enhancement & Assessment: Way Ahead*”, organized by the **Internal Quality Assurance Cell (IQAC)** under the aegis of **RUSA**, from **16 June 2021 to 20 June 2021**.

5. Participated in the **Six-Day Virtual AICTE–ISTE Sponsored Refresher Programme** on *“Innovative Teaching Techniques and Research (Series–III)”*, organized by **Karmaveer Bhaurao Patil College of Engineering, Satara**, from **24 May 2021 to 29 May 2021**.
6. Participated in the **Faculty Orientation Programme**, organized by **Ramanujan College** under the **Ministry of Human Resource Development (MHRD)**, from **04 June 2020 to 01 July 2020**.
7. Completed a **Two-Week Faculty Development Programme** on *“Managing Online Classes and Co-creating MOOCs”*, organized by **Teaching Learning Centre (TLC), Ramanujan College**, from **20 April 2020 to 06 May 2020**.
8. Completed a **One-Week Online Faculty Development Programme** on *“ICT Tools for Effective Teaching–Learning”*, organized by **Swami Ramanand Teerth Marathwada University, Nanded**, from **11 May 2020 to 16 May 2020**.
9. Completed a **One-Week Online Faculty Development Programme** on *“MATLAB Applications in Engineering and Science”*, organized by the **Department of Civil Engineering, Government College of Engineering, Karad**, from **27 April 2020 to 01 May 2020**.
10. Participated in the **Two-Day National Seminar** on *“Intellectual Property Rights and Research Methodology”*, organized by the **Research Promotion and Ethics Committee** and the **Department of Information Technology, Karmaveer Bhaurao Patil College, Vashi**, from **26 February 2020 to 27 February 2020**.
11. Successfully completed the **Four-Week NPTEL SWAYAM Course** on *“Numerical Methods: Finite Difference Approach”*, during **January–February 2020**.

### Resource Person / Guest Lectures Delivered

1. Conducted a **Workshop** on *“CO–PO Mapping & Attainment”*, organized by the **CO–PO Committee and Staff Welfare Committee, Ramsheth Thakur College of Commerce and Science, Kharghar**, on **02 August 2025**.
2. Delivered a **Guest Lecture** on *“Modern Approach of Mathematics”*, jointly organized by **Rayat Shikshan Sanstha’s Karmaveer Bhaurao Patil College, Vashi** and **Navi Mumbai Science Foundation**, on **20 March 2023**.
3. Delivered a **Guest Lecture** on *“Applied View of Mathematics”*, organized by **Rayat Shikshan Sanstha’s Arts, Science and Commerce College, Mokhada**, on **09 March 2022**.
4. Delivered an **Expert Talk** on *“CO–PO Mapping and its Attainment”* at **Karmaveer Bhaurao Patil College, Vashi**, on **16 December 2021**.
5. Delivered an **Expert Lecture** on *“Application of Metric Spaces”* at **KLE College, Kalamboli**, on **29 October 2020**.

6. Invited as a **Guest Speaker** for the **National Level Webinar** on “*SMART USE OF MATHEMATICS*”, organized by **Dhole Patil College of Engineering, Pune**, on **31 May 2020**.  
[YouTube Recording](#)
7. Conducted the webinar “*Joy with Mathematics – Webinar 2*”, organized by the **Department of Mathematics, Rayat Shikshan Sanstha’s Karmaveer Bhaurao Patil College, Vashi**, on **08 May 2020**.  
[YouTube Recording](#)
8. Conducted the webinar “*Joy with Mathematics – Webinar 1*”, organized by the **Department of Mathematics, Rayat Shikshan Sanstha’s Karmaveer Bhaurao Patil College, Vashi**, on **30 April 2020**.  
[YouTube Recording](#)

### **Memberships / Affiliations**

1. **Life Member**, Shrinivas Ramanujan Society (Membership No. 1001).
2. **Life Member**, Indian Society for Technical Education (ISTE) (Membership No. 75670).
3. **Member**, Board of Studies in Mathematics, Karmaveer Bhaurao Patil College, Vashi (Autonomous).
4. **Member, Board of Studies (BoS)** in Mathematics at **R. B. Narayanrao Borawake College, Shirampur**.
5. **Member, Board of Studies (BoS)** in Mathematics at **Sadguru Gadage Maharaj College, Karad**.