

Biodata



Dr. Sunil Shivaji Kumbhar
Assistant Professor,
Department of Mathematics,
Shivaji University,
Kolhapur. Pin: 416004.
Email: 1) ssk_maths@unishivaji.ac.in,
2) sunilmath25@gmail.com

- **Date of Birth: 25 June 1987.**
- **Academic Details :**
 - B.Sc. in **Mathematics**, Shivaji University, Kolhapur, 2007 - 70.00% (Distinction).
 - M.Sc. in **Mathematics**, Shivaji University, Kolhapur, 2009 - 81.08% (Distinction).
 - Qualified State Eligibility Test (SET) for Lectureship in **Mathematical Sciences** conducted by Pune University on 13 Sept. 2009.
 - PhD in **Mathematics**, Shivaji University, Kolhapur, 4 Sept. 2019.
Title of Thesis: Finite Element Methods for One Dimensional Burgers' Equation.
Guide: Prof. S. H. Thakar.
- **Teaching Experience:**
 - Visiting lecturer at Govt. Polytechnic, Karad during Aug.2009-Dec 2009.
 - Lecturer at Dr. Daulatrao Aher college of Engineering, Karad during Jan.2010-Aug.2010.
 - Assistant Professor at Rayat Shikshan Sanstha's, Dada Patil Mahavidyalaya, Karjat, Dist: Ahemadnagar during Sept.2010- April 2011.
 - Assistant Professor at Sharad Institute of Technology College of Engineering, Yadrav (Ichalkaranji) during Aug. 2011-Dec.2013.
 - Assistant Professor at Dr. Daulatrao Aher college of Engineering, Karad during Jan.2014-Feb.2014.
 - Assistant Professor at Department of Mathematics, Shivaji University, Kolhapur from 7 March 2014 to till date.
- **Subjects Taught to M.Sc. and M.Sc. Tech. Mathematics:** Algebra-I, Field Theory, Topology, Numerical Analysis, Fluid Dynamics, Computational Fluid Dynamics, Functional Analysis, Ordinary Differential Equations.
- **University & Departmental Responsibilities:** Working as
 - Rector: Shivaji University Boys Hostel No 2.
 - Departmental Library In-charge.
 - Departmental Alumni Coordinator.
- **Prizes/Awards/Ranks:**

- Stood **first** in order of MERIT at B.Sc. (All) Examination, in SGM College Karad, 2007.
 - Stood **second** in zonal wrestling competition under 96 kg weight and selected for inter-zonal competition in 2006.
- **Software Knowledge:** Mathematica, Scilab, C and C++.
- **Research Interests:** Computational Fluid Dynamics, Computational Mathematics.
- **Research Papers Published :**
 - **Sunil Kumbhar**, Galerkin Finite Element Method for Benjamin-Bona-Mahony-Burgers Equation, Mathematics in Engineering Science and Aerospace (MESA) , Vol. 14, No. 1, 2023, pp. 19-32.
 - Sarita Thakar and **Sunil S Kumbhar**, Galerkin finite element method for forced Burgers' equation, Journal of Mathematical Modeling Vol. 7, No. 4, 2019, pp. 445-467.
 - **Sunil S Kumbhar**, Sarita Thakar, A Second Order Multistep Galerkin Finite Element Method for One Dimensional Burgers' Equation, Journal of Indian Acad. Math. Vol. 39, No. 1 (2017) pp 11-30.
 - **Sunil S Kumbhar**, Sarita Thakar, Numerical Solutions of One Dimensional Burgers' Equation Using Cole-Hopf Transformation and Cubic B-Spline Galerkin Finite Element Method, Bulletin of Kerala Mathematics Association vol. 13, no. 2, pp. 161-172, 2016.
- **Research Papers Communicated:**
 - **Sunil S Kumbhar** and Sarita Thakar, Galerkin Finite Element Method for Oncolytic M1 Cancer Virotherapy Reaction Diffusion Model, International Journal of Biomathematics. (Under review)
- **Books Co-Authored:**
 - **S. S. Kumbhar**, G. D. Shelake, S. S. Mitragotri, **Field Theory**, Shivaji University Press, 2017, (ISBN- 978-81-8486-570-7).
- **Research paper presentations in national and international conferences :**
 - "Numerical Solution for Burgers' Equation Using Modified Bi-quintic B-Spline & Galerkin Finite Element Method", in *National Conference on Dynamical Systems-2013* held at Department of Mathematics, Shivaji University Kolhapur, during 23-24 December 2013.
 - "Numerical Solution of Burgers' Equation Using Quintic B-Spline Finite Element Method", in *International Conference on Mathematical Sciences-2015 (MSC-2015)* held at SGM College Karad, during 15-16 Sept. 2015.
 - "Numerical Solutions of One Dimensional Burgers' Equation By Multistep Galerkin Finite Element Method", in *National Conference on Mathematical Modelling and its Applications in Engineering and Science*, held at Dept. of Mathematics, Govt. College of Engineering, Karad during 3-4 Feb. 2017.

- "Haar Wavelet Collocation Method for Nonhomogeneous Burgers' Equation" in *National Conference on Fractional Calculus & Fractional Differential Equations* held at Savitribai Phule Pune University, Pune during 6-8 Nov. 2017.
 - "Galerkin Finite Element Method for Nonhomogeneous Burgers' Equation" in *3rd International Conference on Mathematical Modelling, Applied Analysis and Computation-2020 (ICMMAAC-20)* held **online** at JECRC University, Jaipur (Raj.) during 7-9 Aug. 2020.
 - "Galerkin Finite Element Method for Benjamin-Bona-Mahony-Burgers Equation" in *International Conference on Applied Mathematics (ICAM-2022)* held **blended mode** at Department of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University, Midnapore (West Bengal) during 8-9 June 2022.
 - "Computational Solutions to SIR & NPZ Biological Models" in *International Conference on Computational Mathematics (ICCM-2023)* held at Sadguru Gadage Maharaj College, Karad on 3 February 2023. (**Awarded Second Prize for Best Oral Paper Presentation**)
- **Completed Research Projects:**
 - Minor research project entitled "**Finite Element Methods for Nonlinear Burgers' Equation**", sanctioned by Shivaji University Kolhapur under Research Initiation Scheme 2018-2020.
- **Workshop/Seminar/Conference participated/attended :**
 - Workshop on "Algebra" conducted in Department of Mathematics, Shivaji University Kolhapur, during 29-30 Jan 2010.
 - Two-week ISTE Workshop on Computational Fluid Dynamics Conducted by Indian Institute of Technology Bombay from 12th to 22nd June, 2012.
 - National Conference on "Dynamical Systems-2013", during 23-24 December 2013, organized by Department of Mathematics, Shivaji University Kolhapur.
 - Three weeks "National Program on Differential Equations: Theory, Computation & Applications (NPDE-TCA)", organized by Department of Mathematics, Indian Institute of Technology Bombay & IISER Thiruvananthapuram during 26 May-13 June 2014 .
 - National Workshop On "Algebra-2015" at Dept. of Mathematics, Shivaji University, Kolhapur during 21-26 Dec. 2015.
 - Participated in Modeling Week and Study Group Meeting at Institute of Technology & Management (ITM) Universe, Vadodara during 10-19 March 2016.
 - Participated in CSIR sponsored National Workshop on Linear Algebra and its Applications-2018 held at Department of Mathematics, Shivaji University Kolhapur during 28 Feb 2018-5 March 2018.
- **Orientation Courses/Refresher Courses/Faculty Development Programs:**
 - Participated in UGC Sponsored 4-weeks **Orientation Program** in the subject "Quality of Higher Education: Extension Method", during 19 April 2017-16 May 2017 held at Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.
 - Participated in UGC Sponsored **Refresher Course** in the subject "Recent Trends in Teaching-Learning Technologies (Mathematics)" under the scheme PMMMNM, during 8-28 December 2018 held at Department of Education, Shivaji University Kolhapur.

- Participated in Two Weeks **Faculty Development Programme** on “Managing Online Classes and Co-creating MOOCS:2.0”, online conducted by Ramanujan College, University of Delhi and Sponsored by MHRD (PMMMNMTT) , during May 18 - June 3, 2020.
- Participated in the National Level Five Day **Faculty Development Program** on “Scilab”, online conducted by St. Peter’s Engineering College, Hyderabad in Association with IIT-Bombay (Remote Learning Through Spoken Tutorial), during June 15-19, 2020.
- Participated in the **online SHORT TERM COURSE ON ICT TOOLS organized by UGC-HRDC Osmania University, Hyderabad, Telangana during July 12-17, 2020.**
- Participated in the **online Two-Week Refresher Course in “Computational and Mathematical Sciences” organized by UGC-HRDC, Jamia Millia Islamia, New Delhi during 22 October to 05 November 2021.**
- **Talks Delivered:**
 - Delivered series of lectures on “Topology” during December 8-11, 2014 at UGC sponsored NET/SET coaching Scheme Conducted by the Department of Mathematics, Shivaji University, Kolhapur.
 - Delivered series of lectures on "**Lagrange's & Newton's divided difference Interpolation**" under Remedial Coaching Scheme for M.Sc.-I students in 2014-15.
 - Delivered a lecture on "**Quantitative Aptitude**" in the "MBA CET Workshop", organized by MBA unit Dept. of Commerce and Management, Shivaji University, Kolhapur on 24th Feb 2015 and on 2nd Feb 2017.
 - Delivered **online** a talk on "**Numerical Treatment to Scientific Problems**" in National Web- Seminar on Mathematical Sciences for Everyone, held on July 29, 2020 organized By Rayat Shikshan Sansthas Prof. Dr. N D Patil Mahavidyalaya, Malkapur Perid.
 - Delivered a lecture on "**Career Counseling in Mathematics**" in the one day workshop entitled "**Career Counseling in Mathematics**", organized by Department of Mathematics, **Sadguru Gadage Maharaj College, Karad** on 17th Feb 2023.
- **Organization of Seminar / Conferences / Workshops / National Mathematics Day:**
 - Worked as a **Convener** for **SERB & Shivaji University Kolhapur** sponsored "**National Seminar on Algebra-2020**" which was held during February 14-15, 2020 at the Department of Mathematics, Shivaji University, Kolhapur.
 - Worked as **Organizing Secretary** for following events which was held at the Department of Mathematics, Shivaji University, Kolhapur:
 - “National Workshop on Linear Algebra”, during February 28 -March 05, 2018.
 - “National Seminar on Differential Equations and Dynamical Sytemes-2017”, during February 27-28, 2017.
 - “National Conference on Differential Equations-2015”, during January 29-30, 2015.
 - “National Mathematics Day”, during December 22, 2014 to March 05, 2015.
 - “National Conference on Dynamical Systems-2013”, during December 23-24, 2014.
 - Worked as **Coordinator** for lecture series “**Career Opportunities After B.Sc. Mathematics**” which was held **online** on 13 March 2021 at Department of Mathematics, Shivaji University, Kolhapur.

- Worked as **Coordinator for Poster Competition** in the celebration of **National Mathematics Day-2020, 2021 & 2022.**
- **Membership of Professional Bodies :**
 - Life member of **Indian Society for Technical Education (ISTE)** M. No.- LM84770.
 - Life member of **Indian Mathematical Society (IMS)** M. No.- L/2021/96.