

Faculty Name	Rayappa Shrinivas Mahale	
Department	Mechanical Engineering	
Years of Experience	7 Years	
Designation	Assistant Professor	
Qualification	M.Tech (Production Management), BE (Industrial and Production Engineering), PhD (Pursuing)	
Areas of Interest	Mechatronics, Hydraulics and Pneumatics, Advanced Precision Engineering, Nano Fabrication, Design of Experiments, Material Science and Metallurgy, Micro Electromechanical Systems, Material Characterization, Powder Processing and Advanced Sintering Techniques, Mechanical Alloying and Metal Additive Manufacturing.	
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Web of Science Researcher ID	https://publons.com/researcher/AAS-3372-2021/	

Education:

Degrees Awarded	University	College/ Institute	Year of Passing
Master of Technology Specialization: Production Management	VTU, Belgaum	B V Bhoomaraddi College of Engineering & Technology, Hubli, Karnataka.	2014
Bachelor of Engineering Specialization: Industrial & Production Engineering	VTU, Belgaum	Bapuji Institute of Engineering & Technology (BIET), Davanagere, Karnataka.	2011
PhD (Pursuing) Specialization: Advanced Materials	REVA University	REVA University, Bangalore, Karnataka.	----

Teaching/ Industry Experience:

1. Worked as a lecturer in department of Mechatronics at JSS K H Kabbur Institute of Engineering, Dharwad Karnataka from August 2011 to April 2012.

2. Successfully completed 6 months of PG project internship (February 2014 to July 2014) in Tata Hitachi Construction Machinery Company Limited (THCM), Dharwad.
3. Worked as an assistant professor in Department of Mechanical Engineering at D. Y. Patil Technical Campus, Pune, Maharashtra from July 2014 to December 2019.
4. Research Scholar, School of Mechanical Engineering, REVA University, Bangalore, India. (From December 2019 to till date).
5. Worked as visiting faculty in Department of Mechanical Engineering at Vishwakarma Institute of Information Technology, Pune, Maharashtra from August 2020 to May 2022.
6. Working as an assistant professor in Department of Mechanical Engineering at Jain College of Engineering and Research, Belagavi, Karnataka from June 2022 to till date.

Research Experience:

PhD in Materials Engineering from REVA University, Bangalore (Course work completed in the month of December 2019 and pre-registration colloquium completed in the month of June 2020).

Area of Specialization: Advanced Materials.

Subjects Taught:

Sr. No	Subjects
1	Industrial Engineering
2	Mechatronics
3	Hydraulics and Pneumatics
4	Material Science
5	Engineering Metallurgy
6	Manufacturing Processes – I and II
7	Metrology and Quality Control
8	Fluid Power Engineering
9	Micro Electromechanical Systems (MEMS)
10.	Metal Cutting and Forming
11.	Elements of Mechanical Engineering

Software Knowledge:

1. Automation Studio (Hydraulics and Pneumatics Simulation).
2. Zeliosoft (PLC Programming).
3. Microsoft Visio (Plotting of Quality Charts).
4. Minitab 18 (Design of Experiments).
5. XPERT HighScore Plus (XRD Analysis).
6. OriginPro 9.0 (XRD Analysis).

Invited Talks:

1. On 09.04.2021, as a guest speaker, addressed students from the department of metallurgical and materials engineering, faculty of engineering and technology, JAIN Deemed to be University, Bangalore on the topic "**Basics of Additive Manufacturing.**"
2. On 30.04.2022, as a guest speaker, addressed students from the department of mechanical engineering, Vishwakarma Institute of Information Technology, Pune on the topic "**Essentials of Nanotechnology in Mechanical Engineering.**"

Reviewer Assignments:

1. Reviewer for Progress in Additive Manufacturing Journal (Springer).
2. Reviewer for 3D Printing and Additive Manufacturing Journal.
3. Reviewer for Metals and Materials International Journal (Springer).

Details of participation in Conferences, Seminars, Faculty Development Programs, and workshops:

1. Attended a workshop on "Advances in Composites and Nano Materials" conducted from 10th to 12th April 2014 at BVBCET Hubli.
2. Participated in National level technical paper presentation event held in Sinhgad Institute of Technology Lonavala during January 2015. (Topic: Reduction of Quality defects in a typical assembly line by the application of CPI methodologies)
3. Attended two days lecture series "To Celebrate the International year of Crystallography (IICr – 2014) – looking to the future, learning from the past" conducted on 13th and 14th March 2015 at BVBCET Hubli.
4. Attended a workshop on "MEMS (Design, Modeling and Simulation)" conducted on 24th and 25th April 2015 at D. Y. Patil School of Engineering Academy, Pune.
5. Participated in National workshop on "Advances in Composite Materials and DOE" conducted from 29th to 31st July 2015 at KLS Gogte Institute of Technology, Belgaum.
6. Attended two days faculty development program on "Sa Vidya Ya Vimuktaye" Education is that which liberates an individual conducted from 22nd to 23rd August 2015 at D. Y. Patil Technical Campus, Pune.
7. Participated in National workshop on "ANSYS Mechanical Linear and Non-Linear Dynamics" conducted from 07th to 08th January 2016 at D. Y. Patil School of Engineering Academy, Pune.
8. Attended a workshop on "Syllabus Detailing of TE Mechanical, 2015 Course for the subject Metrology and Quality Control (MQC)" on 21st October 2016 organized by Board of Studies, Mechanical Engineering, Savitribai Phule Pune University (SPPU) In Association with Mechanical Engineering Department of Shri Ramachandra College of Engineering, Pune.

9. Attended a workshop on “Recent Trends in Mechatronics” conducted from 13th to 14th December 2016 at Pimpri Chinchwad College of Engineering and research (PCCOE&R), Pune.

10. Attended two days state level workshop on “Project Based Learning with Simulink” from 7th to 8th February 2017 at D Y Patil Technical Campus, Pune.

11. Participated in National workshop on “New Trends in Mechanical Engineering (NCNTME-2017)” conducted from 18th to 19th February 2017 at D Y Patil Technical Campus, Pune.

12. Attended one day faculty development program on “Preparing for Presentation and improving Communication Skills” conducted on 6th April 2017 jointly organized by ICFAI Business School, Computer Society of India (CSI) Pune, and D Y Patil School of Engineering Academy, Pune.

13. Attended a workshop on “Syllabus Implementation of TE Mechanical, 2015 Course for the subject Mechatronics” on 12th January 2018 organized by Board of Studies, Mechanical Engineering, Savitribai Phule Pune University (SPPU) In Association with Mechanical Engineering Department of Pimpri Chinchwad College of Engineering (PCCOE), Pune.

14. Attended a workshop on “Syllabus Detailing of BE Mechanical, 2015 Course for the subject Hydraulics and Pneumatics” on 22nd February 2018 organized by Board of Studies, Mechanical Engineering, Savitribai Phule Pune University (SPPU) In Association with Mechanical Engineering Department of AISSMS College of Engineering (AISSMS COE) Shivaji Nagar, Pune.

15. Attended 40 hours of training on FEA and CFD using ANSYS WORKBENCH in January to March 2018 conducted by Mechanical Outsourcing Solutions, in association with D Y Patil School of Engineering Academy, Pune.

16. Attended a workshop on “Syllabus Implementation of BE Mechanical, 2015 Course for the subject Hydraulics and Pneumatics” on 13th July 2018 organized by Board of Studies, Mechanical Engineering, Savitribai Phule Pune University (SPPU) In Association with Mechanical Engineering Department of Vishwakarma Institute of Information Technology, Pune.

17. Attended two days state level seminar on “Research Methodology” organized by D Y Patil Institute of Management, Pune from 5th to 6th February 2019.

18. Participated and presented paper in 3rd International Conference on Innovations in Mechanical Engineering (ICIME – 2020) held at Guru Nanak Institutions, Hyderabad on 10th to 11th January 2020. (Topic: Processing and characterization of duplex stainless steels).

19. Participated and presented paper in Technospark - 2020 – A State Level Online Competition on 29 to 30th May 2020 organized by Pimpri Chinchwad College of Engineering and Research, Pune.

20. Participated and presented paper in National Level E-Conference on Innovative Trends in Mechanical Engineering (NECITME – 2020) on 6th to 7th July 2020 organized by Sinhagad Institute of Technology, Lonavala. (Topic: A Study on Precipitation Kinetics of Super DSS).

21. Participated and presented paper in 4th International Conference on Advanced Research in Mechanical, Materials and Manufacturing Engineering on 10th to 11th July 2020 organized by REVA University, Bangalore. (Topic: A Review on Spark Plasma Sintering of Duplex Stainless Steels).

22. Participated and presented paper in National online conference on Research and Developments in Material Processing, Modelling and Characterization 2020 on 26th to 27th August 2020 organized by National Institute of Technology Jamshedpur. (Topic: A Review on Metal Additive Manufacturing Processes).

23. Participated and completed AICTE Training and Learning (ATAL) Academy Online Faculty Development Program on "3D Printing & Design" from 08-02-2021 to 12-02-2021 at Canara Engineering College, Mangalore, Karnataka.

24. Participated and completed AICTE Training and Learning (ATAL) Academy Online Faculty Development Program on "Robotics Process Automation" from 17.05.2021 to 21.05.2021 at National Institute of Electronics and Information Technology, Gorakhpur, Uttar Pradesh, India.

25. Participated and presented paper in 5th International Conference on Advanced Research in Mechanical, Materials and Manufacturing Engineering (ICAMME-2021) on 09th to 10th July 2021 organized by REVA University, Bangalore. (Topic: Processes and Applications of Metal Additive Manufacturing).

26. Participated and presented paper in National Conference on Recent Developments in Mechanical Engineering (RDME-2021) on 18th August 2021 organized by Modern Education Societies College of Engineering, Pune. (Topic: Mechanical Testing of Spark Plasma Sintered Materials: A Review).

27. Attended the AICTE sponsored online short-term training programme on "Additive Manufacturing of Multifunctional Nanocomposites" conducted from 23rd August 2021 to 27th August 2021 organized by Institute of Road and Transport Technology (IRTT) Erode, Tamilnadu.

28. Attended the online faculty development programme on "Innovations in Additive Manufacturing" conducted from 13th September 2021 to 17th September 2021 organized by Department of Mechanical Engineering, Bharati Vidyapeeth's College of Engineering, Pune.

29. Attended and presented paper in 4th International Conference on Recent Trends in Engineering and Technology on 27th to 28th November 2021 organized by Vishwakarma Institute of Information Technology, Pune, Maharashtra. (Topic: A Review on Gearbox Condition Monitoring and Signal Analysis Techniques).

30. Attended the one week international faculty development program on "Trends and Challenges in the Development of Electric Vehicles and Hybrid Electric Vehicles (Series-I) held from 26th to 30th October 2022 organized by the Department of Mechanical Engineering Lendi Institute of Engineering and Technology, Andhra Pradesh.

Publications:

1. Implementing the concept of Paint Before Assembly (PBA) to the typical assembly line. International Journal of Innovative Research in Advanced Engineering (IJIRAE) Volume 1, Issue 9 (October 2014). ISSN: 2349-2163.

2. Continuous Improvement Application in an Excavator Assembly Line. International Journal of Science and Research (IJSR) Volume 3, Issue 11 (November 2014). ISSN: 2319- 7064. (Referred by students at Silesian Technical University Poland in their project work named “Examples of Quality Systems in Manufacturing, Jan 2017).
3. A Study on Magneto Rheological Fluids and Their Applications. International Research Journal of Engineering and Technology (IRJET) Volume 2, Issue 4 (July 2015). E-ISSN: 2395-0056 p-ISSN: 2395-0072.
4. Simulation and parametric study of Clinched Joint. International Research Journal of Engineering and Technology (IRJET) Volume 3, Issue 5 (May 2016). E-ISSN: 2395-0056 p- ISSN: 2395-0072.
5. Design of Steering Gear System in Passenger Car: A Review. International Research Journal of Engineering and Technology (IRJET) Volume 5, Issue 1 (Jan 2018). E-ISSN: 2395-0056 p-ISSN: 2395-0072.
6. Parametric Optimization of TIG Welding on SS-304 and MS Using Taguchi Approach. International Research Journal of Engineering and Technology (IRJET) Volume 6, Issue 5 (Apr 2019). E-ISSN: 2395-0056 p-ISSN: 2395-0072.
7. Parametric Optimization of CO₂ Welding on FE-410 Using Taguchi Technique. International Research Journal of Engineering and Technology (IRJET) Volume 6, Issue 4(Apr 2019). E-ISSN: 2395-0056 p-ISSN: 2395-0072.
8. Multilevel Object Sorting System using PLC Controller. International Research Journal of Engineering and Technology (IRJET) Volume 6, Issue 5(May 2019). E-ISSN: 2395-0056 p-ISSN: 2395-0072.
9. A Study on Precipitation Kinetics of Super Duplex Stainless Steels. International Journal of Scientific & Engineering Research Volume 11, Issue 7, July-2020, ISSN 2229-5518.
10. Review on Processing and characterization of Duplex Stainless Steels, G. S. V. L. Narasimham et al. (eds.), Recent Trends in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd. 2021, https://doi.org/10.1007/978-981-15-7557-0_20.
11. Rayappa Shrinivas Mahale, V. Shamanth, P.C. Sharath, R. Shashanka, K. Hemanth, A review on spark plasma sintering of duplex stainless steels, Materials Today: Proceedings, Volume 45, Part 1, 2021, Pages 138-144, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2020.10.357>.
12. Rayappa Shrinivas Mahale, V Shamanth, P. C. Sharath et al., Technology and Challenges in Additive Manufacturing of Duplex Stainless Steels, Biointerface Research in Applied Chemistry, Volume 12, Issue 1, 2022, 1110 – 1119, <https://doi.org/10.33263/BRIAC121.11101119>.
13. Adarsh Patil, N R Banapurmath, A M Hunashyal, Vinod Kumar V Meti, Rayappa Shrinivas Mahale, Development and Performance analysis of Novel Cast AA7076-Graphene Amine-Carbon Fiber Hybrid Nanocomposites for Structural Applications, Biointerface Research in Applied Chemistry, Volume 12, Issue 2, 2022, 1480 – 1489, <https://doi.org/10.33263/BRIAC122.14801489>.

14. Rayappa Shrinivas Mahale, V Shamanth, K Hemanth, P. C. Sharath, R Shashanka, Adarsh Patil, B S Rathod, Sensor Based Additive Manufacturing Technologies, Biointerface Research in Applied Chemistry, Volume 12, Issue 3, 2022, 3513 – 3521, <https://doi.org/10.33263/BRIAC123.35133521>.

15. Rayappa Shrinivas Mahale, V. Shamanth, K. Hemanth, S.K. Nithin, P.C. Sharath, R. Shashanka, Adarsh Patil, Darshan Shetty, Processes, and applications of metal additive manufacturing, Materials Today: Proceedings, 2021, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2021.08.298>.

16. S.K. Nithin, K. Hemanth, V. Shamanth, Rayappa Shrinivas Mahale, P.C. Sharath, Adarsh Patil, Importance of condition monitoring in mechanical domain, Materials Today: Proceedings, 2021, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2021.08.299>.

17. Rayappa Shrinivas Mahale, R Shashanka, Shamanth V, Vinaykumar R. Voltammetric Determination of Various Food Azo Dyes Using Different Modified Carbon Paste Electrodes, Biointerface Research in Applied Chemistry, Volume 12, Issue 4, 2022, 4557-4566, <https://doi.org/10.33263/BRIAC124.45574566>.

18. Sharath P C, Gurudath B, Sharath B N, Karthik S, Rayappa Shrinivas Mahale, Mechanical and Tribological Characteristics of Aluminium 2618 Matrix Composite Reinforced with Boron Carbide, Biointerface Research in Applied Chemistry, Volume 12, Issue 4, 2022, 4544-4556, <https://doi.org/10.33263/BRIAC124.45444556>.

19. Rayappa Shrinivas Mahale, Shamanth V, Hemanth K, Sharath P C and R Shashanka, Mechanical Testing of Spark Plasma Sintered Materials: A Review, AIP Conf. Proc. 2469, 020026-1–020026-24; <https://doi.org/10.1063/5.0080183>.

20. Nithin S K, Hemanth K, Shamanth V, Rayappa Shrinivas Mahale and Adarsh Patil, Design and impact study of a composite material front bumper for an automobile, AIP Conference Proceedings 2469, 020027 (2022), <https://doi.org/10.1063/5.0080202>.

21. Nithin S K, Hemanth K, Shamanth V and Rayappa Shrinivas Mahale, Design, and analysis of knuckle joint assembly under tensile loading condition, AIP Conference Proceedings 2469, 020016 (2022), <https://doi.org/10.1063/5.0080200>.

22. Athena Ehsani, Rayappa Shrinivas Mahale, Shika Shayegan, Ali Attaeyan, Atefeh Ghorbani, Shamanth Vasanth, Sharath P C, Sheyda Shahriari, Azadeh Asefnejad, A review of the treatment of bone tumours by hyperthermia using magnetic nanoparticles. Journal of Nanoanalysis, 2022, doi: 10.22034/jna.2022.1944876.1278.

23. Mahale RS, Vasanth S, Krishna H, Shashanka R, Sharath PC, Sreekanth NV. Electrochemical Sensor Applications of Nanoparticle Modified Carbon Paste Electrodes to Detect Various Neurotransmitters: A Review. AMM 2022; 908:69–88. <https://doi.org/10.4028/p-mizm85>.

Published Patent

Title of the invention:

Process And Composition For Synthesizing Silicone Rubber Polymer Composites-Reinforced By Carbon-Black And Neopentyl Glycol-Diglycidyl Ether.

Abstract: The present invention generally relates to a process for synthesizing silicone rubber polymer composites reinforced by conductive carbon black and neopentyl glycol diglycidyl Ether comprises mixing 3-10 millilitre silicon rubber (SR), 8-12 millilitre carbon black (CB), and 10-15 millilitre neopentyl glycol diglycidyl ether (NPGDE) uniformly in a 100 ml round bottom flask; adding 40ml ethanol (EtOH) along with 2-3 drops of acetic acid; refluxing the solution at 70-80°C for 6-8 h and evaporating the solution to dryness to obtain semi-solid material; and cooling the semi-solid material at room temperature followed by isolation and keeping for constant drying in the oven at 40° C for about 10-15 h.

Application No: 202241049648 A

Publication Date : 09/09/2022.

