Curriculum Vitae

Dr. Vivek D. Kalyankar
(Associate Professor)
Department of Mechanical Engineering
S. V. National Institute of Technology, Surat, Gujarat, India
Ph.D., M.Tech, B.E (Mechanical Engineering)
vivekkalyankar@yahoo.co.in, vkalyankar@med.svnit.ac.in
ORCID ID: 0000-0002-7141-3705

Summary

- Received IEI Young Engineer Award in Mechanical Engineering Discipline 2014-15 from The Institution of Engineers (India).
- Received patent grant from the Indian Patent Office for an invention entitled “Method for controlling the formation of intermetallic compound (IMC) in welding of dissimilar metals”. (Application No.: 202321038584 dated 05/06/2023)
- Filed a patent to the Indian Patent Office for an invention entitled “A method for compensating weld strength reduction of heat-treatable aluminium alloy”. (Application No.: 202421011469 dated 19/03/2024)
- Received a project sanction worth Rs. 200 Lakh from the Industries Commissionerate, Govt. of Gujarat, to develop state of the art advanced welding research centre for promoting the indigenous industry-academia R&D activities.
- Received Weldwell Speciality Award 2021 for best Ph.D thesis to the Ph.D candidate under supervision from The Indian Institute of Welding.
- ASNT certified level – II inspector for radiographic testing.
- **Research interests:**
  - Weldability of advanced materials, surface engineering
  - Welding metallurgy, materials characterization
  - Application of advanced optimization techniques to engineering problems
- **Publication summary:**

  International Journals – 40, International Conferences – 50, Book chapter – 03

  Scopus h-index: 14, Citations: 880+
  (https://www.scopus.com/authid/detail.uri?authorId=55279804400)

- **Sponsored research projects:** 2 ongoing, 03 completed
- **Short term training programs organized:** 16
- **GIAN courses organized:** 02
- **Conferences organized:** 04
- **Expert lectures delivered:** @ 300 Hours
- **Total experience:** @ 21 Years
- **Ph.D. guidance:** 04 Completed, 02-Ongoing
- **M.Tech project guidance:** 25+
- **Qualified the national examination GATE** (02 times)
- **Countries visited for technical interactions**:

  South Korea, Mexico, Russia, Austria, Ukraine

- **Major administrative duties:**
  - Acting as a Local Coordinator for GIAN Scheme at SVNIT Surat (Since Feb 2023)
  - Acting as a Committee member, Institute Guest House (Since Feb 2023)
  - Acting as a Chairman – The Indian Institute of Welding Students Chapter (Since August 2020)
  - Acting as a vice-chairman – The Indian Institute of Metals, Hazira Chapter.
  - Acted as a PG In-charge - M.Tech Manufacturing Engineering (Dec. 2021 – 2023)
  - Acted as a PG In-charge - M.Tech (Research) (April 2019 – Dec. 2023)
  - Acted as a Faculty In-charge, New Class Room Complex (During 2013 – 2015)
  - Acted as a Chief Warden (During 2014 – 2017)

Details

❖ Details of employment:

Sr. No.	Designation	Employer	Duration
1.	Associate Professor	S. V. National Institute of Technology (SVNIT), Surat, Gujarat, India	From 21/12/2023 onwards
2.	Assistant Professor	S. V. National Institute of Technology (SVNIT), Surat, Gujarat, India	31/03/2009 to 20/12/2023
3.	Lecturer	Shri Sant Gajanan Maharaj College of Engg., Shegaon, Maharashtra, India	@ 05 years
4.	Junior Engineer (Q.C.)	M/s. Expo Gas Containers Ltd. Mumbai, India	@ 1.5 years

❖ Details of sponsored projects:

A.) Projects supported by funding agencies:

Sr. No.	Title of project	Funding agency	Amount sanctioned / Duration / Role	Status
1.	Strengthening, modernization and upgradation of the existing laboratory facilities to develop state of the art advanced welding research centre for promoting the indigenous industry-academia R&D activities	Industries Commissionerate, Govt. of Gujarat	Rs. 2.00 Crore, 05 Years (PI)	Ongoing
2.	Development of multi-material welding approach for ultrahigh-strength steel and 7xxx aluminium alloys to promote light-weighting and green mobility in the automobile sector	Gujarat Council on Science and Technology (GUJCOST), Gandhinagar	Rs. 15.70 Lakh, 02 Years (PI)	Ongoing
3.	Investigations on wear characteristics of NiCrBSi overlay surface on 304 SS with and without tungsten carbide reinforcement	The Institution of Engineers (India), Kolkata	Rs. 1.5 Lakh, 02 years	Completed
4.	Process parameter optimization of submerged arc welding for modified Cr-Mo steel using advanced optimization techniques	Gujarat Council on Science and Technology, (GUJCOST), Gandhinagar	Rs. 4.30 Lakh, 02 years (Co-PI)	Completed
5.	Development of decision support models for environmentally conscious design and manufacturing of products (Indo-Austria Joint Research Project)	Department of Science and Technology, (DST), International Division, New Delhi	Rs. 4.15 Lakh, 02 years (Co-PI)	Completed

B.) Projects supported by renowned industries:

1. Ni-Based hard facing (as an alternative of Co-based Stellite hardfacing) for P91 grade steels by PTAW process – **Supported by L&T-MHPS Turbine Generators Pvt. Ltd., Hazira**, Surat, Gujarat (2018-2020, completed)

2. Investigations on influence of PTAW process parameters and Co-Cr overlay characteristics with SS 316L substrate material – **Supported by KOSO India Pvt. Ltd., Nashik,** Maharashtra (2016-2018, completed)

3. Lightweight automobile structure through hybrid manufacturing approach consisting of friction welding and arc welding - **Supported by Tata Motors Ltd., Pune** (From Jan 2023 onwards)

❖ Details of publications in International Journals: (Selected)

1. **V. D. Kalyankar**, Gautam Chudasama **(2023)** On the metallurgical challenges of intermetallic compound in steel/Al dissimilar resistance spot welding: significance, growth and controlling mechanisms. **Advances in Materials and Processing Technologies.** DOI: 10.1080/2374068X.2023.2206175.
2. Gautam Chudasama, Shubham Kashyap, J. Patel, **V. D. Kalyankar**, J. Shewale **(2022)** AISI 2205 DSS for body-in-white automotive structure: effect of welding current and time on the performance of spot welded joint. **Welding International.** 36(12): 769–778.
3. Avishkar Bhoskar, **V. D. Kalyankar**, Dhiraj Deshmukh **(2022)** Metallurgical characterisation of multi-track Stellite 6 coating on SS316L substrate. Canadian **Metallurgical Quarterly**. https://doi.org/10.1080/00084433.2022.2149009
4. **V. D. Kalyankar**, Wanare S. P. **(2022)** Microstructure evolution and its correlation with slurry abrasive wear behaviour of NiCrSiB hardfacing deposited on 304 SS by plasma transferred arc welding. **Practical Metallography**. *(Accepted manuscript)*
5. **V. D. Kalyankar**, A. Bhoskar, D. Deshmukh, S. Patil **(2022)** On the performance of metallurgical behaviour of Stellite 6 cladding deposited on SS316L substrate with PTAW process. **Canadian Metallurgical Quarterly**. https://doi.org/10.1080/00084433.2022.2031681*(Accepted manuscript)*
6. H. V. Naik, **V. D. Kalyankar (2021)** Development of NiCrSiBC weld hardfacing approach for P91 steels used in steam turbine components. **Soldagem and Inspecao,** 26.
7. Lakhan Zunake, **V. D. Kalyankar (2021)** On the performance of weld overlay characteristics of Ni-Cr-Si-B deposition on 304 ASS using synergetic pulse-GMAW process, **Science and Technology of Welding and Joining**. *26(2):106-115.*

8. H. V. Naik, **V. D. Kalyankar**, K. Solanki, N. Pandya, A. R. Bhoskar **(2021)** Influence of post weld heat treatment on metallurgical characteristics of NiCrSiBC hardfacing over P91 steel. **Metal Science and Heat Treatment.** *(Accepted manuscript)*
9. **V. D. Kalyankar,** S. P. Wanare **(2022)** Nickel-based overlay materials: Recent developments, characteristic effects and applicability with plasma transferred arc welding, **International Journal of Materials and Product Technology,** 64(2):93-120.
10. S. P. Wanare, **V. D. Kalyankar (2021)** Influence of Fe dilution and W dissolution on abrasive wear resistance of NiCrBSi–WC composite hardfacing deposited by plasma transferred arc hardfacing. **Journal of Advanced Manufacturing Systems.** https://doi.org/10.1142/S0219686722500251 *(Accepted manuscript)*
11. Dhiraj Deshmukh, **V. D. Kalyankar (2021)** Analysis of deposition efficiency and distortion during multitrack overlay by plasma transferred arc welding of Co-Cr alloy on 316L stainless steel, **Journal of Advanced Manufacturing Systems,** 20(4):705-728.
12. **V. D. Kalyankar,** Avishkar Bhoskar **(2021)** Influence of torch oscillation on the microstructure of Colmonoy 6 overlay deposition on SS304 substrate with PTA welding process, **Metallurgical Research and Technology**, 118(4):406.
13. Nikhil Pandya, **V. D. Kalyankar,** H. V. Naik **(2021)** Influence of post weld heat treatment cycles on impact toughness of P91 steel welded joint, **Metal Science and Heat Treatment,** 63(5) 269-279.
14. **V. D. Kalyankar,** S. P. Wanare **(2021)** Comparative investigations on microstructure and slurry abrasive wear resistance of NiCrBSi and NiCrBSi-WC composite hardfacings deposited on 304 stainless steel, **Tribology in Industry.** *DOI: 10.24874/ti.1075.03.21.05*
15. **V. D. Kalyankar,** H. V. Naik **(2021)** Overview of metallurgical studies on weld deposited surface by plasma transferred arc technique, **Metallurgical Research and Technology**. *118(1):111*
16. A. P. Thummar, S. P. Wanare, **V. D. Kalyankar (2021)** Effect of dilution on microstructure and slurry abrasive wear behaviour of Ni-Cr-Mo-W coating on 304 stainless steel deposited by synergic pulsed gas metal arc welding, **Tribology in Industry.** 43(3).
17. R. V. Patel, S. P. Wanare, **V. D. Kalyankar (2021)** Investigations on wear behaviour of AISI 4140 hot strip mill roller hardfaced with martensitic stainless steel by submerged arc welding process, **Tribology in Industry.** 43(3).
18. **V. D. Kalyankar,** H. V. Naik, S. Shah **(2020)** Metallurgical characterizations of SS-309L and Inconel 625 as buffer layers on P91 steel, **Practical Metallography.** *57(12):828-852*
19. **V. D. Kalyankar,** H. V. Naik **(2020)** Influence of welding position on tribological behavior of SS-309L cladded surface on 9Cr- 1Mo steel, **Tribology in Industry.** 43(2).

20. **V. D. Kalyankar**, G. P. Chudasama **(2020)** Influence of electrode tip diameter on metallurgical and mechanical aspects of spot welded duplex stainless steel, **High Temperature Materials and Processes**. *39(1):317-327*
21. **V. D. Kalyankar**, Ajinkya V. Musale **(2020)** Design optimization of vehicle suspension systems using artificial intelligent techniques, **International Journal of Operational Research.** *37(3):324-344*
22. D. D. Deshmukh, **V. D. Kalyankar**, **(2019)** Deposition characteristics of multitrack overlay by plasma transferred arc welding on SS316L with Co-Cr based alloy – Influence of process parameters, **High Temperature Materials and Processes**. *38:248-263*
23. R. D. Dandagwhal, **V. D. Kalyankar**, **(2019)** Design optimization of rolling element bearings using advanced optimization technique, **Arabian Journal for Science and Engineering**. *44:7407–7422*
24. **V. D. Kalyankar**, Nitin Chouhan **(2019)** Effect of weld parameters on joint strength of 904L grade steel using resistance spot welding, **International Journal of Computational Materials Science and Surface Engineering.** *8(3/4):211-229*
25. D. D. Deshmukh, **V. D. Kalyankar**, **(2018)** Recent status of overlay by plasma transferred arc welding technique, **International Journal of Materials and Product Technology.** *56:23-83*
26. **V. D. Kalyankar**, Amey Pujari, **(2018)** Simulation and design optimization of broach tool geometry for enhancing material removal rate, **International Journal of Simulation and Process Modelling**. *13(3):264-271*
27. R. V. Rao, **V. D. Kalyankar**, G. G. Waghmare **(2014)** Parameters optimization of selected casting processes using teaching–learning-based optimization algorithm, **Applied Mathematical Modelling**. *38:5592-5608*
28. R. V. Rao, **V. D. Kalyankar (2014)** Optimization of modern machining processes using advanced optimization techniques: a review, **International Journal of Advanced Manufacturing Technology**. *73:1159-1188*
29. R. V. Rao, **V. D. Kalyankar (2013)** Parameter optimization of modern machining processes using teaching–learning-based optimization algorithm, **Engineering Applications of Artificial Intelligence**. *26:524-531*
30. R. V. Rao, **V. D. Kalyankar (2013)** Experimental investigation on submerged arc welding of Cr-Mo-V steel, **International Journal of Advanced Manufacturing Technology**. *69:93-106*
31. R. V. Rao, **V. D. Kalyankar (2013)** Multi-pass turning process parameter optimization using teaching–learning-based optimization algorithm, **Scientia Iranica.** *20(3):967-974*
32. R. V. Rao, **V. D. Kalyankar (2012)** Parameter optimization of machining processes using a new optimization algorithm, **Materials and Manufacturing Processes**. *9:978-985*

33. R. V. Rao, **V. D. Kalyankar (2012)** Multi-objective multi-parameter optimization of industrial laser beam welding process using a new optimization algorithm, **Journal of Engineering Manufacture**. *226(6):1018-1025*

❖ Conference publications (@ 50)

Received Best technical paper award to the Ph.D candidate under supervision at the Automotive Materials and Manufacturing Conference 2023 organized by Automotive Research Association of India (ARAI) in association with SAE India.

❖ Training programs organized:

1. Short term course on "Microstructural control and advanced metallurgical characterization: Application to thermomechanical processing, welding and severe plastic deformation" **sponsored by the Global Initiative of Academic Networks (GIAN) scheme, Ministry of Education, Govt of India,** 30 January – 03 February 2023 (Coordinator)

2. Short term course on "Lightweight materials for automotive applications: Fundamentals, recent developments and challenges in manufacturing" **sponsored by the Global Initiative of Academic Networks (GIAN) scheme, Ministry of Education, Govt of India,** 09 – 13 January 2023. (Coordinator)

3. Faculty development program on "Blended learning and flipped classroom" **sponsored by AICTE Training and Learning (ATAL) Academy**, 08 – 12 February 2021. (Coordinator)

4. Faculty development program on "Reality based welding simulator: Significance, virtual training and industrial correlation" **sponsored by AICTE Training and Learning (ATAL) Academy,** 18 – 22 January 2021. (Coordinator)

5. Faculty development program on "Blended learning and flipped classroom" **sponsored by AICTE Training and Learning (ATAL) Academy,** 10 – 14 August 2020. (Coordinator)

6. Faculty development program on "Reality based welding simulator: Significance, virtual training and industrial correlation" **sponsored by AICTE Training and Learning (ATAL) Academy,** 18 – 22 May 2020. (Coordinator)

7. Faculty development program on "Reality based welding simulator: Significance, hands on training and industrial correlation" **sponsored by AICTE Training and Learning (ATAL) Academy,** 23 – 27 December 2019. (Coordinator)

8. Faculty development program on “Fundamentals of energy management and Applications” **sponsored by AICTE Training and Learning (ATAL) Academy,** 25 – 29 November 2019. (Co-coordinator)
9. Short term training program on “Modeling and optimization techniques for engineering applications (MOTEA-III)” sponsored by Technical Education Quality Improvement Program, 27 Feb. – 03 March 2017 (Coordinator)
10. Short term training program on “Modeling and optimization techniques for engineering applications (MOTEA-II)” sponsored by Technical Education Quality Improvement Program, 26 – 30 December 2016 (Coordinator)
11. Short term training program on “Modeling and optimization techniques for engineering applications (MOTEA-I)” sponsored by Technical Education Quality Improvement Program, 19 – 23 May 2014 (Coordinator)
12. **DST-RFBR funded Indo-Russian Joint Research Workshop** on Computational Intelligence and Modern Heuristics on Automation and Robotics (CIMHAR), conducted during 20-22 September 2010 (Co-coordinator)

❖ International conferences organized:

1. International Conference on Advanced Engineering Optimization through Intelligent Techniques, conducted during 01-03 July 2013 (Co-convener)
2. 5th International conference on Advances in Mechanical Engineering (ICAME), conducted during 06-08 June 2011 (Co-convener)
3. 4th International conference on Advances in Mechanical Engineering (ICAME), conducted during 23-25 September 2011 (Co-convener)

❖ Membership details of Professional Societies:

- The Institution of Engineers (India) – Fellow
- The Indian Institute of Metals – Life Member
- The Indian Institute of Welding - Life Member
- Indian Society for Technical Education – Life Member
- Indian Institution of Industrial Engineering – Life Member
- Indian Society for Advancement of Materials and Process Engg. - Life Member

❖ Reviewer of reputed International Journals:

- Engineering Failure Analysis (Elsevier)
- Materials and Design (Elsevier)
- Materials Chemistry and Physics (Elsevier)

- Robotics and Integrated Manufacturing (Elsevier)
- Materials Research (Ibero–American Journal of Materials)
- Energy (Elsevier)
- Steel and Composite Structures (Techno-Press)
- Sadhana (Springer)
- Applied Soft Computing (Elsevier)
- Engineering Optimization (Taylor and Francis)

❖ Visits to foreign universities/labs:

- Mexican Materials Research Laboratory (COMIMSA), Mexico
- Technical University of Vienna, Austria
- Novosibirsk State Technical University, Novosibirsk, Russia
- Korea Maritime and Ocean University, Busan, South Korea
- National Academy of Sciences of Ukraine, Ukraine

❖ Broad research topics of Ph.D candidates:

1. Investigations on influence of PTAW process parameters and Co-Cr overlay characteristics with SS 316L substrate material *(Dhiraj Deshmukh)*
2. Development of high temperature wear resistant NiCrSiBC hardfacing approach with identified buffer layer on P91 steel *(Hardik Naik)*
3. Investigations on mechanical and metallurgical characteristics of NiCrBSi overlay surface on 304SS with and without WC reinforcement *(Sachin Wanare)*
4. Metallurgical studies on cobalt-based Stellite 6 coating deposited on SS316L substrate *(Avishkar Bhoskar)*
5. Development of hybrid dissimilar welding methodology for steel and aluminium alloy to promote light-weighting of structural components *(Gautam Chudasama)*
6. Investigations on the creep behaviour of advanced grade cladded materials with high temperature applicability *(Manoj Nehe)*

❖ Support received from major industries:

- KOSO India Pvt. Ltd., Nashik, Maharashtra
- Nash Robotics and Automation Pvt. Ltd., Nashik, Maharashtra
- Tata Motors Ltd., Pune, Maharashtra
- Fronius India Pvt. Ltd., Pune, Maharashtra
- L&T Special Steels and Heavy Forgings, Hazira, Gujarat
- L&T MHPS Turbine Generators Pvt. Ltd. Hazira, Gujarat

❖ Major activities initiated:

1. Developed “Advanced welding lab” in the department consisting of advanced welding equipments and testing facilities. This lab is getting recognized by the relevant industries and some of the advanced grades of materials required for the research work are regularly supported by the surrounding industries.
2. Started the students’ chapter of “The Indian Institute of Welding”, which will be highly beneficial to bridge the gap between Industry-Academic activities.

(Dr. V. D. Kalyankar)

10/05/2024