

# RESUME



## 1. Personal Particulars

- Name - OHOL SHANTIPAL SURESH  
Present Occupation - Associate Professor in Mechanical Engg. Dept, COEP Technological University, Pune  
Address for Correspondence - D -101, Imperial Residence, Near Aga Khan Palace, Kalyani Nagar, Pune – 411006.  
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E – mail - [sso.mech@coep.ac.in](mailto:sso.mech@coep.ac.in), [shantipalso@gmail.com](mailto:shantipalso@gmail.com)  
Date of Birth - 19/04/1971, Sex - Male, Marital Status - Married  
Qualification - B.E. (Mech), M.E. (Manuf & Auto), Ph.D. (Mech) [all courses at Govt. College of Engg Pune (COEP), SPPU, Pune]  
Total Experience - **Academic – 26 Yrs, Industrial – 1.7 Yrs, Research – 17 Yrs, Administrative – 15 Yrs,**  
Research - Funded Projects Completed – Total 03 of Rs @30 Lakhs, PhD Guideship at SPPU, Pune – 01- completed, 05-In process  
Patent awarded – 01 Patent filed – 03  
Student Projects - **UG - BE / BTech (Mech) – 60+, UG Mini Projects – 20+ PG – MTech. (Design, Mechatronics , Auto, AI&R, R&AI ) – 49 Ph.D. – 02 completed & 05 in process**  
Publications - **Books – 02 Patent – Awarded 1 & filed – 3 International Journal – 24 National Journal – 3 International Conference – 45 National Conference – 5**  
Awards - **International – 5 National – 4 Institute Level – 8**  
**Grants Received** - Research Projects -CARSE, DRDO – 3 nos. - @ **Rs 30 Lakhs**  
TEQIP (I, II & III) & Institute – @ **Rs. 1,06,32,680/- (Rs 1.06 Cr)**  
Siemens Industry Software (India)Pvt. Ltd–@**Rs 25,50,000/-** (2017-19)  
VOLKSWAGEN India Pvt. Ltd., Pune – **Rs 3,50,000/-** (2017)  
WIPRO - PARI Ltd, Pune – **Rs 50,00,000/-** (2022)  
Present Portfolios - Faculty Adviser – Robot Study Circle (RSC), COEP  
PG Course Coordinator – MTech (Robotics & AI)  
Advisor – Student Chapter, COEP of The Robotics Society, India  
Lab. In-charge – Centralized Robotics & Automation Lab, COEP  
Past Activities - Technical Education Quality Improvement Prog (TEQIP) :- A World Bank Project –Asst. to Procurement Coordinator -TEQIP-I, Institute’s Procurement Coordinator - TEQIP-II & III  
Mechanical Engineering Students Association [MESA] Advisor, Institute Magazine Faculty Advisor, Institute Stationery In-charge,

### Present Affiliations -

- 1] Chair - IEEE Pune Jt. Chapter Robotics & Automation and Control Systems (JCRA&CS)
- 2] Member - PGD-18 Committee, Bureau of Indian Standards(BIS),India
- 3] Member - Governing Council of The Robotics Society (TRS), India
- 4] Member - Chief Judges Panel at National ROBOCON, DD & IITD
- 5] Zonal Editor - Association for Machines & Mechanisms (AMM)
- 6] Advisory Member / Technical Advisor for few companies
- 7] Board of Studies Member (BOS) for Institutes and Universities

### **Personal Statement -**

Extreme will-power to work hard with strong determination and focused attitude, having a good aptitude for learning. Good team-worker, adaptable, flexible, and well natured. having good decision-making and improvisations skills, even under pressure. Self-motivated, committed and with a firm sense of responsibility. Organized, with good spoken and written communication skills.

Willingness to work to the fullest capacity in a healthy environment, expand my knowledge and work for the progress of the Organization.

## 2. Professional Memberships

Name / Abbreviation	Type of Membership	Awarding Institute	Date of award
SMIEEE	Senior Member	IEEE & IEEE Robotics and Automation Society	2022
MSAE	Member	Society of Automotive Engineers	2022
MTRS	Life Member	The Robotics Society, India	2012
FIE	Fellow	The Institution of Engineers (India)	2010
MISOI	Member	Instrument Society India	2010
MIE	Member	The Institution of Engineers (India)	2008
Chartered Engineer		The Institution of Engineers (India)	2003
MIPE	Member	The Indian Institute of Production Engineers	1998
MISTE	Life Member	Indian Society for Technical Education	1997

## 3. Affiliations / Responsibilities

- 1) **Juror** – Mechatronics for CII National Selections for World Skills International Competition 2013, organized by Confederation of Indian Industry (CII), NSDC & World Skill India 2013.
- 2) **Judge** at First Lego League (FLL), India National Competition organized by FLL India and India STEM Foundation, Feb 2014.
- 3) **Member** – Interview Board Member / Expert for **DRTC, Central Assessment Board**, 2015, 2016, 2022 Ministry of Defence, Defence Research & Development Organization (DRDO).
- 4) **Reviewer** for the 17th International Conference on Advanced Robotics, ICAR 2015 was organized by Middle East Technical University in collaboration with Kadir Has University. The conference took place in Kadir, Istanbul, Turkey, on July 27-31, 2015.
- 5) **Reviewer** for the conference 'Advances in Robotics (AIR)" AIR 2015 conducted by the Robotics Society of India organizes was held in Goa from 2nd to 4th July 2015.
- 6) **Member** in a panel of Armament Design, Mechanism and Ballistics (ADMB) - a panel of Armament Research Board, **ARMREB of DRDO**, India, Aug 2014 to Oct 2019.
- 7) **Member** of Panel of Judges at **ROBOCON** a national robotics competition organized by Doordarshan, India for ABU International robotics competition. From 2015-2018 at MIT, Pune and 2019-2023 at IIT, Delhi.
- 8) Students Coordinator in the Governing Council of **The Robotics Society, India** – July 2017
- 9) **Member** PGD 18 Committee (PGD-Production and General Engineering Department- and PGD 18-Industrial and Production Automation Systems and Robotics Sectional Committee) of **Bureau of Indian Standards, India** on 9<sup>th</sup> Aug 2018.
- 10) **Member** Vidyalaya Management Committee, Kendriya Vidyalaya, CME, Dapodi, Pune 2018
- 11) Advisor Committee Member of **Centre for Robotics & Automation** at Institute of Technology, **NIRMA University (ITNU)**, Ahmedabad, April 2019.
- 12) **Zonal Editor of News letter of Association for Machines and Mechanisms (AMM)**, (Indian affiliate of IFToMM). AMM organises the International & National Conference on Machines & Mechanisms, iNaCoMM, & workshops on Industrial Problems on Machines and Mechanisms from August 2019.
- 13) **Chief Judge and organiser** for Regional ROBOTEX competition for International ROBOTEX, Tallinn, Estonia, at College of Engineering Pune on 21st July 2019.
- 14) **Judge** for Nirma Robocup contest at Nirma University, Ahmedabad, October 2019.
- 15) **Chief Judge** at Robotic Competition **CME Milbotics 2019-20** at College of Military Engineering Pune (CME), on 16th Jan 2020.
- 16) A curriculum development committee member for a **Minor Degree course in Robotics of AICTE, Delhi**, Oct 2020.
- 17) **Session Chairmen at ARMS 2021** of Modeling & Simulation of Mechanism, INSARM has been organising national conferences on Aerospace and Defence Related Mechanisms (ARMS) is presented at ARMS 2021, the 12th National Conference & Exhibition on Aerospace & Defence

Related Mechanisms on “Recent Innovations and Challenges in Aerospace & Defence Mechanisms” by INSARM, held at ARDE, Pune on 02–04 Dec 2021.

- 18) **Chairmen of a Track-9** for Robotics, Control, Instrumentation and Automation at 6th International conference on Intelligent Technologies (**ICIT – 2021**) organized by Asian Society for Research in Engineering Sciences (ASRES) and SPJ Centre for Multi-disciplinary Research (SCMR), which will take place on 17 -19 December 2021, Orchard City Centre, Singapore.
- 19) A curriculum committee member for a Model curriculum of **UG Degree course in Robotics and Artificial Intelligence** for AICTE, Delhi, Dec 2021.
- 20) **Session Chairmen at Session III: ICIT – 2021**, 6th International conference on Intelligent Technologies (ICIT – 2021) jointly organized by Asian Society for Research in Engineering Sciences (ASRES) and SPJ Centre for Multi-disciplinary Research (SCMR), on 17 -19 December, 2021 at Singapore.
- 21) **Chair of Joint Chapter of IEEE Pune** - Chapter Robotics & Automation and Control Systems inaugurated at COEP on 18<sup>th</sup> May 2022
- 22) **Track Chairmen at ICAME 2022** - 2nd International Conference and Exposition on Advances in Mechanical Engineering (ICAME-2022) June 23-25, 2022 at College of Engineering Pune.
- 23) **Co-Convenor** at Third International virtual conference on Intelligent Robotics, Mechatronics & Automation Systems (IRMAS 2023), May 04-05, 2023, by Vellore Institute of Technology, Chennai

#### **4. Industry / other organisation’s coalitions**

- 1) **Project review committee member** for different projects at various DRDO laboratories.
- 2) **Executive Committee member** of Robolab Technologies Pvt Ltd, Pune - Sept 2016, a start-up of students from Robot Study Circle of COEP.
- 3) **Technical Advisor** to Combat Robotics India Pvt Ltd., Pune - Dec 2017, a start-up working for defense services.
- 4) **Technical Advisor on the Board** of iTech Robotics & Automation Pvt. Ltd., Pune 410501.
- 5) **Consulting Director** at AIRo Technologies, Pune, (An Artificial Intelligence & Robotics Innovation Startup), Pune. March 2021
- 6) **Member of Advisory Board** of InfinityX Stem Foundation, Pune, Feb 2023.

#### **5. Research Grants / Funds received**

→ Total funds received for **equipment purchases**– @ **Rs 1,06,32,678/-**.

→ Total funds received from **industries for student activities** – @ **Rs 30,00,000/-**.

- I) TEQIP – Technical Education Quality Improvement Programme - A World Bank assisted project of NPIU, New Delhi & SPFU, Mumbai
  - 1) TEQIP-I – Wheeled, Biped & Hex-crawler Robot – PARALLEX, USA – Rs 19,22,000/-.
  - 2) TEQIP-II – ABB 1520ID Robot + Training Cell – Rs 25,50,337/-
  - 3) TEQIP-III – i) NAO-6 Humanoid Robot – Rs 8,18,181/- ii) 6 DoF Stewart platform – Rs.4,86,160/- iii) Software Based Calibration – Rs 4,68,000/- iv) DYNALAB - a) Industrial Distributed Control Training System. b) PC Based Multi Controller & Multi Motor Embedded Training System Rs. 18,88,000/-.
  - 4) Institute level funding Collaborative Robot – @Rs 25,00,000/-
- II) Siemens Industry Software (India) Pvt. Ltd., Pune sponsorship for ROBOCON- a National Robotic Competition – Supported Robot Study Circle with a sponsorship amount of Rs.8,75,000, Rs.8,75,000 and Rs.8,00,000 over the financial years 2017-18, 2018-19 and 2019-20. → **Total Sponsorship – Rs 25,50,000/-**.
- III) VOLKSWAGEN India Pvt. Ltd., Pune – Financial Support **Rs. 3,50,000/-** for International ROBOCON 2017 competition at Tokyo, Japan after becoming National champion.
- IV) Alumni Association of COEP – MTech Project ‘Riot Surveillance Vehicle for the Police and Paramilitary Forces’ in 2015-16 – **Rs 90,000/-**.

## 6. Research

### A] – Projects Completed

- 1) A Contract for Acquisition of Research Services (**CARS**) **project** by R & DE (E), Dighi, Pune a DRDO Laboratory of Government of India on the topic “Simulation & Development of Robotics Gripper” awarded on 15<sup>th</sup> Jan 2013 for @ **Rs 10 Lakhs**, completed successfully on Dec 2013.
- 2) A Contract for Acquisition of Research Services (**CARS**) **project** awarded by Armament Research & Development Establishment, ARDE, Pashan, Pune a DRDO Lab. of Government of India titled as “Dynamic Simulation of the unwinding metallic strips & optimization of the total timing required for unwinding with stabilization” awarded on 11<sup>th</sup> May 2015 for @ **Rs 10 Lakhs** successfully completed on May 2016.
- 3) “Optimization of Work Cycle Parameters in Casting Industries by Inculcating Automation Techniques in the Process” Name of PhD scholar – Mr Nilesh P. Vanikar. Registration at Savitribai Phule Pune University, **PhD awarded** on 16<sup>th</sup> Aug 2017.
- 4) A Contract for Acquisition of Research Services (**CARS**) **project** awarded by Armament Research and Development Establishment, ARDE, Pashan, Pune a DRDO Laboratory of Government of India titled as “Feasibility Study of Automatic Dry Function Test (ADF) Test set-up for Corner Shot Weapon System (CSWS)” on 29<sup>th</sup> Sept 2016 for @ **Rs 10 lakhs**, completed successfully on 11<sup>th</sup> Dec 2017.
- 5) “Design & Development of In-Pipe Inspection Robot to alleviate various Task” - PhD scholar for this project - Mr. Atul Gargade. at College of Engg Pune SPPU, Pune. **PhD awarded** on 29<sup>th</sup> March 2022

### B] – Research Undertaken

- 1) “Cost Effective Calibration Methodologies for Industrial Robot System” - PhD scholar for this project- Mr. Sumedh Chivande, at College of Engineering Pune under SPPU Univ, Pune.
- 2) “Automation for bone alignment in post surgery monitoring & control for biomedical instrumentation” PhD scholar for this project - Mr. Pankaj Aglave. at College of Engineering Pune under SPPU Univ, Pune.
- 3) “Multimodal Robot Operations for Establishing user friendly Robot Programming towards Improving Human Robot Interaction for Collaborative Robot” PhD scholar for this project – Ms Pratiksha Jawale. at College of Engineering Pune under SPPU Univ, Pune.
- 4) “Development of a lower limb exoskeleton providing real time assistance to dynamic performance parameters for adopting user’s dynamics” PhD scholar for this project – Ms Nikita Gawai at College of Engineering Pune under SPPU Univ, Pune.

### C] – Patents from Research ( Awarded – 01 & Filed – 03 )

- 1) Awarded - Indian Patent No. 362205(2212/MUM/2014) dt.07.07.2014, Patent Title : AN ARRANGEMENT TO MAINTAIN STABILITY OF A BODY MOUNTED ON A ROCKER-BOGIE MECHANISM, Letters No. Sl. No. 022112492 Dt 19<sup>th</sup> March 2021
- 2) Application filed - Application No.: 202121012080 dt. 22.03.2021, Patent Title: NON-CONVENTIONAL CALIBRATION SYSTEM FOR INDUSTRIAL ROBOTS,
- 3) Application filed - Application No.: 202121031359 dt. 13.07.2021, Patent Title: AN AUTONOMOUS IN-PIPE INSPECTION ROBOTIC SYSTEM
- 4) Application filed - Application No.: 202121047545 dt. 19.10.2021, Patent Title: AN AUTOMATIC BONE ALIGNMENT SYSTEM.

## 7. Awards

- 1) **Forbes Marshall Award** for guiding a **Best Project** of Final Year B.Tech-Mechanical Engg (Design & Development of Industrial Robot) 2007
- 2) **Outstanding Paper** of the International Conference – ICMEE 09 conference **ICMEE 2009**, held on 27 – 29 June 2009 at Chennai, INDIA. It is published in the **ICMLC 2009**, held on 10 -12 July, 2009 **Perth, Australia.** 2009
- 3) **Forbes Marshall Award** for guiding a **Best Project** of Final Year B.Tech-Mech. Engg. (Quadrotor – Flying robot for Surveillance). 2010
- 4) **Best Working Project award** of Alumni Association of COEP, Design and Development of “Two Wheel self balancing coaxial personal transportation system” by Saurabh Apte, Tejas Inamdar, Purva Tajanpure & Ashwini Waghmare. 2011
- 5) **Runner Up at Best Working Project Award** of Alumni Association of COEP “ Image Processing based Robot control for Optimizing Rubik Cube’s solution” by Pawan Badade and Snehal Mundhe. 2011
- 6) **Second Runner Up at Best Working Project**, of Alumni Association of COEP to “Quadrotor system Unmanned Arial Vehicle (UAV)” by Animish Chandorkar & Pranav Kulkarni. 2011
- 7) **Best Working Project Award** of Alumni Association of COEP to “Robot with Passive Multi Terrain Compliance System” by Siddharth Bannergy, Abhijit Shirude, Sagar Jadhav. 2014
- 8) **Excellent Paper** award at Annual International Conference of Institute of Research & Journal IRAJ held at Pune 19<sup>th</sup> Jan 2014 for a research paper titled “Development of Autonomous Hydro Quad-Rotor Robot” 2014
- 9) **Excellent Paper** Award for A research paper “Performance Improvisation of SCORBOT-ER 4u Robot Arm by Simulation”, won at International Conference on Robotics, Mechanics and Mechatronics (ICRMM 2014) held at Bali, Indonesia. 2014
- 10) **Forbes Marshall Award** for guiding a **Best Project** of Final Year B.Tech-Mechanical Engineering (Amphibious Robot) 2015
- 11) **Forbes Marshall Award** for guiding a **Best Project** of Final Year B.Tech-Mechanical Engineering (Railway track surveillance Robot) 2016
- 12) **National Champion team’s** faculty Adviser of ie Robot Study Circle of College of Engg. Pune at National Robotics contest ROBOCON 17. 2017
- 13) **A 6<sup>th</sup> rank, Prof Nagasse award and Most Lovely Robot award at International competition** Robocon 2017 in Tokyo, Japan to team COEP while contesting against 18 other country’s teams. 2017
- 14) **Second prize in short paper presentations** & Posters prize category in International Conference on Advances in Robotics AIR 2017 held at IIT, Delhi organized on June 28th to July 2nd 2017. Title of paper “Development of Actively Steerable In-Pipe Inspection Robot for various pipe sizes” 2017
- 15) Guided the team COEP who won the **Second position Silver award of INR 2.5 Lakhs** for Wall Climbing Robot of a team consisting of Prabhakar Naik, Arpit Savarkar & Mohit Jahagirdar all TYBTech (Mech) in the event KPIT Sparkle 2017, an All India Science & Engg. Students Contest, held on 18 - 19 Feb. 2017. 2017
- 16) **Second Runner up award in DRUSE 2018** a DRDO Robotics 2018

and Unmanned System Exposition (DRUSE) held at national level by DRDO, India for “Compressed air powered Human Exoskeleton Suit for Material Handling and Disaster Management” on 25<sup>th</sup> May 2018.

- 17) **Best paper in NCAAT 2018** oral presentation category (second prize) at National Conference on Advances in Armament Technology (NCAAT 2018), organized at Armament Research and Development Establishment, (ARDE), DRDO Lab, in Pune on 8<sup>th</sup> & 9<sup>th</sup> Jun 2018. 2018
- 18) **Best Paper award in RIACT – 2020** International conference on Robotics, Intelligent Automation and Control Technologies, held on 2nd & 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai. 2020
- 19) **Innovative Project Award** by Alumni Association, COEP, a prize instituted by Mr. Anand Kanhere for Innovative project 'Development of Underwater ROV for Marine Surveillance' by Samarth Chaudhari, Arya Arasan, Rushikesh Pachghare, Prithvish Taukari 2022

## 8. Academic Qualification

Examination	Awarding Institute	Date of declaration	Major Subjects	Class obtained
B.E. ( Mech.)	Pune University, Govt. College of Engineering, Pune.	1994	I.C. Engine & Automobile Engineering	First
M.E. ( Prod.)	----- ” -----	1998	Manufacturing Automation	First
Ph. D. ( Mech )	----- ” -----	May 2010	Mechanical Engineering	Completed

## 9 Titles

- B.E. Seminar - Linear Motion Rolling Guides
- B.E. Project - Automatic Drilling Head Indexing Mechanism
- M.E. Seminar - 1. Cryogenic Treatment on H.S.S. Tools  
2. Acoustic Emission Analysis for Tool Failure Prediction
- M.E. Dissertation - Comparative Quality & Performance Analysis of Machine Taps
- Ph.D. - Improvement in the Grasping Modality of Robotic Gripper

## 10. Experience

### 10.1 Industrial :-

Organisation / Institution	Designation	Period	Areas of Responsibilities	Reason for leaving
Suyaan Transmissions Pvt. Ltd. Pune.	Quality Control Engineer	1 <sup>st</sup> July 1994 to 24 <sup>th</sup> Nov.1995	Quality Control & Local Area Management Responsibilities	For better Prospects

## 10.2 Teaching :-

Organisation / Institution	Designation	Period	Areas of Responsibilities	Reason for leaving
1. A.I.S.S.M.S's College of Engineering, Pune – 411 001.	<b>Lecturer</b> in Mechanical Engineering Department	1 <sup>st</sup> August 1996 till 05 <sup>th</sup> March 2003	Teaching and allied responsibilities	For better Prospects
2. Maeers' Maharashtra, Academy of Naval Education & Training, (MANET) Pune – 411 038.	<b>Asst. Professor</b> in Mechanical Engineering Department	06 <sup>th</sup> March 2003 till 31 <sup>st</sup> Oct 2003	Teaching and allied responsibilities	For Better Prospects
3. PIET's College of Engineering Pune, Shivajinagar Pune – 411 005.	<b>Lecturer</b> in Mechanical Engineering Department	01 <sup>st</sup> Nov. 2003 till 30 <sup>st</sup> Nov 2005	Teaching and allied responsibilities	Selection to next grade
4. PIET's College of Engineering Pune, Shivajinagar, Pune – 411 005.	<b>Asst. Professor</b> in Mechanical Engineering Department	01 <sup>st</sup> Dec. 2005 till 30 <sup>th</sup> Nov 2008	Teaching and allied responsibilities	Selection to next grade
5. College of Engg Pune (COEP) Pune – 411 005	Asso. Professor in Mechanical Engineering Department	01 <sup>st</sup> Dec 2008 till 21 <sup>st</sup> June 2023	Teaching and allied responsibilities	Declaration of University
6. COEP Technological University, Pune Pune – 411 005.	<b>Asso. Professor</b> in Mechanical Engineering Department	21 <sup>st</sup> June 2023 till to date	Teaching and allied responsibilities	-- NA --

## 11. Publications

### 11.A - Papers Published

#### **International Journal (Twenty Four)**

- 1) A paper coauthored with Dr S R Kajale, titled as "Performance analysis of biomimetic grasping by multifingered robotic gripper (MRG) for identification and sorting of object", as an extended version of paper published at International Symposium on Robotics and Intelligent Sensors, **IRIS 2010 is, Nagoya University, Japan** has been accepted for publication in special issues of selected 30 papers of the conference in **Journal of Computer Science, Science Publications, NewYork, USA.**
- 2) A paper coauthored with Dr S R Kajale, and Sachin Karade titled as "Optimization of Four-fingered Hand using FEA Techniques", has been published in The International Journal of Technology, Knowledge and Society, Common Ground Publishing, **University of Illinois, USA.,** Volume 6, Issue 6, pp.187-202, Oct 2010.
- 3) A paper titled as "Design and Development of Modular Humanoid Arm based on RC servo motor " co-authored with Kapse S. S. Published in International Journal of Advanced Research in Engineering & Technology, (**IJARET**) Volume 4, Issue 7, Nov-Dec 2013, pp. 156-160.
- 4) A paper titled as "Kinematic analysis to generate trajectory for six degree of freedom Humanoid Arm" co-authored with Mr Kapse S. S. in an International Journal of Innovative Technology Research, (**IJITR**), Volume 2, Issue 1. Jan 2014, pp. 722-725.



- 5) A paper titled as “Development of Autonomous Hydro Quad Rotor Vehicle” coauthored with Subodh Bhosale, Lalit Palve & Hrushikesh Joshi, published in an International Journal of Mechanical and Production Engineering (IJMPE) of Institute of Research and Journals (IRAJ), IRAJ DOI Number - IJMPE-IRAJ-DOI-504, Volume-2, Issue-2, Feb 2014, pp 17-23.
- 6) A paper titled as “Proposed methodology to allow bottom pour in a less than 400 kg ladle with steel thermal masses in Investment Shell Casting Process” co-authored with N. P. Vanikar, T. R. Anjekar, published in International Journal of Scientific & Engineering Research (IJSER), ISSN 2229 5518, Volume 6, Issue 12, December 2015 Edition.
- 7) A paper titled as “Stopper Rod Mechanism in a smaller ladle for bottom pour with low thermal masses in Investment Casting process”, co-authored with N. P. Vanikar, T. R. Anjekar, published in an International Journal of Advances in Engineering Science and Technology (IJAEST), EISSN 2319-1120, 8th November 2015.
- 8) A paper titled as “Need of Automation in Investment casting Industry due to major defects caused by manual operations (Case Study), co-authored with N. P. Vanikar, T. R. Anjekar, published in an International Journal for Scientific Research & Development (IJSRD). ISSN 2321 0613, Volume 3, Issue 9, November 2015 Edition.
- 9) Atul A. Gargade, Dr. Shantipal S. Ohol, “Development of In-pipe Inspection Robot,” in IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE) e-ISSN: 2278-1684,p-ISSN: 2320-334X, Volume 13, Issue 4 Ver. VII (Jul. - Aug. 2016), PP 64-72.
- 10) A paper titled as “Methodology for optimization of pouring variables using bottom pour for low masses of SS304 (<300 kg) in investment casting process (case study)” co-authored with Nilesh Vanikar & Saeede Goldar, in an International Journal of Cast Metals Research (IJCMR), UK, Volume 31, 2018 - Issue 4, published online on 5th Jan 2018, pp. 249-259.
- 11) A paper titled as “Human Assistive Lower Limb Exoskeleton” co-authored with N.M. Patwardhan, Y.M. Pirjade, A.U.Kotkar, D.R. Londhe, T.P. Shelke, is published in Asian Journal of Convergence in Technology, **AJCT**, vol. 5, no. 2, Nov 2019, ISSN No. : 2350-1146, I.F-5.11
- 12) A paper titled as “Human Assistive Lower Limb Exoskeleton” co-authored with N.M. Patwardhan, Y.M. Pirjade, A.U.Kotkar, D.R. Londhe, T.P. Shelke, is published in Asian Journal of Convergence in Technology, **AJCT**, vol. 5, no. 2, Nov 2019, ISSN No.: 2350-1146, I.F-5.11.
- 13) A paper titled as “Inverse kinematic analysis of a fixture for fine alignment of central axis of top and bottom frame using simulation”, co-authored with P.S. Aglawe, IOP Conference Series: Materials Science and Engineering, 1012 (2021) 012014, IOP Publishing, doi:10.1088/1757-899X/1012/1/012014.
- 14) A paper titled as “Autonomous Snake Robot with Serpentine type Navigation”, co-authored with Mrinmayee Bangar, Shruti Ghodake, Hrishikesh Nirgude, Dr. S. S. Ohol, IOP Conference Series: Materials Science and Engineering, 1012 (2021) 012027, IOP Publishing, doi:10.1088/1757-899X/1012/1/012027.
- 15) A paper titled as “Industrial robot performance analysis using low cost set- up”, co-authored with Kirti Chachane, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012010, IOP Publishing, doi:10.1088/1757-899X/1012/1/012010.
- 16) A paper titled as “Comparative Need Analysis of Industrial Robot Calibration Methodologies”, co-authored with S. N. Chiwande, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012009, IOP Publishing, doi:10.1088/1757-899X/1012/1/012009.
- 17) A paper titled as “Design and Development of In-pipe Inspection Robot for Various Pipe Sizes”, co-authored with P.S. Aglawe, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012001, IOP Publishing, doi:10.1088/1757-899X/1012/1/012001.
- 18) A paper titled as “Development of lower body exoskeleton, mathematical modeling and video analysis of its prototype for obtaining customized joint actuation”, co-authored with Kaushal Kalantri, Dr. S. S. Ohol, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012013, IOP Publishing, doi:10.1088/1757-899X/1012/1/012013.
- 19) A paper titled as “Semi-Autonomous Parking system for Automatic Transmission vehicles, ”, co-authored with Sameer Kaware, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012051, IOP Publishing, doi:10.1088/1757-899X/1012/1/012051.
- 20) A paper titled as “Design, development and analysis of human exoskeleton for enhancing human capabilities”, co-authored with Rasika Vibhute, Samiksha Yeole, Shivani Waghmare, Tejas Tonde, IOP Conf. Series: Materials Science and Engineering 1012 (2021) 012015, IOP Publishing, doi:10.1088/1757-899X/1012/1/012015.



- 21) A paper titled as “Modelling and simulation of adaptive cruise control and overtake assist system”, co-authored with Sajal Anand Materials Today: Proceedings, <https://doi.org/10.1016/j.matpr.2022.09.330>.
- 22) A paper titled as “Investigation of PolyMethyl Methacrylate for Speedometer Application” co-authored with Sajal Anand and Subhajt Basu at International Research Journal of Engineering and Technology(IRJET), on 9<sup>th</sup> September 2022.
- 23) A paper titled as “Shape Optimization of an Asymmetric Airfoil for Low Wind Speed Region having Adjoint Based Optimization Technique” co-authored with Pranoti Shinde & V. K. Tripathi published in a Journal of Applied Fluid Mechanics, Vol. 16, No. 2, pp. 299-310, 2023.
- 24) Design and Simulation of a Service Robot for Covid-19 Isolation Wards with Autonomous Navigation” co-authored with Lalit Duseja, Yash Deshmukh, Shantanu Karmuse at International Journal Of Engineering Sciences 2021 14(3), pp 90-97.

### **National Journal (Three)**

- 1) A paper published along with co-author Dr. B. B. Ahuja, titled as “Comparative Quality & Performance Analysis of Machine Tap” at **Journal of Institution of Engineers (India)**, Production Engineering Division, Vol. 81, Page No. 23 – 28, Sept. 2000.
- 2) A paper published along with co-author S. K. Patil, Dr. S. R. Kajale, C. Y. Patil titled as “Automated pick and place system using Dexterous Multifinger Robotic Gripper (MRG) ”, in the **Journal of Instrumentation Society of India** Bangalore, Vol. 40 No. 2 , Page No. 87 – 91, June 2010.
- 3) A paper published along with co-author D. A. Bagde titled as “Kinematic Synthesis and Experimental Validation of Legged Wheel Hybrid Robot (LWR)” in **Journal of Basic and Applied Engineering Research**, Vol. 1, No. 4, Page No. 33 – 37, Oct 2014.

### **International Conference (Forty Five)**

- 1) A paper published and presented along with co-author Dr. S. R. Kajale, S. M. Deo , Dr S. K. Mahajan and Dr. B. B. Ahuja , titled as “ Sensitivity Analysis of Soft Piezoelectric – Electroactive Material for Developing a Tactile Sensor ” at International Conference on Advances in Machine Design and Industrial Automation , **ICAMDIA 07** held at Mechanical Engineering Department, College of Engineering , Pune on 10th – 12th January 2007.
- 2) A paper published and presented along with co-author Dr. S. R. Kajale, titled as “Simulation of Multifinger robotic gripper for dynamic analysis of Dexterous grasping” at International conference on Engineering and Computer Science as World Congress on Engineering and Computer Sciences, **WCECS 08** by International Association of Engineers **IAENGG** at **University of California, Berkley , San Francisco , USA** during 22nd Oct to 24th Oct 2008.
- 3) A paper presented and published along with co-author Dr. S. R. Kajale, titled as “Effective Dexterous Grasping with Biomimetic Approach for Design of Multifingered Robotic Gripper (MRG) and an analysis of system” at ICMEE 2009 organized by IACSIT for International conference **ICMEE 2009**, held on 27 – 29 June 2009 at Chennai, INDIA. It is published in the **ICMLC 2009**, held on 10 -12 July, 2009 **Perth, Australia**. Author is awarded for The **IACSIT Outstanding Presenter/ Paper at ICMEE 2009.**
- 4) A paper presented and published along with co-author S. K. Patil, Dr. S. R. Kajale, C. Y. Patil titled as “Automated pick and place system using Dexterous Multifinger Robotic Gripper (MRG) ”, at International Conference on Instrumentation , **ICI 09, Pune**, by Cummins College of Engg. for Women, Pune, India and Instrumentation Society of India, Indian Institute of Science, Bangalore, India held on 21 – 23 Jan 2010 at Pune, INDIA.
- 5) A paper published, coauthored with Dr S R Kajale, titled as “Performance analysis of biomimetic grasping by multifingered robotic gripper (MRG) for identification and sorting of object”, at International Symposium on Robotics and Intelligent Sensors, **IRIS 2010** which is held at **Nagoya University, Japan** on 8<sup>th</sup> – 11<sup>th</sup> March 2010.
- 6) A paper published, coauthored with Dr S R Kajale, “Biomimetic Approach for Design of Multifingered Robotic Gripper (MRG) & Its Analysis for Effective Dexterous Grasping”, International Conference on Machine Learning and Computing **IPCSIT-2011**, IACSIT Press, Singapore 2011, vol.3, pp 213-221.

- 7) A paper presented and published, coauthored with Dr S. R. Kajale and Dr. B. B. Ahuja, titled as “Stable Grasping by Multifinger Robotic Gripper” in International Conference on Precision, Meso, and Nano Engineering COPEN-7 2011, held at Production Engineering Department, College of Engineering, Pune, MS, INDIA on December 10-11, 2011.
- 8) A paper presented at Annual International Conference of Institute of Research titled as “Development of Autonomous Hydro Quad Rotor Vehicle ” Coauthored with Subodh Bhosale, Lalit Palve & Hrushikesh Joshi has received Excellent Paper Award during the conference & published in Journal IRAJ, IRAJ DOI Number - IJMPE-IRAJ-DOI-504, Bhubaneswar, 751030, Odisha, India, held at Pune on 19th Jan 2014.
- 9) A paper titled as “Design Modelling and experimental validation of multifingered Robotic Gripper ” co-authored with Mr Ajit Pawar, Mr Tejas Patil, Mr Ajinkya Pawar and Mr Sagar Jadhav at International Conference on Mechanical and Production Engineering conducted by Institute of Research and Journal ( IRAJ ) Bhubaneswar, 751030, Odisha, India, held at Pune on 19th January 2014.
- 10) A paper titled as “Performance Improvisation of SCORBOT-ER 4u Robot Arm by Simulation”, coauthored with Prof Prasad Patil, Assistant Professor, is presented in International Conference on Robotics, Mechanics and Mechatronics ICRMM 2014 held on 22th March to 23th March 2014 at Bali, Indonesia. This paper is **awarded as an Excellent Paper Award.** This paper is published in the International Journal of Materials Science and Engineering, Vol. 2, No. 1, June 2014.
- 11) A paper titled as “Design and development of dynamically stable bipedal walking system” coauthored with K. Masurkar, Harshad Kamble & V. Joshi, selected for publication and presentation in IEEE International Conference on Advances in Engineering & Technology Research (ICAETR 2014), during August 01-02, 2014, Unnao, India. ISSN: 2347-9337.
- 12) A paper titled as “Kinematic Synthesis and Experimental Validation of Legged Wheel Hybrid Robot (LWR)” coauthored with D. A. Bagde presented in 5<sup>th</sup> International Conference on Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics (ITMAEAP 2014) organized by Krishi Sanskriti at Jawaharlal Nehru University, New Delhi, on 23<sup>rd</sup> and 24<sup>th</sup> August 2014.
- 13) A paper titled as “Improvisations in Investment Casting Process using Economical Automation.” coauthored with N. P. Vanikar and R. Anjekar is published in International Conference on Emerging Trends in Engineering and Technology (ICETET 2015), Pune, 07 Jun 2015, Pages 39- 42.
- 14) A paper titled as “Stopper Rod Mechanism in a smaller ladle for bottom pour with low thermal masses in Investment Casting process”, coauthored with N. P. Vanikar, and R. Anjekar, in an International Conference on Advances in Engineering Science and Management (ICAESM 2015), 08<sup>th</sup> Nov. 2015, Delhi, Pages 179-183.
- 15) A paper titled as “Investment Casting Bottom Pour Ladle Development Trials”, coauthored with N. P. Vanikar, Dr. R. C. Voigt, T. R. Anjekar, in International Conference of Investment Casting Institute (ICIAI 2016), October 2016, Columbus, Ohio, USA.
- 16) A paper titled as “Development of Actively Steerable In-pipe Inspection Robot for Various Sizes”, coauthored with Atul Gargade in an International Conference on Advances in Robotics (AIR) 2017, on July 2017 at Indian Institute of Technology, Delhi (IIT Delhi), India, have been awarded as a **Best paper presentation award in poster presentation category.**
- 17) A paper titled as “Pneumatic Artificial Muscle Powered Exoskeleton”, coauthored with Bhushan Darekar, Prabhakar Naik, Jayant Unde in an International Conference on Advances in Robotics (AIR) 2019, on 5th July 2019 at Indian Institute of Technology, Madras (IIT Madras), India
- 18) A paper titled as “Design and Fabrication of a Low-cost Human Body Lower Limb Exoskeleton” co-authored by Y. M. Pirjade, D. R. Londhe, A. U. Kotkar, T. P. Shelke ICMRE-2020 held during February 12-15, 2020 in Barcelona, Spain.
- 19) A paper titled as “Deformity correction methods for fracture bone alignment an overview” coauthored with Pankaj Aglawe in International Conference on Mechanical Engg for Sustainable Development (ICMESD-2020) at AISSMS’s COE, Pune held during Feb 17-18, 2020.
- 20) A paper titled as “Inverse Kinematic Analysis Of A Fixture For Automatic Bone Alignment Using Sim Mechanics Of Matlab” co-authored with P.S. a, International Conference on Robotics, Intelligent Automation & Control Technologies (RIACT 2020), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai

- 21) A paper titled as “Comparative Need Analysis Of Industrial Robot Calibration Methodologies” by co-authored with S. N. Chiwande, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 22) A paper titled as “Design And Development Of In-Pipe Inspection Robot For Various Pipe Sizes”, co-authored with Atul Gargade, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 23) A paper titled as “Semi-Autonomous Parking System For Automatic Transmission Vehicles”, co-authored with Sameer Kaware, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 24) A paper titled as “Industrial Robot Performance Analysis Using Low Cost Set-Up”, co-authored with Kirti Chachane, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 25) A paper titled as “Design And Validation Of A Matlab Simulation To Obtain Customized gait Cycle For Exoskeleton”, co-authored with Kaushal Kalantri, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai. This paper was **selected for a Best Paper Award in the conference.**
- 26) A paper titled as “Design, Development And Analysis of Human Exoskeleton For Enhancing Human Capabilities”, co-authored with Rasika Vibhute, Samiksha Yeole, Shivani Waghmare, Tejas Tonde, at International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 27) A paper titled as “Autonomous Snake Robot With Serpentine Type Navigation”, co-authored with Mrinmayee Bangar, Shruti Ghodake, Hrishikesh Nirgude, International Conference on Robotics, Intelligent Automation & Control Technologies (**RIACT 2020**), held on 2nd and 3rd Oct 2020 organized by Vellore Institute of Technology, VIT, Vellore, Chennai.
- 28) A paper titled as “Production Design Analysis for Airfoil Shape Optimization” co-authored with Pranoti Shinde, Dr. V. K. Tripathi at International Conference on “Recent Advances in Renewable Energy Sources” at **RARES 2021** during 26<sup>th</sup> to 27<sup>th</sup> Feb 2021.
- 29) A paper titled as “The Performance Parameter Analysis and Calibration Methodology for the Industrial Robot”, co-authored with Ravindra Shinde, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17 -19 Dec , 2021 at Singapore.
- 30) A paper titled as “Development of Low-cost Adaptive Cruise Control System for Automatic Transmission vehicle for Low-speed Operations”, co-authored with Aniruddha Sonawane in 6th International conference on Intelligent Technologies (ICIT–2021) on 17-19 Dec, 2021 at Singapore.
- 31) A paper titled as “Two Legs Balancing with Appropriate Gait Cycle and Its Simulation for Combined Motion Analysis”, co-authored with Shantanu Bharad, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 32) A paper titled as “In-pipe Inspection Robot for Varying Pipe Sizes”, ”, co-authored with Atul Gargade, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 33) A paper titled as “Impact on industrial robot calibration due to techno-commercial aspects in conventional industrial robot calibration methods”, coauthored with Sumedh N Chiwande, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 34) A paper titled as “Autonomous RFID Controlled Assisting Robot for Isolation Wards”, coauthored with Lalit Duseja, Yash Deshmukh, Shantanu Karmuse, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 35) A paper titled as “Design & Development of a Multi-finger Prosthetic Robotic hand”, coauthored with Arya Arasan, Samarth Chaudhari, Poorval Wanere, Rushikesh Pabalkar, Chetan Pathrabe, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.

- 36) A paper titled as “ROS based Compact Mobile Robot for Area Mapping, Autonomous Navigation and Path Planning”, coauthored with Aniruddha Gaikwad, Mihir Kulkarni<sup>1</sup>, Anuja Agnihotri, Samruddhi Purohit, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 37) A paper titled as “Design, development, analytical study and performance analysis of a prototype of ornithopter”, coauthored with Vaishnavi Chakradeo, Riyaa Jadhav, Kalyani Deshmukh, Madhura Mitkari, in 6th International conference on Intelligent Technologies (ICIT – 2021) on 17-19 Dec, 2021 at Singapore.
- 38) A paper titled as “Finite Element Analysis of a Novel Robotic Gripper: Grabo”, coauthored with Aniket H Bhelsaikar<sup>1</sup>, Pratik Chothe<sup>1</sup>, Viinod Atpadkar, Shantipal Ohol, Debanik Roy, in 6th International conference on Intelligent Technologies (ICIT–2021) on 17-19 Dec, 2021 at Singapore.
- 39) A paper titled as “Qualitative flexural modulus analysis for establishing appropriateness of pig femur bone for biomedical experimentation about automatic alignment of fractured femur bone of human using controlled angular/linear incremental motion”, coauthored with Pankaj S. Aglawe in 6th International conference on Intelligent Technologies (ICIT–2021) on 17-19 Dec, 2021 at Singapore.
- 40) A paper titled as “A low latency self-balancing algorithm for real-time quadrupedal robots, suitable for navigating unstable, rapidly deforming environments”, coauthored with Mudit Singal in 6th International conference on Intelligent Technologies (ICIT–2021) on 17-19 Dec, 2021 at Singapore.
- 41) A paper titled as “Study of aerodynamic behavior of a symmetrical airfoil in a low wind speed region”, coauthored with Pranoti Shinde in 6th International conference on Intelligent Technologies (ICIT–2021) on 17-19 Dec, 2021 at Singapore.
- 42) A paper titled as “Modelling and Simulation of Adaptive Cruise Control and Overtake Assist System”, coauthored with Sajal Anand in the International Conference & Exposition on Advances in Mechanical Engineering, organized by the Department of Mechanical Engineering, College of Engineering Pune during June 23-25, 2022
- 43) A paper titled as “Central Axis Alignment of Parallel Robot using Structural Analysis and Motion Analysis for 6 DOF Set-up”, coauthored with Shrikant Pashawar in 3rd International Conference on Sustainable Energy Solutions for a Better Tomorrow (SESBT 2022), July 23 – 24, 2022, VIT Chennai, India.
- 44) A paper titled as “Design of Smart Vertical Lift for Disabled Person, Sept 2022.”, coauthored with Moreshwar Bhalerao in 2nd Indian International Conference on Industrial Engineering and Operations Management, (IEOM), , Aug 16-18 2022, Warangal, Telangana, India
- 45) A paper titled as “Ground Traversability Estimation for Quadruped Robot with Modified DWA Algorithm”, coauthored with Dhiraj Dhande in Second International Conference on Signal and Information Processing-2022, on 25-27 Aug, 2022 at College of Engineering Pune.

### **National Conference ( Five )**

- 1) A paper published and presented along with co-author Dr. B. B. Ahuja and Dr. S. R. Kajale, titled as “Improvements in the Grasping Modality of Gripper” at the National Conference on Advances in Manufacturing Technology in the Era of Globalization, **AMTEG 05** held at Production Engineering Department of P.I.E.T., Pune on 21st & 22nd January 2005.
- 2) A paper titled as “Major defects in Investment Casting Industry Due to Manual Operations” co-authored with Nilesh Vanikar and Rajendra Anjekar at National Conference on “Innovations In Mechanical Engineering” ICME 2015 organized by Department of Mechanical Engineering scheduled on 6th - 8th April 2015. At MIT Academy of Engineering, Alandi Pune.
- 3) A paper titled as “ Functional and Life Assessment of Mechanism Employed in Corner Shot Weapon System by Automatic Dry Functioning Test" in 2nd National Conference On Advances In Armament Technology (NCAAT 2018) oral presentation category (second prize) organized at Armament Research and Development Establishment, (ARDE), DRDO Lab, in Pune on 8<sup>th</sup> & 9<sup>th</sup> Jun 2018
- 4) A paper titled as “Development of Robotic Arm Manipulator mounted on Self Balancing Two Wheeled Mobile Robot” co-authored with Pranay Junare, Shaunak Mahajan, Prithvish

Taukari, Anirudh Nallawar is presented at ARMS 2021, the 12th National Conference & Exhibition on Aerospace & Defence Related Mechanisms on “Recent Innovations and Challenges in Aerospace & Defence Mechanisms” by INSARM, held at ARDE, Pune on 02–04 Dec 2021.

- 5) A paper titled as “Design and Performance Analysis of Robotic Jellyfish for Underwater Surveillance Manufactured as a Soft Robot” co-authored with Rushikesh Pachghare, Mihir Deshmukh, is presented at ARMS 2021, the 12th National Conference & Exhibition on Aerospace & Defence Related Mechanisms on “Recent Innovations and Challenges in Aerospace & Defence Mechanisms” by INSARM, held at ARDE, Pune on 02–04 Dec 2021.

## 11.B - Books Published

- 1) Book published along with co-author Dr. M. B. Shah & B. C. Rana of V.J.T.I. Mumbai, titled as “Engineering Graphics” by Technova Publications, Pune, 1<sup>st</sup> ed. Dec 1997.
- 2) Book published along with co-author Prof. S. G. Patgawkar of V.J.T.I. Mumbai, and Prof. R. G. Kaduskar of College of Engg. & Technology, Pune, titled as “Engineering Materials and Components” by Technova Publications, Pune, 1<sup>st</sup> ed. Aug. 1997.
- 3) Book Chapter in Handbook of Smart Materials, Technologies, and Devices published along with co-author K. D. Kalantri, Y. M. Pirjade, A. U. Kotkar, N. M. Patwardhan, D. R. Londhe, and T. P. Shelke, titled as “Research Methodology for Augmenting a Gait Cycle of Lower-Body Exoskeleton, by Using a Data of Mathematical Modeling and Motion Study of a Specific User While Obtaining a Customized Gait for Joint Actuation of Exoskeleton” by Springer [Chapter 165-1], June 2022.

## 12. Co-curricular and other activities

### 12.1 Courses / Seminars Attended

#### A - Courses / Training pertaining to Robotics

- i) A course on “Advanced Training on Industrial robotics” at YASAKAWA Electric Corporation, Kurosaki , **Japan** is completed on 07<sup>th</sup> May 2006.
- ii) A Course on “ 20 Sim – Simulation , Modelling and Applications of the Software ” at Kinetic House , Bangkok, **Thailand** arranged by Ni 2 Softwares , India during 25<sup>th</sup> Nov 2007 to 6<sup>th</sup> Dec 2007.
- iii) A Course on “ Basic Robot Programming ( Part I & II ) ” by KUKA Automation ( INDIA ) PVT LTD. , Pune – 18 , INDIA at **KUKA** College Pimpri, Pune – 18 during 15<sup>th</sup> Dec to 16<sup>th</sup> Dec 2007.
- iv) Organized a Two Days CEP workshop / a course is conducted on “ Introduction to Robotics” conducted by IIT Bombay during October 01-02, 2011 under Continuing Education and Quality Improvement Programmes ( CE&QIP ) held in COE, Pune.

#### B - ISTE approved / sponsored courses

- i) One week programme on “Industry Institute Partnership” sponsored by Indian Institute for Technical Education during 23<sup>rd</sup> Dec. to 28<sup>th</sup> Dec. 1996, conducted at V.I.T. Pune.
- ii) Two Week course on “Preventive Maintenance of Rotating Machines by using Vibration and Noise Analysis” at W.C.O.E., Sangli, during Dec 1999.
- iii) Two weeks course on “Intelligent Control and Automation” at Electrical Engineering Department, of P.I.E.T. Pune – 411 005. 10<sup>th</sup> Jan to 22<sup>nd</sup> Jan 2005.
- iv) One week AICTE approved ATAL-FDP on Robotics & Artificial Intelligence at Kolhapur Institute of Technology's College of Engineering, Kolhapur, on 8th Nov 2021.

#### C - Other courses

- i) Course on “Reliability Engineering” conducted by Real time Integrated Systems Engineering, Pune, during 17<sup>th</sup> Feb. to 03<sup>rd</sup> March 1997.
- ii) Course on “Computer Aided Design & Manufacturing” conducted by Govt. College of Engineering Pune, during 08th August to 27<sup>th</sup> Sept. 1992.

- iii) A five day training programme on “AutoCAD 2000 and Visual Lisp” at M/S NEIL Automation, Pune.
- iv) A examination based certificate course titled as “Maharashtra State Certificate in Information Technology (MS-CIT)” conducted by Maharashtra State Board of Technical Education, Mumbai and Maharashtra Knowledge Corporation Limited is completed in the month of Jan 2003.
- v) A Faculty Development Programme under TEQIP on Enhancement of Administrative and Managerial Skills (EAMS 05) conducted by Ma foi Management Consultants and Wisdom Consulting Pune.
- vi) Two Week course on “ Recent Trends in Analytical Instrumentation ( RTAI – 06 ) ” at PIET’s College of Engineering , Pune – 5 , during 12th to 23rd June 2006.
- vii) A National Workshop on “Smart Materials for Design of Intelligent Systems & Industrial Applications” at IIT, Kanpur on 23rd & 24th March 2007.
- viii) An International Management Development Programme on “Standard Rules and Procedures of the World Bank for Procurement of goods, Works & Services” conducted by National Institute of financial Management ( Ministry of Finance, Govt. of India ) , Faridabad on 08<sup>th</sup> Feb to 19<sup>th</sup> Feb 2010.

## 12.2 – Seminars / Workshops / Conference / Training Programs / Lectures / Events **Organized**

### 1) **Conferences** – Active organizing member

#### a) **International conferences**

- 1) ICAMDIA-2007 International conference on “Advances in Machine Design and Industry Automation”, 0 – 12 Jan 2007 Ref. - ISBN 0-07-065663-0.
- 2) COPEN-7: 2011 Seventh International Conference on “Precision, Meso, Micro and Nano Engineering”, 10 – 11 Dec 2011, Ref. - ISBN 93-81361-63-0.
- 3) ICAME 2022 , International Conference & Exposition on Advances in Mechanical Engineering, organized by the Department of Mechanical Engineering, College of Engineering Pune, June 23-25, 2022.

#### b) **National conference**

- 1) Active participation in the National Conference NCEFIF 2004, organized by the Mechanical Engineering Department of COE, Pune.
- 2) **Organized a Training Programmme** on “Pilot Phase of Procurement Management Support System” A web based application for TEQIP II a World Bank Assisted Govt. of India Project, during 23rd to 25th April 2011 jointly organized by National Project Implementation Unit and The World Bank at College of Engineering, Pune.
- 3) **Organized a Guest Lecture** of Prof Kavi Arya, ERST Lab of CST Dept, IIT Bombay for all principals and faculty of the Institutes in Pune region titled as Opportunities in the area of robotics on 13th Sept 2011 at College of Engg. Pune.
- 4) **Organized a Two Days CEP workshop** / a course is conducted on “ Introduction to Robotics” conducted by IIT Bombay during October 01-02, 2011 under Continuing Education and Quality Improvement Programmes ( CE&QIP ) held in COE, Pune.
- 5) **Organizing Team Member of COPEN-7** : 2011 Seventh International Conference on “Precision, Meso, Micro and Nano Engineering” , 10 – 11 Dec 2011.
- 6) **Organized a Guest Lecture** of Mr Alok Mukherjee, R&DE(E) Dighi, Pune on “NETRA – An Unman Flying Surveillance Robot ” on occasion of Inauguration of Robot Study Circle Activity of 2011-2012, at College of Engg., Pune on 12<sup>th</sup> August 2011.
- 7) **Organized a two days workshop** for 12<sup>th</sup> Sci Students on “Making of Line follower Robot using Logic Gate Controllers” on 20<sup>th</sup> and 21<sup>st</sup> August 2011 at COE, Pune.
- 8) **Organized Two days workshop on** “Making of Line Follower Robot using Microcontroller” for the FYBTech students / beginners at COE, Pune during 8<sup>th</sup> and 9<sup>th</sup> Oct 2011.



- 9) **Organized a Training Programme** on “Training of Procurement Management Support System” a web based application for TEQIP II a World Bank Assisted Govt. of India Project, on 11 Jan 2012 organized for TEQIP Faculty Coordinators and Store-Keepers of all the departments at College of Engineering, Pune.
- 10) **Organized** one day training programme for Beginners / new students of College of Engineering, Pune who are willing to join the Robot study Circle activity, at Room No. 6 on 25<sup>th</sup> Jan 2012.
- 11) **Organized a Training Programme** on “Procurement Management Support System” a web based application for TEQIP II a World Bank Assisted Govt. of India Project, on 14<sup>th</sup> Jan 2012, jointly organized with **State Project Facilitation Unit** and College of Engineering, Pune, for the staff coordinators of other nodal institute at College of Engineering, Pune.
- 12) **Organized a Programme for** “ Launching of Project – TEQIP II for Maharashtra state” for TEQIP II a World Bank Assisted Govt. of India Project, on 13<sup>th</sup> March 2012, jointly organized with **State Project Facilitation Unit** and College of Engineering, Pune, for the staff coordinators of other nodal institute at College of Engineering, Pune.
- 13) **Convenor Committee Member** at ‘*National Consultation for Promoting Research in Instrumentation and Robotics for Surgery*’, held on 7th and 8th April 2012 at Dewang Mehta Auditorium, Persistent Systems Ltd., Pune.
- 14) **Organized Two days state level TEQIP II workshop** - “PMSS Training Programme” at College of Engineering Pune on 13th and 14th July 2014, in association with SPFU, Mumbai and Goldyne, Pune.
- 15) **Organized two days workshop** PRATHAM 2013 for beginner level students of Robot Study Circle, COEP on 14th and 15th Sept 2014.
- 16) **Conducted TEQIP-II sponsored one day workshop** on “Pneumatics and Vacuum Control System” for students of different colleges and Industry personnel’s in Collaboration with Jenetics Pvt Ltd. And Schmalz India Pvt. Ltd, on 18th January, 2014.
- 17) **Organized one day workshop** for the @ 93 students of GSM College of Engineering Pune 45 on 1st and 2nd April 2014 on the Introduction to the “Robotics and Recent developments”.
- 18) Participated in **organizing a TEQIP Seminar** on ‘Virtualization and Cloud Solutions for Education’, conducted by Vintech Electronic Systems Pvt. Ltd., India on 18th and 19th Dec 2015.
- 19) Participated in **organizing a TWO days regional workshop** on "Students, Faculty and Staff Satisfaction Survey", on 29th and 30th September 2014, organized by TEQIP-NPIU, and delivered by the Software company-Infova Systems, India.
- 20) Participated in **organizing two days workshop** “The Line Follower Workshop – PRATHAM’14 for beginner level students of Robot Study Circle, COEP on 13th and 14th Sept 2014.
- 21) **Organized one day workshop** for the @70 students of Govt College of Engineering and Research, Awasari, Pune 411 405 on 7th Sept 2014 on the “Introduction to the Robotics and Recent developments”.
- 22) **Organized a one week** AICTE sponsored short term training program on " Robotics in Manufacturing" from 18th Dec to 22nd Dec 2017, at Department of Mechanical Engineering, College of Engineering Pune.
- 23) **One day seminar** on “Advances in Industrial Robotics – Case study & Demonstration of Collaborative Robot and Planning of Robotic Projects in Institutes” organized by Robot Study Circle, COEP in association with Kinnova, Canada & Nugenix India at CoEP, on 17<sup>th</sup> Dec 2018.
- 24) **One Day Seminar** on “Awareness about DRDO Research Projects & Opportunities under ARMREB, a research board of DRDO” at College of Engineering Pune, in collaboration with Armament Research Board (ARMREB) of DRDO & ARDE, Pashan, Pune on 25th Jan 2019.
- 25) **Regional Competition** of ROBOTEX International organized with ROBOTEX India on 21<sup>st</sup> July 2019 for three different category i.e. Line Follower, Sumo Wrestling and Best Project held at College of Engineering Pune.



- 26) **Two days Webinar** on Robotics with Simscape Multibody, by experts from MathWorks, Pune and Bangalore, organized by The Robotics Society's Student Chapter, at College of Engineering Pune on 30th & 31st March 2020

### 12.3 – Seminars / Workshop / Training Attended

- 1) **A Two Days Golden Jubilee Symposium** “Robotics and Autonomous Vehicles – views and Perspectives” organized by Research and Development Establishment (Engrs.), Dighi, Pune on 28<sup>th</sup> and 29<sup>th</sup> April 2011 at R&DE, Pune – 15.
- 2) **A two days Training Programme** on Procurement & Procurement Management Support System ( PMSS ) on 29<sup>th</sup> and 30<sup>th</sup> August 2011 organized by National Project Implementation Unit under Technical Education Quality Improvement Programme at Visvesvaraya National Institute of Technology, Nagpur.
- 3) **Two days Workshop** on “ DRDO – Academia Interactive Workshop” on 16<sup>th</sup> and 17<sup>th</sup> Dec 2011 at Armament Research & Development Establishment, Pashan, Pune – 411 021, organized by AR&DE, Pashan. ”
- 4) **One week ISTE approved STTP course** on “Industrial Fluid Power ” organized by EATON Technologies Pvt. Ltd., Pune & College of Engg. Pune during 19<sup>th</sup> to 23<sup>rd</sup> Dec 2011.
- 5) **One day conference** on “Awareness Programme for various software Procurement under TEQIP II” at Courtyard Marriott, Pune on 14<sup>th</sup> Jan 2012, organized by ADCC, Pune for the staff coordinators of all the TEQIP II funded Institutes.
- 6) **A two days conference on** “National Consultation for Promoting Research in Instrumentation and Robotics for Surgery ” organized by Maharashtra University of Health Sciences, Nashik and BioCrats, Pune on 7<sup>th</sup> and 8<sup>th</sup> April 2012 at Dewang Mehta Hall, Persistent Systems Ltd., Pune – 411 016. Attended the conference and also worked as a Convener Committee Member.
- 7) **Attended two days workshop** on Engineering Education for the 21<sup>st</sup> Century on 17<sup>th</sup> and 18<sup>th</sup> May 2013 conducted at College of Engineering Pune, conducted by Prof. Farrokh Mistree L.A. Comp Chair School of Aerospace & Mechanical Engineering University of Oklahoma, USA & Jitesh H. Panchal, Assistant Professor at Purdue College of Engineering.
- 8) **Attended the International Conference** on “ Advances in Robotics – 2013 “ during 04<sup>th</sup> – 06 July 2013 at R & DE ( Engrs), DRDO, Dighi, Pune organized jointly by Robotics Society of India and R&DE ( Engrs ), DRDO, Dighi, India.
- 9) **Attended the 3<sup>rd</sup> International Conference** on “Advances in Robotics – AIR 2017 “ during June 28-July 2, 2017 at IIT Delhi, organized jointly by The Robotics Society of India and IIT Delhi.
- 10) **Attended the 4<sup>th</sup> International Conference** on “Advances in Robotics – AIR 2019 organised on June 2<sup>nd</sup> - July 6<sup>th</sup>, 2019 at IIT Delhi, organized jointly by The Robotics Society of India and IIT Madras.
- 11) **Attended the 6<sup>th</sup> International Conference** on Mechatronics and Robotics Engineering ICMRE-2020 held in Barcelona, Spain, held during February 12-15, 2020.
- 12) **Attended ARMS 2021, the 12<sup>th</sup> National Conference & Exhibition** on Aerospace & Defence Related Mechanisms on “Recent Innovations and Challenges in Aerospace and Defence Mechanisms” by INSARM, held at ARDE, Pune on 02 to – 04 Dec 2021.

### 12.4 – Invited Speeches / Lectures / Talks – ( Total --61 )

- 1) **Invited Speech** on ‘Robotics and Automation in Hazard Prone area’ was organized at the Institution of Engineers (India), Pune Local Center on Tuesday, 22<sup>nd</sup> February 2011.
- 2) **Invited Speech** on “Microcontroller based Robot’s Development”, at Marathwada Mitra Mandal’s , College of Engineering, Pune – 52, on 8<sup>th</sup> Oct 2011.
- 3) **Invited Speech** on “Macro, Micro and Nano Robotics – Recent Developments in the Manufacturing and Future Trends”, at VJTI Mumbai, on the occasion of a AICTE

- sponsored Staff Development Programme on “Advances in Manufacturing and Micromachining Techniques”, on 16th Nov 2011.
- 4) **Invited Speech** on “Recent Trend in Robotic Research”, as a resource person of One day workshop organized by K.J. College of Engineering & Management Research, Pisoli, Pune 48, on 30th Dec 2011.
  - 5) **Invited Speech** for One day Workshop on “ syllabus Implementation of Robotics ” at B.E. Mechanical as a resource person, organized by Board of Studies in Mechanical Engineering, University of Pune at P.V.G.’s COET, Pune 09, on 14th Jan 2012.
  - 6) **Invited Speech** on “Past, Present and Future of Robotics” – Organized on the occasion of 10th foundation day celebration function of Marathi Vidyan Parishad, Pune Chapter, Pune on 17th Jan 2012 at Institute of Engineers, Pune.
  - 7) **Invited Speech and Demonstrations** on “Introduction to Robotics Technology” at SP High School & Jr. College and Shahu Kalamandir of Satara, organized by the Education Committee of Satara District on 18<sup>th</sup> Feb 2012.
  - 8) **Guest Lecture** for B.E. (Mechanical Students ) for Elective Subject, Robotics at Marathwada Mitra Mandal College of Engineering, Pune, organized by MESA of MMCOE, Pune on 4<sup>th</sup> April 2012.
  - 9) **Invited speech** on “ Intelligent Robotic and Industrial Automation” at one day workshop organized by GHRCEM ISTE-MESA Chapter at Mechanical Engineering Department of G.H. Raison College of Engineering and Management, Pune on 6<sup>th</sup> April 2012.
  - 10) **Invited Speech** on “Robotics – Trend and Application” organized by PTC, Institute of Engineers, Pune Local chapter, Pune on 17<sup>th</sup> March 2012 at Institute of Engineers, Shivajinagar, Pune – 411 005.
  - 11) **Invited as a chief guest** at Kasegaon Education Society's polytechnic, Lohagaon, Pune-411047 for prize Distribution ceremony of National Robotics Championship 2014 (NRC). Also, delivered a Lecture on Recent Updates in Robotics. It was organized in collaboration with IIT, Bombay, during 20th & 21st January 2014.
  - 12) **Invited as a Keynote speaker** for “National Conference on Innovations in Mechanical Engineering” organized by Mechanical Engineering Department of MIT Academy of Engineering, Alandi, Pune, on 6<sup>th</sup> to 8<sup>th</sup> April 2015.
  - 13) **Invited for a Guest Lecture** on the topic “Emerging Trends in Robotic Development in India” at 11th IEEE INDIA Conference, INDICON 2014, held on 11th – 13th December 2014 at the Yashwantrao Chavan Academy of Development Administration (YASHADA Auditorium), Pune.
  - 14) **Invited for a Guest Lecture** at Two days workshop organized by The Robotics Society of India in association with Army Institute of Technology, Pune at AIT, Pune on “Robotic Technologies’ on 28 Feb and 01 Mar 2015.
  - 15) **A keynote lecture** on at a 4-day International workshop (Robotryst-2016) conducted by DIAT, Pune in collaboration with Robosapians Pvt. Ltd, New Delhi at Department of Mechanical Engineering, Defence Institute of Advanced Technology (DU) / DIAT, Pune during 22-25th Feb,2016
  - 16) **Invited for a Guest Lecture** on the Topic “Robot & Recent Trend in Robotics” at Camp Education Society’s High School & Junior College, Pune – 411 001 on 26<sup>th</sup> Nov 2016 & on 26<sup>th</sup> Nov 2016
  - 17) **Invited for a lecture** on the topic “Robot & Latest Trends in Robotic Science” during a workshop titled as “Recent Trends in Mechanisms” at Pimpri - Chinchwad College of Engineering & Research, Pune – 412 101 on 13<sup>th</sup> Dec 2016.
  - 18) **Invited as a Chief Guest** and as a Keynote Speaker for a lecture on “Recent Trends in Robotics” in a Robotics Workshop Inauguration Ceremony at A.I.S.S.M.s’s College of Engineering, Pune 1, on 7<sup>th</sup> Sept 2017.
  - 19) **Invited as a resource person** for the topic “Mechatronics in Manufacturing Industries” in a “Mechatronics – An Industrial Application Approach” a state level seminar at A.I.S.S.M.s’s College of Engineering, Pune 1, on 4<sup>th</sup> March 2017.

- 20) **Invited to deliver a lecture on Robotics** at St Arnold Central School, Pune – 411 014 on 5<sup>th</sup> August 2017.
- 21) **Invited to deliver a lecture** on the topics 1) Advanced Manufacturing Techniques 2) Mechanisms in Automation 3) Robotics in Manufacturing in a course on “Advanced Manufacturing Practices” under continuous education programme at High Energy Materials Research Laboratory (HEMRL), Pune-21, during 12 – 16 June 2017.
- 22) **Invited as an expert speaker** for a seminar on Robotics at ISTE chapter of Shah & Anchor Kutchhi Engineering College, Mumbai-88 on 25<sup>th</sup> January 2018
- 23) **Invited for an expert lecture** in Robotics at Inter-University Centre for Astronomy & Astrophysics (IUCAA), Pune -007 on 10<sup>th</sup> Feb 2018.
- 24) **Invited for an expert lecture** in the Department of Production Engineering and Industrial Management of College of Engineering Pune [COEP] for an AICTE Sponsored One Week Faculty Development Program on “MECHATRONICS AND INDUSTRIAL AUTOMATION” (Under QIP) during 26th to 30th March 2018.
- 25) **Invited as a chief guest** of a function of inauguration of ROBO-CLUB of Dr. D. Y. Patil School of Engineering & Technology, Charholi (Bk), Lohagaon on 30<sup>th</sup> August 2018.
- 26) **Invited for Keynote address** on Autonomous Vehicle Technologies during CEP course at VRDE, Ahmednagar, on 24th Sept 2018.
- 27) **Invited for an expert lecture** , on Robotics at the Electronics & Telecommunication Department of Dr. J. J. Magdum College of Engineering, Jaysingpur on 12th Oct, 2018.
- 28) **Invited for a lecture** on Basics Concepts and Robotics Technology, at College of Military Engineering, (CME), Pune - 31 on 20th Nov 18.
- 29) **Invited for a lecture** at State Level FDP on Robotics at Navsahyadri Education Society’s Group of Institution, Faculty of Engineering, Pune on 26th Nov 2018.
- 30) **Invited as a resource person** for Continuous Education Programme (CEP) on Geometric Dimension and Tolerance conducted on 28th to 30th Nov 2018, at Research and Development Establishment (Engrs.) ( R&DE), Dighi , Pune
- 31) **Invited as a Chief Guest** at JSPM's Rajarshi Shahu College of Engineering, Tathawade, Pune, for inauguration of a Student Chapter of The Robotics Society (TRS), India on 2<sup>nd</sup> August 2019.
- 32) **Invited as an expert** for a talk on the topic "Combat Vehicle and recent advances at International Scenario" on 16 Sept 2019 at Vehicle Research & Development Establishment (VRDE), Ahmednagar
- 33) **Invited as a Chief Guest as well as Resources person** on a topic MATLAB – SIMULINK & Robotic System Toolbox for a session on 2nd Dec 2019 for STTP on Matlab and Simulink planned from 2nd to 13th Dec 2019 at STES's Smt Kashibai Navale College of Engineering, Vadgaon
- 34) **Invited for an expert talk** on Recent “Inventions in Industrial Robot” at an AICTE Training and Learning (ATAL) Academy sponsored 5 days workshop on ‘Smart Robots’ from 7-11 Dec 2019 at Indian Institute of Information Technology (IIIT), Pune
- 35) **Invited as an expert** for a talk on “Collaborative Robot” at one week Faculty Development Programme on ‘Industry 4.0’ approved by ISTE and University of Mumbai on 20<sup>th</sup> Dec 2019 at Saraswati College of Engineering, Kharghar, Navi Mumbai.
- 36) **Invited as a chief guest** and for a lecture on “Need of Robotics Technology”, for AVISHKAR-2020, at ATAL Tinkering Lab of Shri Shankarrao Shikshakshan Sanstha, Karajgaon, Amravati, Maharashtra, on 23<sup>rd</sup> Jan 2020.
- 37) **Invited as an Expert** for a lecture on a Topic "Innovations in Robotics" on 23rd Jan 2020 at SIPNA College of Engineering and Technology, Amravati, Maharashtra.
- 38) **Invited as an Expert** for a lecture on a Topic "Recent Trend in Robotics Technology" on 23rd Jan 2020 at Government College of Engineering Amravati, Maharashtra.
- 39) **Delivered a speech** on “ Developments in Industrial Robot Technology” at The Robotics Society Student’s Chapter of College of Engineering Pune on 29<sup>th</sup> Feb 2020.
- 40) **Invited for expert lecture** for 3 days workshop on “Digital Farming Practices by Agribots, Agri-Drones and Agri-AGV’s” during the period of 12th-14th March 2020 at NAHEP- College of Agricultural Engg. & Technology, Vasanttrao Naik Marathwada Agricultural University, (CAAST-VNMKV), PARBHANI, on 14<sup>th</sup> March 2020.

- 41) **Invited as a speaker** on a topic ‘Social Robotics-Modern Healthcare with Industry 4.0 Perspective’ on 29th May 2020, for Education 4.0, Season-II Webinar Series Organized by IQAC, Atharva College of Engineering, Malad, Mumbai. 28th-30th May 2020.
- 42) **Invited for an expert talk** on “Social Robotics” in One Week FDP on “Robotics” during November 23rd to 27th, 2020 organized by the Department of Manufacturing Engineering & Industrial Management, College of Engineering Pune sponsored by AICTE Training And Learning (ATAL) Academy on 24<sup>th</sup> Nov 2020.
- 43) **Invited for an expert talk** on “Collaborative Robots - A recent trend in Industrial Robotics” in One Week FDP on “Robotics” during November 23rd to 27th, 2020 organized by the Department of Manufacturing Engineering & Industrial Management, College of Engineering Pune sponsored by AICTE Training And Learning (ATAL) Academy on 26<sup>th</sup> Nov 2020.
- 44) **Invited for an expert talk** on “History & Recent Developments in Humanoid Technology” in One Week FDP on “Robotics” during November 23rd to 27th, 2020 organized by the Department of Manufacturing Engineering & Industrial Management, College of Engineering Pune sponsored by AICTE Training & Learning (ATAL) Academy on 27<sup>th</sup> Nov 2020.
- 46) **Invited as a resource person** for delivering a talk on “Innovation in Robotic Technology” on 24<sup>th</sup> Nov 2020 for online AICTE Training and Learning (ATAL) Academy sponsored Faculty Development Programme on “*Research Opportunities in Robotics & Automation*” at the Department of Mechanical Engineering of Bharati Vidyapeeth (Deemed to be University) College of Engineering Pune (BVUCOE) during 24<sup>th</sup> to 27<sup>th</sup> Nov 2020.
- 47) **Invited as a resource person** for delivering a talk on “Social Robotics” on 27<sup>th</sup> Nov 2020 for online AICTE Training and Learning (ATAL) Academy sponsored Faculty Development Programme on “*Research Opportunities in Robotics & Automation*” at the Department of Mechanical Engineering of Bharati Vidyapeeth (Deemed to be University) College of Engineering Pune (BVUCOE) organized during 24<sup>th</sup> Nov to 27<sup>th</sup> Nov 2020.
- 48) **Invited as an expert speaker** on a topic "Social Robotics a New Life Pattern for Ultra-Modern Society" for a lecture on 27<sup>th</sup> Nov 2020 at Shree Ramchandra College of Engineering, Lonikand an online AICTE sponsored STTP organized on 23-28 Nov 2020.
- 49) **Invited as Chief Guest and Speaker** for the valedictory function for this FDP-series 2, on date 14<sup>th</sup> Dec 2020 to deliver a talk on " Applications of AI in Robotics Technology" organized by The Department of Mechanical Engineering , GIET University, Gunupur, Odisha (formerly known as Gandhi Institute of Engineering and Technology) at Two weeks faculty development program on “Application of Artificial Intelligence and Machine Learning in Digital Manufacturing” in association with online AICTE AQIS 2019-20 during 1st December 2020 to 14<sup>th</sup> December 2020.
- 50) **Invited as an expert** for a lecture on a Topic "COBOTS - a rapidly developing technology in Industrial Robotics" for AICTE sponsored Six-days Online Short Term Training Programme on “Recent Advances in Industrial Robotics & Applications” at Department of Mechanical Engineering of SRES’s Shree Ramchandra College Of Engineering, Lonikand, Pune - 412207 conducted on 12<sup>th</sup> March, 2021
- 51) **Invited as an expert** for a lecture on a Topic “Recent Advancements in Industrial Robotics and Demonstration of Mitsubishi Robotic Arm” on 7<sup>th</sup> Aug 2021, In a programme organized by TRS, India, COEP Students Chapter with Celestial Institute of Technology.
- 52) **Invited as an expert** for a lecture on a Topic “Cobot & Innovative technology in Industrial Robotics” on 17<sup>th</sup> Oct 2021 at MindSpark 2021 organized by Robot Study Circle, COEP.
- 53) **Invited as an expert** for a lecture on a Topic “Humanoid Technology” on 28<sup>th</sup> Aug 2021, by The Robotics Society, India, Students Chapter, COEP followed by Virtual Demonstration of Nao-VI.
- 54) **Invited as an expert** for a lecture on a Topic “Fundamentals of Robotics Technology” at AICTE one week FDP on Robotics & AI at Kolhapur Institute of Technology's College of Engineering, Kolhapur, on 8<sup>th</sup> Nov 2021.
- 55) **Invited as an expert** for a lecture on a Topic “Advanced Robotics and How to plan and execute Robotics Project”, organized by MIT Academy of Engineering, Alandi (D), Pune. on 27<sup>th</sup> NOV 2021.



- 56) **Invited as an expert** for a lecture on a Topic “Present & Future opportunities in Robotics & Automation”, organized by the Department of Robotics & Automation Engineering at Zeal Education Society’s, Zeal College of Engineering and Research, Narhe, Pune -41, India, on 4<sup>th</sup> Dec 2021.
- 57) **Invited as an expert** for a lecture on a Topic “Recent Developments in Humanoid Robotics” in a ATAL FDP on “Robotics and Automation” organized by Department of Mechanical Engg, Government Engineering College, Modasa, Gujrat on 20<sup>th</sup> Dec 2021.
- 58) **Invited as an expert** for a lecture on a Topic “Collaborative Robots - A recent trend in Industrial Robotics”, in a AICTE-ISTE Sponsored FDP on “Artificial Intelligence and Robotic Process Automation: Tools, Techniques, Challenges and Solutions” conducted on 21st Jan 2022, by MCA Department, Sardar Patel Institute of Technology (S.P.I.T.) Mumbai.
- 59) **Invited as an expert** for a lecture on a Topic “Development of Robotics Activities and Robotics Projects” organized by the Department of E&TC and Mechanical Engg, at SSVPSs Bapusaheb Shivajirao Deore College of Engg., Deopur, Dhule on 29<sup>th</sup> Jan 2022.
- 60) **Invited as an expert** for a lecture on a Topic “Collaborative Robots - A recent trend in Industrial Robotics” on 26<sup>th</sup> Feb 2022 in one week (Online) Short Term Course on Industrial Robotics, organised by Centre of Excellence- Siemens, Workshop and Skill Development Centre, Punjab Engineering College, (Deemed to be University), Chandigarh.
- 61) **Invited as an expert** for a lecture on a Topic “Agricultural Robotic Technology” on 16th March 2022 at a **Three day’s** international workshop on “**Advanced Digital Technology for Agricultural Automation**” during a period of **14<sup>th</sup> to 16<sup>th</sup> March 2022**.
- 62) **Invited as an expert** for a lecture on a Topic “Applications of Artificial Intelligence (AI) in Robotics Technology” on 10th Aug, 2022 at a organized by Department of Mechanical Engineering, KJ College of Engineering and Management Research, Pune.
- 63) **Invited as an expert** for CEP Course “Control of Robotic Systems” on a topic “Sensors and Actuators in Robotics” on 12<sup>th</sup> Sept 2022 at R&DE (Research and Development Establishment (Engineers)) Pune.

## 12.5 - Student Activities

- 1) College Magazine Staff Advisor – 02Yrs
- 2) Mechanical Engineering Students Association’s (MESA) Staff Co-ordinator – 02 Yrs
- 3) Robot Study Circle (RSC, COEP) Staff Co-ordinator – 09 Yrs
- 4) Student Welfare Forum (SWF, COEP) Staff Co-ordinator – 04 Yrs
- 5) Active participation in ROBOTSAV 2004 organized by Industries for students in Pune.

## 12.6 - Administrative Activities

- 1) Stationery In-Charge at Institute level – 04 yrs
- 2) Annual College Magazine In- Charge – 02 yrs
- 3) TEQIP-I - Departmental Procurement co-ordinator & Asst. to Institute co-ordinator
- 4) TEQIP - II Procurement Co-ordinator of the Institute
- 5) TEQIP – III Procurement Co-ordinator of the Institute
- 6) Robot Study Circle, RSC, COEP – Faculty advisor – 2004 till to date @ 14 yrs
- 7) Student Welfare Forum, SWF, COEP – Faculty advisor – 2005 till to date @ 13 yrs

## 12.7 - Contribution to Education Innovation

- 1) Robot Study Circle started in Sept 2004 has 40+ members every year. Presently, Robotics and Automation laboratory in the COEP, possesses six trainer robots of Parallax, USA smaller lab version and one Toy robot i.e. Robosepian. Six Industrial Robots of world level known brand are present in the lab. Transducer trainer kit for sensors and actuators training is available in the lab.

Workshops and seminars are regularly conducted for the members of RSC such as

- 1) Microcontrollers design and making for the Robots II) Industrial Robots Programming on YASAKAWA corp. Industrial Robot.

Ref. books are circulated to the members. Also list of the relevant websites, E-books, latest updates in CD form to RSC members are distributed to the members.

- 2) Increase in the Interdepartmental / Interdisciplinary activities in the field of robotics by sharing the laboratories teaching loads ...etc. with Instrumentation Engineering Department and Production Engineering Department.
- 3) Worked as a resource person for a course titled as “Interpretation of Engineering Drawing ” conducted by Mechanical Engineering Department for engineers of KBL, Pune.(2003-04)
- 4) Worked as a resource person for a course titled as “Advanced Robotics and Industrial Automations” at Production Engineering Department, COE, Pune - 411 005, during the period 15<sup>th</sup> June to 17<sup>th</sup> June 2007.

## 12.8 - Design of new courses and curricula and extension activities

- 1) Syllabus of subject “**Robotics and Automation**” for BTech. (Mech) and “**Mechatronics**” for TYBTech. (Mech) as an elective is prepared and has been approved by BOS members.
- 2) Syllabus of subject “**Robotics**” for **Institute level elective in College of Engineering Pune (COEP).**
- 3) Syllabus of subject “**Robotics for Department level elective in Mechanical Engg. Dept, in College of Engineering Pune (COEP).**
- 4) Centralized **Robotics and Automation laboratory** has been developed with an investment of @ Rs 75,00,000/- at Production Engineering Department. This has been done after complete visit / survey of IIT, Kanpur, IIT Kharagpur, IIT Powai, and Jadhavpur University, Kolkata.
- 5) Participated as a committee member in *AICTE Model curriculum* committee for **Minor Degree in Robotics** – Nov 2020
- 6) Participated as a committee member in *AICTE Model curriculum* committee for developing a Model Curriculum of Four years of **UG programme in "Robotics and Artificial Intelligence"** as one of the UG emerging areas.

## 12.9 - Total UG Projects and PG Projects

Total UG projects completed till to date – @ 60 nos.

Total UG Industrial In-plant Training courses completed till to date – @ 10 nos.

Total Post graduate projects completed for M.Tech. till to date – 45 nos.

- 1) Mr. D. M. Kanade (ME Mech-Design) – Design & Analysis of Turbo Generator Impeller for Power Supply System at A.R.D.E., Pashan, Pune. June 2005.
- 2) Mr. J. N. Mahurkar (MTech Mech-Design) – Comparison of the Magneto-rheological Fluid Damper with a conventional Damper from performance evaluation point of view at Defence Institute of Advanced Technology , DRDO, Pune, June 2006.
- 3) Mr. P. R. Zagade (MTech Mech-Design) – Modelling of Damage and Failure using CDM in plastic Deformation at Tata Research Development & Design Centre, June 2006.
- 4) Mr. S. M. Narayankar (MTech Mech-Design) – Parametric Study and Objective-Subjective Evaluation of Brake Pedal Feel at Engg. Research Centre, TATA Motors LTD., June 2007.
- 5) Mr. Sanjay S. Jadhav (MTech Mech-Design) – Vibration Analysis 500 frame Vertical Induction Motor at GE Consumer & Industrial, India Innovation Center, Secunderabad, June 2007.

- 6) Mr. Praveen R. Kulkarni (MTech Mech-Design) – Analysis and optimization of the parameters Affecting Rollover in LCV at Engg. Research Centre, TATA Motors LTD., June 2008.
- 7) Mr. Sandip. S. Rakhe (MTech Mech-Design) – Analysis of Automobile Driveline, Spicer India LTD, Pune June 2008.
- 8) Mr. S. Kulhade (MTech Mech-Design) – Non linear Finite Element Analysis of Flexible Element of Disc Coupling, Emerson Design Engineering Center, Pune, June 2008.
- 9) Mr. Rahul Jajoo (MTech Mech-Design) – Occupant Packaging of 3 Doors / 4 passenger car, TATA Motors Ltd, June 2009.
- 10) Mr. Sunil K. Patil (MTech Instru) – Design Of Control System for Dexterous Multifingered Gripper of the Robot, Instrumentation & Control Engg., COEP, June 2009.
- 11) Mr. Sachin Karade (MTech Mech-Design) – Prediction of Crack Propagation and Component Life using Finite Element Method, Whirlpool of India, June 2010.
- 12) Mr. Lalitkumar G. Yadav (MTech Mech-Design) – Topology Optimisation & Design Validation of Shifter Fork for Six Speed Manual Transmission Using FEA, TATA MOTORS, Pune, June 2011.
- 13) Mr Sagar K Tapkir (MTech Mech-Design) – Design, Solid Modeling & Simulation of Multifinger Robotic Gripper at Mechanical Engineering Department of College of Engineering Pune. June 2012.
- 14) Mr Nischay Y. Pahade (MTech Mechatronics ) – Reconditioning & Programming for Improvisation of Performance Parameters of YASAKAWA MOTOMAN Industrial Robot Arm, at Production Engineering Dept. of College of Engineering Pune. June 2012
- 15) Mr Prasad V. Patil (MTech Mechatronics ) – Upgrading and Reconditioning of 5 DOF Robot Arm and Its Performance Analysis at Production Engineering Department of College of Engineering Pune. June 2012.
- 16) Mr Amar P. Nerune (MTech Mechatronics) – Development of Multifinger Robotic Gripper (MRG) for Feedback Based Dexterous Gripping, at Production Engineering Department of College of Engineering Pune. June 2012
- 17) Mr Amey V. Sutar (MTech Mechatronics ) – Kinematic and Dynamic Analysis of a Robot Arm used for All Terrain Robot at Production Engineering Department of College of Engineering Pune. June 2012.
- 18) Mr Sunil Ramteke (MTech Mechatronics) – Retrofitting, conditioning and improvisation of performance parameter for high payload capacity industrial robot, at Production Engineering Department of College of Engineering Pune. June 2012.
- 19) Mr Abhishek G. Chavan (MTech Automotive ) – Design and Development of Race Car for Safety, Comfort and Low Noise, ARAI Academy, ARAI, Pune July 2012
- 20) Mr Harshal Bhagatkar (MTech Mechatronics ) – Multifinger Robotic Gripper (MRG) for All Terrain Multi-Utility Vehicle (ATMUV) at R&DE, Dighi under Production Engineering Department of College of Engineering Pune. June 2013.
- 21) Vipul Ahir ( MTech Automotive ) – Study of different steering system design strategies for development of Electrical power steering (EPS), at ARAI, Pune under Mechanical Engineering Department, College of Engineering, Pune. June 2013.
- 22) Kaustubh Masurkar (MTech Mechatronics ) – Design and Development of prototype of Bipedal Walking System at Robotics and Automation Lab. of Production Engineering Department of College of Engineering Pune. June 2014
- 23) Swapnil Kapse (MTech Mechatronics ) – Modular Design & Control of Humanoid Robot Arm, at Robotics and Automation Lab. of Production Engineering Department of College of Engineering Pune. June 2014



- 24) Leena Choudhari (MTech Mechatronics ) – Biomimetic Fish- Biomimetic Approach for Surveillance and Data Acquisition with wireless communication, at Robotics and Automation Lab. of Production Engg. Dept of College of Engineering Pune. June 2014
- 25) Kuldeep Gund(MTech Design)–Application of Load Reconstruction Method to Gear Shift Lever Using Strain Gauges as Load Cell, at John Deere India Pvt Ltd., Pune 13, June 2014
- 26) Dyanprakash Bagde ( MTech Design ) - Design, Solid Modelling and Simulation of a Legged Wheel Hybrid Robot at Robotics and Automation Lab. of Production Engineering Department of College of Engineering Pune. June 2014.
- 27) Rupesh Gosavi ( MTech Automotive ) – “Analysis of Adaptive Cruise Control of Four Wheeled Vehicles for Indian Driving Scenario” of Mechanical Engg. Department, College of Engineering, Pune, May 2015
- 28) Pratik Gangurde (MTech Mechatronics) – “Development & Analysis of Riot Surveillance Vehicle ” of Production Engineering Dept. of College of Engineering Pune. June 2016.
- 29) Swapnil Shete ( MTech Design ) – “Motion Analysis of an Elastic steel strip for stabilization of post unwinding phase for ultra high velocity Space Vehicles” at Mechanical Engineering Department, College of Engineering, Pune. June 2016.
- 30) Amit Pulsule ( MTech Auto) – “Design, Development and Dynamic Analysis of Unwinding of Elastic Members (Leaf Springs) Coiled Around A Cylindrical Body” at Mechanical Engineering Department, College of Engineering, Pune. June 2016.
- 31) Akshay Mastood ( MTech Automotive ) – “Design and Development of Microcontroller based EFI for Port Dual Injection System Capable of Varying Blend Ratio for Small Capacity SI Engine” at Mechanical Engg. Dept, College of Engineering, Pune. June 2016.
- 32) Sachin Waghela – ( MTech Automotive ) – “Development of The Novel Mechanism for Anti-Lock Like Effect on CAM Operated Drum Brakes” at Mechanical Engineering Department, College of Engineering, Pune. June 2016.
- 33) Raj Kulsange ( MTech Design ) – “Feasibility Study for Accuracy of System for Around the Corner Visibility (SACV)” at Mechanical Engineering Department, College of Engineering, Pune. June 2017.
- 34) Rupa Bhagwat ( MTech Mechatronics ) – “Design, Development and Cost Reduction of Top Line Bag Filter for Paint Industry” of Production Engineering Department of College of Engineering Pune, June 2017.
- 35) Amit Lonkar ( MTech Design ) – Design and Analysis for Improving Crash Worthiness of Structural Front Bumper Beam System, at TATA Technologies, Pune, June – 2018.
- 36) Bhushan Darekar ( MTech Mechatronics ) – Development and Analysis of Soft Humanoid Robot made from Flexible Fluidic Actuators and Compliant Links, June – 2018.
- 37) Subodh Gade (MTech Mechanical & Material), DoT, SPPU, Pune – Automation of Stewart platform to correct bone deformity, Oct 2018.
- 38) Rahul Sable ( MTech Design ) – Design And Development of a Multifunctional Multi-Finger Robotic Gripper, June 2019.
- 39) Kaushal Dole ( MTech Automotive ) – Vehicle Kinematics & Compliances Simulation & Vehicle Steady State Handling Simulation, June 2019.
- 40) Kaushal Kalantri ( MTech Design ) – Design and validation of a Matlab simulation of a biped robot using mathematical modelling and video analysis for exoskeleton joint actuation, June 2020.
- 41) Kirti Chachane ( MTech Mechatronics ) – Industrial Robot Calibration using low cost testing, June 2020.
- 42) Sameer Kaware ( MTech Automotive ) – Semi-Autonomous Parking system for Automatic Transmission vehicles, June 2020.
- 43) Shantanu Bharad ( MTech Design) - Two Legs Balancing with Appropriate Gait Cycle and it’s Simulation for Combined Motion Analysis, June 2021.

- 44) Ravindra Shinde ( MTech Mechatronics ) - Performance analysis of Industrial Robot using low cost testing set-up, June 2021.
- 45) Anirudha Sonawane ( MTech Automotive ) - Development of Low-cost Adaptive Cruise Control System for AT vehicle for Low-speed Operations, June 2021.
- 46) Shrikant Pashawar ( MTech Design) - Centre line alignment of a parallel Robot using Structural Analysis and Motion Analysis, Sept 2022.
- 47) Moreshwar Bhalerao ( MTech Mechatronics ) - Design of Smart Vertical Lift for Disabled Person, Sept 2022.
- 48) Sajal Anand ( MTech Automotive ) - Investigation of an Alternate Material for Speedometer Lens, Sept 2022.
- 49) Dhiraj Dhande (MTech AI and Robotics) - Ground Traversability Estimation for Quadraped Robot with Modified DWA Algorithm, Sept 2022.

## 12.10 Subjects Taught

Class	Subject	Duration
<b><u>UG Courses</u></b>		
F.E. & FYBTech.--	1. Engineering Graphics	07 yrs
S.E. & SYBTech --	1. Machine Design & Computer Graphics	10 yrs
T.E ( Mech ) --	1. Engineering Economics & Industrial Psychology	01 yr
S.Y.B.Tech. (Mech) --	1. Machine Drawing & Engineering Graphics	06 yrs
T.Y.B.Tech. - all	1. Robotics ( Institute Level Elective )	05 yrs
T.Y.B.Tech. (Mech) --	1. Mechatronics	01 yr.
B.E. ( Mech ) --	1. Welding Technology B.E.-(P/SW) - Elective	03 yrs
	2. Robotics B.E.-(M) - Elective II	05 yrs
	3. Robotics - B.E.-(Prod / SW ) - Elective I	03 yrs
B.Tech ( Mech )	1. Robotics & Mechatronics – Elective II	05 yrs
	2. Robotics & Automation – Elective III	05 yrs
B.Tech ( Instru )	1. Robotics – Elective II	06 yrs
B.Tech ( Institute Elec)	1. Robotics	05 yrs
<b><u>PG Courses</u></b>		
M.Tech. (Design)	1. Robotics ( Elective )	09 yrs
	2. Analysis & Synthesis of Mechanisms	01 yr
M.Tech. (Prod)	1. Robotics ( Elective )	01 yr
	2. Smart Material and Sensors	01 yr
M.Tech. (AIR)	1. Sensors & Actuators in Robotics	01 yr
	2. Autonomous Robots & Teleshirs	01 yr
M.Tech. (RAI)	1. Sensors & Actuators in Robotics	03 yrs
	2. Autonomous Robots & Telechirs	02 yrs
MTech	Institute level open elective – Robotics	07 yrs

## 13. MoU with industries

1. MoU with VOLKSWAGEN India Pvt. Ltd., Pune –410501 on 14<sup>th</sup> August 2017 for International Travel Support to COEP team for ROBOCON 2017 held at Tokyo, for financial support Rs. 3,50,000/-.

2. MoU with Siemens Industry Software (India) Pvt. Ltd., Pune sponsorship for ROBOCON- a National Robotic Competition – Supported Robot Study Circle with a sponsorship amount of Rs.8,75,000, Rs.8,75,000 and Rs.8,00,000 over the financial years 2017-18, 2018-19 and 2019-20. → Total Sponsorship – Rs 25,50,000/-.
3. MoU with Robotex, India on 7<sup>th</sup> November 2019 for organizing event of one day regional competition i.e. ROBOTEX 2019 at COEP, Pune for Robotex International 2019 planned at the Estonian Fair Center, Tallinn.
4. MoU with iRobotics — iTech Robotics & Automation Pvt. Ltd., Pune - 410501 on 02<sup>nd</sup> November 2020 for Teaching, Training, Research, Internship association.
5. MoU with WIPRO-PARI Ltd, Pune on 22<sup>nd</sup> Feb 2022 for naming MANGESH KALE Robotics & Automation Lab, COEP and WIPRO-PARI Advanced Technology Center at COEP for total Rs 2,00,00,000/- (2Cr)
6. MoU with InfinityXTech System Pvt Ltd, Pune on 31<sup>st</sup> Jan 2023 for FTC challenge Competition, Teaching, Training, Research, Internship association.

#### 14. Visits abroad

- 1) Japan (May 2006) – Advanced training in Industrial Robotics at YASAKAWA Electric Corp., Japan - Kokura, Osaka, Tokyo.
- 2) Thailand (Nov 2007) – A Course on ‘20 Sim–Simulation, Modelling and Applications of the Software’, (Bangkok), Software Training, Visit to AIT, Bangkok.
- 3) Malaysia (Nov 2007) – (Kuala-Lumpur) – University visit.
- 4) USA (Oct 2010) – International conference on Engg & Comp. Science as World Congress on Engineering and Computer Sciences, **WCECS 08**, Berkley, San Francisco, Presenting a paper in International conference and visit to Stanford University and UC Berkley.
- 5) Hong Kong (Oct 2010) – Visit to Universities and Industry - Hong Kong University, Chinese University in Hong Kong, Hong Kong School of Polytechnic and Googol Tech, Hong Kong.
- 6) Indonesia (March 2014) - International Conference on Robotics, Mechanics and Mechatronics (**ICRMM 2014**) – Bali - Presenting a paper in International conference ICRMM 2014.
- 7) Singapore (March 2014) - Visit to Universities - Visit to NTU and NUS, Singapore
- 8) Japan (Aug 2018) – Represented India in **International ROBOCON 2018**, Tokyo, International Robotics Competition organized by ABU, Japan and Doordarshan India.
- 9) Spain (Feb 2020) – International conference on Mechatronics and Robotics (ICMRE 2020), Barcelona, Presenting a paper in International conference **ICMRE 2020**.

Place :- Pune  
Date :- Feb 2023

( Dr. Shantipal S. Ohol )