

Curriculum Vitae

1. **Name** : Vijay Kumar Gupta
2. **Designation** : Professor
3. **Department** : Mechanical Engineering
4. **Institution** : PDPM IIITDM Jabalpur
5. **Contact Number** : 0761-2794413
6. **Email** : vkgupta@iiitdmj.ac.in
7. **Date of Birth** : 20th December 1968
8. **Gender** : Male
9. **Academic Qualification: (Undergraduate Onwards)**

S.No.	Degree	Year	Subject	University/Institution	% of Marks
1	BE	1990	Mechanical Engineering	University of Jaipur/ Engineering College Kota	70.2
2	M.Tech.	1994	Reliability Engineering	Indian Institute of Technology Bombay	8.91
3	MBA	2001	Operation Research	IGNOU	--
4	Ph.D.	2003	Mechanical Engineering	Indian Institute of Technology Bombay	--

- 9.1 Ph.D. Thesis Title : Studies on Piezoelectric Actuated Shell with Application to Optimal Steering of Antenna
 Guide Name : Prof. P. Seshu and Prof. K. Kurien Issac
 Institution : Indian Institute of Technology Bombay
 Year of Award : 2003

10. Work Experience (in chronological order)

S.No.	Position held	Institution	From	To	Pay Scale
1	Lecturer, Sr. Lecturer	Rajasthan Technical University Kota erstwhile Engineering College Kota	03-12-1993	26-10-2004	--
2	Associate Professor	Rajasthan Technical University Kota erstwhile Engineering College Kota	27-10-2004	04-07-2007	--

3	Associate Professor	PDPM IITDM Jabalpur	05-07-2007	04-07-2012	--
4	Professor	PDPM IITDM Jabalpur	05-07-2012	Continue	Level 14A

11. Professional Recognition/ Award/ Prize/ Certificate/ Fellowship received by the member

S. No.	Name of Award	Awarding Agency	Year
1	ISAMPE K.Suryanarayan Rao Memorial Senior student award for R & D in smart technology for Year 2003	Indian society for Advancement of Materials and Processing Engineering (ISAMPE)	2003
2	JSPS Short Term Invitation Fellowship	Japan Society for Promotion of Science, Japan (JSPS)	2015

12. Publications (descending order)

Journal Publication

1. Anubhav Tiwari, Vijay Kumar Gupta, Rakesh Kumar Haldkar, Ivan A. Parinov, Biomechanical Analysis of Patient-Specific Temporomandibular Joint Implant and Comparison with Natural Intact Jaw Bone Using Finite Element Method, Applied Sciences 10.3390/app12063003, 12(6),(2022), 3003
2. Mohit Sharma, Vijay Kumar Gupta and Puneet Tandon, Numerical analysis of the effects of ultrasonic vibrations and elevated temperature in incremental sheet forming, Proc IMechE Part C: J Mechanical Engineering Science DOI: 10.1177/09544062221085907, ,(2022),
3. Roopendra Kumar Pathak, Shivdayal Patel, Vijay Kumar Gupta, Efficient design of Kevlar/basalt hybrid composite laminates under ballistic impact Efficient design of Kevlar/basalt hybrid composite laminates under ballistic impact, Advanced Composite Materials <https://doi.org/10.1080/09243046.2022.2076022>, ,(2022),
4. Ahirwar, Harbhajan, Vijay Kumar Gupta, and Himansu Sekhar Nanda, Finite element analysis of fixed bone plates over fractured femur model, Computer Methods in Biomechanics and Biomedical Engineering <https://doi.org/10.1080/10255842.2021.1918123>, 24(15),(2021), 1742-1751
5. Rakesh Kumar Haldkar, Vijay Kumar Gupta, Tanuja Sheorey and I.A. Parinov, Design, Modeling, and Analysis of Piezoelectric-Actuated Device for Blood Sampling, Applied Sciences <https://doi.org/10.3390/app11188449>, 11(18),(2021), 8449
6. Harbhajan Ahirwar, Ankit Sahu, Vijay Kumar Gupta, Prasoon Kuamr, Himansu Sekhar Nanda, Design and finite element analysis of femoral stem prosthesis using functional graded materials, Computer Methods in Biomechanics and Biomedical Engineering <https://doi.org/10.1080/10255842.2021.2006648>, ,(2021),
7. Narolia Tejkaran, Gupta Vijay Kumar, Parinov I. A., Design and Experimental Study of Rotary-type Energy Harvester, Journal of Intelligent Material Systems and Structures <https://doi.org/10.1177/1045389X20930085>, 31(13),(2020), 1594-1603
8. Narolia Tejkaran, Gupta Vijay Kumar, Parinov I. A., Design and analysis of a shear mode piezoelectric energy harvester for rotational motion system, Journal of Advanced Dielectrics 10.1142/S2010135X20500083, 44107,(2020), 2050008-1 to 7
9. Rakesh Kumar Haldkar, Abhay Khalatkar, Vijay Kumar Gupta, Tanuja Sheorey, New piezoelectric actuator design for enhance the micropump flow, Materials Today Proceedings <https://doi.org/10.1016/j.matpr.2020.10.702>, 44(1),(2020), 776-781
10. S Agrawal, VK Gupta, PK Kankar, Study of horn shape double single walled carbon nanotube system via modified couple stress theory, Materials Physics and Mechanics DOI: 10.18720/MPM.3712018_1, 37,(2018), 01 to 06
11. PK Kankar V. Vakharia, V. K. Gupta, Efficient fault diagnosis of ball bearing using ReliefF and Random Forest classifier, Journal of the Brazilian Society of Mechanical Sciences and Engineering 10.1007/s40430-017-0717-9, 39,(2017), 2969
12. AM Khalatkar, VK Gupta, Piezoelectric energy harvester for low engine vibrations, Journal of Renewable and Sustainable Energy <https://doi.org/10.1063/1.4979501>, 9,(2017), 24701

13. VK Gupta, Tanuja Sheorey, Rakesh Kumar Haldkar, Modeling and flow analysis of piezoelectric based micropump with various shapes of microneedle, *Journal of Mechanical Science and Technology*, 31,(2017), 2933
14. V Vakharia, VK Gupta, PK Kankar, A comparison of feature ranking techniques for fault diagnosis of ball bearing, *Soft Computing*, 20,(2016), 1601-1619
15. V Vakharia, VK Gupta, PK Kankar, A multiscale permutation entropy based approach to select wavelet for fault diagnosis of ball bearings, *Journal of Vibration and Control*, 21,(2015), 3123-3131
16. R Tiwari, VK Gupta, PK Kankar, Bearing fault diagnosis based on multi-scale permutation entropy and adaptive neuro fuzzy classifier, *Journal of Vibration and Control*, 21,(2015), 461-467
17. V Vakharia, VK Gupta, PK Kankar, Ball bearing fault diagnosis using supervised and unsupervised machine learning methods, *International Journal of Acoustics and Vibration*, 20,(2015), 244-250
18. VK Gupta, P Seshu, KK Issac, RK Shevgaonkar, Beam steering and shaping of smart cylindrical antenna, *AIAA Journal*, 43,(2013), 165-173
19. R Upadhyay, PK Kankar, PK Padhy, VK Gupta, Feature extraction and classification of imagined motor movement electroencephalogram signals, *International Journal of Biomedical Engineering and Technology*, 13,(2013), 133-146
20. VK Gupta, P Seshu, KK Issac, Finite element and experimental investigation of piezoelectric actuated smart shells, *AIAA Journal*, 42,(2012), 2112-2123
21. AM Khalatkar, RH Haldkar, VK Gupta, Finite element analysis of cantilever beam for optimal placement of piezoelectric actuator, *Applied Mechanics and Materials*, 110,(2012), 4212-4219
22. VK Gupta, Modified approach for optimum position and sizing of piezoelectric actuator for steering of parabolic antenna, *Structural Longevity*doi=10.1.1.1065.1807, 6(2),(2011), 65-75
23. VK Gupta, P Seshu, KK Issac, RK Shevgaonkar, Optimal steering of a paraboloid antenna using piezoelectric actuators, *Smart materials and structures*, 16(1),(2006), 67
24. S Dhage, VK Gupta, P Seshu, PM Mujumdar, B Seth, Characterization of the Role of Adhesive Bonding on Piezoelectric Actuation of Beams, *Journal of Aerospace Sciences and Technologies*, 58,(2006), 225-233

Conference Publication

1. Bittu Kumar Singh, Tanuja Sheorey, and Vijay Kumar Gupta, Design of mechanisms for Actuating piezoelectric based sector micro-pump, 5th International and 20th National conference on Mechanism and Machines (iNaCoMM2019), IIITDM Jabalpur, (2021)
2. Roopendra K. Pathak, Shivdayal Patel, Vijay K. Gupta, Ballistic impact behavior of 3D hybrid composite laminates, 5th International and 20th National conference on Mechanism and Machines (iNaCoMM2019), IIITDM Jabalpur, (2021)
3. Roopendra Kumar Pathak, Shivdayal Patel and Vijay Kumar Gupta, Ballistic performance of 3D hybrid composite laminates, 6th International Conference on Advanced Production and Industrial Engineering (ICAPIE), Delhi Technical University, Delhi, India, (2021)
4. Ankit Nakoria and Vijay Kumar Gupta, Hybrid Steering System of Six Wheel Multi-Terrain Robot (SW-MTR), 4th International and 19th National conference on Mechanism and Machines (iNaCoMM2019), IIT Mandi, (2019)
5. Shivdayal Patel and V.K. Gupta, Reliability Analysis of Composite Components under Low Velocity Impact, 4th International Conference on Reliability, Safety and Hazard (ICRESH-2019), IIT Madras, (2018)
6. Swati Agrawal, V.K. Gupta, P.K. Kankar, Horn Shape Double Single Walled Carbon Nanotube System via Modified Couple Stress Theory - Effect of Biomolecule, International conference on Physics and Mechanics of New Materials and their Applications (PHENMA-2018), Korea Maritime and Ocean University, Busan, (2018)
7. Rommel Nath, P.K. Kankar, V.K. Gupta, Study of Archimedes Wave Swing Harvester for Indian Ocean, International conference on Physics and Mechanics of New Materials and their Applications (PHENMA-2018), Korea Maritime and Ocean University, Busan, (2018)
8. Tejkaran Narolia, Vijay K. Gupta, I.A. Parinov, A novel design for Piezoelectric Based HARvester for Rotating Objects, International conference on Physics and Mechanics of New Materials and their Applications (PHENMA-2018), Korea Maritime and Ocean University, Busan, (2018)
9. Rakesh Kumar Haldkar ; Tanuja Sheorey ; Vijay Kumar Gupta ; M. Zahid Ansari, Four segment piezo based micropump, SPIE Smart Sensors, Actuators, and MEMS VIII, 102461B, Barcelona, Spain, (2017)
10. Arcady N. Soloviev, Pavel A. Oganessian, A.S. Skaliukh, Le V. Duong, Vijay Kumar Gupta, Ivan A. Panfilov, Comparison between applied theory and finite element method for energy

- harvesting non-homogeneous piezo elements modeling, International conference on Physics and Mechanics of New Materials and their Applications (PHENMA-2016), Indonesia, (2016)
11. Swati Agrawal, V K Gupta, P K Kankar, Mode Shapes of Magnetic Field Affected Double Single Walled Carbon Nanotube System, ISSS National Conference on MEMS, Smart Materials, Structures and Systems, IIT Kanpur, (2016)
 12. Swati Agrawal, V.K. Gupta, P.K. Kankar, Static Analysis of Magnetic Field Affected Double Single Walled Carbon Nanotube System, 3rd International Conference on Innovations in Automation and Mechatronics Engineering 2016, ICIAME 2016, G H Patel College of Engineering & Technology, Vallabh Vidyanagar 388120, Gujarat-India, (2016)
 13. V Vakharia, VK Gupta, PK Kankar, Bearing Fault Diagnosis Using Feature Ranking Methods and Fault Identification Algorithms, 12th International Conference on Vibration Problems (ICOVP 2015), IIT Guwahati, (2015)
 14. V Vakharia, VK Gupta, PK Kankar, Nonlinear Dynamic Analysis of Ball Bearings Due to Varying Number of Balls and Centrifugal Force, Proceedings of the 9th IFToMM International Conference on Rotor Dynamics, Politecnico di Milano, Milan, Italy, (2014)

13. Detail of Patents

S.No.	Inventors details with full address	Title	Patent Country	Status
1	HALDKAR Rakesh Kumar, SHEOREY Tanuja, GUPTA Vijay Kumar	A Wearable Blood Extraction and Sampling Device and Method of its Operation thereof	India	Published
2	NAROLIA Tejkaran, GUPTA Vijay Kumar	SYSTEM AND METHOD FOR HARVESTING ENERGY	India	Filed
3	YADAV Saurabh Kumar, GUPTA Vijay Kumar	A MULTIPURPOSE HANDTOOL	India	Filed

14. Books/Reports/Chapters/General articles etc.

S. No.	Title	Publisher	Year of Publication
1	Reliability and Risk Assessment in Engineering Proceedings of INCRS 2018 (Book)	Springer Nature Singapore	2020
2	Proceedings of the 2017 International Conference on Physics and Mechanics of New Materials and Their Applications (Book)	Nova Science Publishers, New York	2018
3	Advanced Materials: Proceedings of the International Conference on "Physics and Mechanics of New Materials and Their Applications", PHENMA 2017, (Book)	Springer, Cham	2018
4	Reliability Analysis of Composite Components Under Low-Velocity Impact (Book Chapter)	Springer Nature Singapore	2020
5	A Novel Design for Piezoelectric Based Harvester for Rotating Objects (book chapter)	Springer, Cham	2019
6	Study of Archimedes Wave Swing Harvester for Indian Ocean (Book Chapter)	Springer, Cham	2019

7	Estimation of Load Carrying Capacity for Pin-Mounted Hydraulic Cylinders (Book Chapter)	Springer, Cham	2019
8	The Effect of Operating Frequency and Needle Diameter on Performance of Piezoelectric Micropump (Book Chapter)	Springer, Cham	2018
9	Comparative Study of Cantilever Carbon Nanotube with Carbon Nanotube System (Book Chapter)	Springer, Cham	2018
10	Comparison Between Applied Theory and Final Element Method for Energy Harvesting Non-homogeneous Piezoelements Modeling (Book Chapter)	Springer, Cham	2017
11	Study of the Output Characteristics of Ferroelectric Ceramic Beam Made from Non-polarized Ceramics PZT-19: Experiment and Modeling (Book Chapter)	Springer, Cham	2017

15. List of Projects implemented

15.1 Details of Projects in progress

S. No.	Title	Cost in Lakh	Duration	Role (PI/ Co-PI)	Agency
1	Development of the AI based Technique to Predict the Multiple Defects of the Two-stage Gearbox	30.91	2022-2025	PI	DST-SERB
2	Design and Development of Self Powered Selective Collection of Rare Earth Elements from Sea Water	8.64	2020-2022	Co-PI	DST (India-Japan Collaborative Program)
3	FIST Engineering Sciences Level I Project	194	2018-2023	PI	DST-FIST

15.2 Details of Projects completed

S. No.	Title	Cost in Lakh	Duration	Role (PI/ Co-PI)	Agency
1	Theoretical Formulations & Analytical Modelling for Buckling Analysis of Hydraulic Cylinder	18.5	2010 - 2013	Co-PI	R&DE-DRDO
2	Brain Control Mobile Robot	40	2010 - 2013	Co-PI	DST
3	Vlab on Manufacturing Processes	40	2010 - 2012	PI	MHRD
4	Vlab on Mechatronics	4	2008 - 2012	Co-PI	MHRD
5	Development of a micro pump with NEMS sensing function for an automatic blood collecting and measurement system	25.26	2010 - 2013	Co-PI	DST-JSPS
6	Geometric Modeling, Analysis and Design for Generic Definitions of Custom Engineered Cutting Tools	18.5	2010 - 2013	Co-PI	DST

16. Invited Talk

S.No.	Name	Presentation Type	Organization Name	Title	Place	Date
1	Vijay Kumar Gupta	Guest Lecture	Rajasthan Technical University Kota	Introduction to rotor dynamics	Kota	June 05,2016
2	Vijay Kumar Gupta	Invited Talk	PDPM IIITDM Jabalpur (IEEE Student Chapter)	Robotics: Current and Future Trends	Jabalpur	October 03, 2017
3	Vijay Kumar Gupta	Expert Lecture	PDPM IIITDM Jabalpur (FDP on Neuro-Fuzzy Systems and Evolutionary Optimization with Application)	Evolutionary Algorithm	Jabalpur	December 11, 2018
4	Vijay Kumar Gupta	Expert Lecture	4th International Conference on Reliability Safety and Hazard, IIT Madras	Condition Monitoring: Basics and Application to Gears	Chennai	January 10, 2019
5	Vijay Kumar Gupta	Expert Lecture	Shri Sant Gajanan Maharaj College of Engineering (SSGMCE) Shegaon	IoT Applications and Case Studies	Sheagaon	December 14, 2019
6	Vijay Kumar Gupta	Expert Lecture	SAGE University Indore	Basics of Robotics	Indore	January 13, 2020
7	Vijay Kumar Gupta	Expert Lecture	C. V. Raman Global University, Bhubaneswar, Odisha.	Energy Harvesting	Online	March 11, 2020
8	Vijay Kumar Gupta	Guest Lecture	G.H. Rasoni College of Engineering Nagpur	Energy Harvesting and Self Sensing	Nagpur	April 08, 2020
9	Vijay Kumar Gupta	Expert Talk	NIT Jalandhar	Robotics and Automation	Jalandhar	July 22, 2020
10	Vijay Kumar Gupta	Expert Lecture	Gyan Ganga Institute of Technology and Sciences, Jabalpur	Harvesting Energy from Environment	Online	December 18, 2020
11	Vijay Kumar Gupta	Expert Lecture	RTU Kota	Isoparametric Formulations with axisymmetric	Online	December 28, 2020
12	Vijay Kumar Gupta	Expert Lecture	RTU Kota	Practical FEM applications in 2D/3D with ANSYS	Online	December 28, 2020
13	Vijay Kumar Gupta	Expert Lecrure	MNIT Jaipur	Appplcations of FEM to Solid Mechanics Problems	Online	December 30, 2020
14	Vijay Kumar Gupta	Expert Lecture	NIT Hamirpur	Condition Monitoring: Basics	Online	March 22, 2021
15	Vijay Kumar Gupta	Expert Lecture	SATI Vidisha	Regression and Interpolation	online	August 25, 2021
16	Vijay Kumar Gupta	Expert Lecture	PDPM IIITDM Jabalpur	Determination of material properties using scanning vibrometer	online	September 21, 2021
17	Vijay Kumar Gupta	Expert Lecture	Arya Institute of Engineering Technology and Management Jaipur	Robotics: Introduction	Online	October 02, 2021

18	Vijay Kumar Gupta	Expert Lecture	SRM Institute of Science and Technology, Kattankulathur	"Rotary Energy Harvester" presented in workshop on "Energy Harvesting from Vibrating Structures: Applications and Advances"	online	October 26, 2021
19	Vijay Kumar Gupta	Expert Lecture	Arya Institute of Engineering Technology and Management Jaipur	Robotics: Industry 4.0 Applications	Online	November 02, 2021
20	Vijay Kumar Gupta	Expert Lecture	SKIT Jaipur	Role of Mechatronics and Robotics in Manufacturing presented in FDP on "Robotics and Mechatronics in Manufacturing"	Online	November 15, 2021
21	Vijay Kumar Gupta	Expert Lecture	Shri Sant Gajanan Maharaj College of Engineering (SSGMCE) Shegaon	Industry 4.0: Applications, Trends and Future Technologies	Online	February 22, 2022
22	Vijay Kumar Gupta	Expert Lecture	Shri Sant Gajanan Maharaj College of Engineering (SSGMCE) Shegaon	Introduction to Smart Structures and Applications in Industry 4.0	Online	February 28, 2022
23	Vijay Kumar Gupta	Expert Lecture	AICTE	Project Guidance in Mechanical Engineering	Online	March 26, 2022
24	Vijay Kumar Gupta	Expert Lecture	IIT Kota	Role of wearable robotics for society and disabled persons	Online	June 13, 2022

(Vijay Kumar Gupta)