Dr. Pankaj Gupta

Assistant Professor(SG)

Education: Ph.D.

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Areas of Interest: Applied Mechanics, Machine Design, Finite Element Analysis, Vibration Analysis, Condition Monitoring and Fault Diagnosis of Machine Structures, Data Analytics.

Brief Profile:

Pankaj Gupta has done his graduation from Rewa Engineering College Rewa (M.P.) in Mechanical Engineering in 2010. He has completed his M.Tech from IIT, Delhi with specialization in Engineering Mechanics. His M.Tech dissertation was "Analysis of Composite beams and plates using Meshless methods". He has completed his Ph.D. from Jaypee University of Engineering and Technology, GUNA. His area of research is "Stability analysis in machining operation". He has published many research articles in reputed SCI, and SCOPUS indexed Journals.

He has also been observer for COMEDK UGET / Uni-GAUGE- E 2018, and he has coordinated many technical events at Zonal and National level viz. Rally car design challenge (RCDC)-2018, A World In Motion (AWIM)-2018 and AWIM-2019. Pankaj Gupta has been nominated by Bureau of Indian Standards (BIS), Bhopal as Resource Support Team (RST) for the smooth conduction of the Standards club activities of Bureau of Indian Standards (BIS), Bhopal and also worked as Mentor in Smart India Hackathon 2023.

Scholastic Achievements:

1. Best Paper Award under " Session 1 – Design Engineering" in " International Conference on Mechanical Engineering and Managerial Applications for Productivity Enhancement and Marketability (MMPM-2021)" organized jointly by Department of Mechanical Engineering and Department of Management Studies, MANIT Bhopal.
2. Achieved Silver Elite medal in "Data Analytics with Python" course by IIT Roorkee, NPTEL.
3. During his M.tech a Project, titled "Effect of damping on simple pendulum" was included as an experiment in the course "Experimental Method and Analysis" (AML 130) at IIT Delhi.

Ph.D. Supervision: 02

1. Mr. Atul Dhakar (203E001): " Fault diagnosis of Air Compressor" (Ongoing)
2. Mr. Pushpendra Kumar Kushwaha (223E001): "Vibration analysis of mechanical components" (Ongoing)

M. Tech Guidance: 02

1. Mr. Aman Thakur (182E001), "Study of mechanical properties of the natural-synthetic fiber reinforced polymer matrix composite", August, 2020.
2. Mr. Sachin Gupta (212E001), "Stable zone identification in CNC turning", June, 2023.

Member of Professional Bodies:

Editor-
1. Journal of Advanced Research in Electronics Engineering and Technology

Reviewer-
1. Journal of the Brazilian Society of Mechanical Sciences and Engineering (Springer)
2. Soft Computing (Springer)
3. Materials Today: Proceedings (Elsevier)
4. EVERGREEN Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy
5. American Journal of Mechanical and Industrial Engineering
6. Advances in Manufacturing (Springer)

Common Multi-disciplinary Technical Facilities incharge:

1. Multidisciplinary faculty in-charge of AR/VR, AI/ML, Robotics and Innovation Centre

Publication@JUET

Publication details google profile link

Patents

1. Patent Granted, Federal Republic of Germany, Utility model No.:- 20 2022 104 366, Topic: A system for chatter-free operation of a CNC lathe
2. Design Patent Published, Government of India, Application no.:- 380804-001, Painting Robot
3. Design Patent Published, Government of India, Application no.:- 380805-001, Smart Dustbin
4. Design Patent Published, Government of India, Application no.:- 380762-001, Guider Robot
5. Design Patent Published, Government of India, Application no.:- 380754-001, Foldable Laptop Stand
6. Design Patent Published, Government of India, Application no.:- 385763-001, Orthopedic Massager Seat
7. Design Patent Published, Government of India, Application no.:- 386101-001, Baby Stroller
8. Design Patent Published, Government of India, Application no.:- 391008-001, Advanced Chair Cum Table
9. Design Patent Published, Government of India, Application no.:- 391019-001, Portable Clock And Webcam
10. Design Patent Published, Government of India, Application no.:- 383062-001, Patrolling Robot
11. Design Patent Published, Government of India, Application no.:- 396347-001, Robot Cleaner
12. Design Patent Published, Government of India, Application no.:- 396348-001, Smart Vertical Cleaning Robot
13. Design Patent Published, Government of India, Application no.:- 365228-001, Coffee Bottle
14. Design Patent Published, Government of India, Application no.:- 406582-001, Fertilizer Sprayer Stick
15. Design Patent Published, Government of India, Application no.:- 406567-001, Robot Vacuum Cleaner
16. Design Patent Published, Government of India, Application no.:- 405977-001, Electric Skateboard

Journals

1. Pankaj Gupta and Bhagat Singh, “Tool Chatter Diagnosis using EMD and LMD Techniques: A Comparative Study” EVERGREEN Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy, Volume 11, Issue 02, pages 1216-1226, 2024.

2. Atul Dhakar, Bhagat Singh and Pankaj Gupta, “Diagnosing faults in rolling bearings of an air compressor set up using local mean decomposition and support vector machine algorithm” Journal of Vibration Engineering & Technologies, Volume 12, pages 6635–6648, 2024.

3. Atul Dhakar, Bhagat Singh and Pankaj Gupta, “Comparative performance analysis of different types of k-nearest neighbor (k-NN) classifiers for fault diagnosis of air compressor setup” Engineering Research Express, Volume 6, Issue 2, 025563, 2024.

4. Pankaj Gupta, Amit Kumar Srivastava and Nitesh Pandey, “Enhancing Hand Efficiency of Smart Glass Cleaning Robot through Generative Design Module”, International Journal of Mechanical and Industrial Engineering, Volume 18, Issue 02, pages 29-36, 2024.

5. Nitesh Pandey, Manish Kumar, Pankaj Gupta and Amit Kumar Srivastava, “Modelling and Dimension Analysis of a Multipurpose Convertible Laptop Table Using Autodesk Fusion 360”, International Journal of Industrial and Manufacturing Engineering, Volume 18, Issue 03, pages 93-102, 2024.

6. Nitesh Pandey, Aditya Shrivastava, Pramiti Tewari, Amit Kumar Srivastava and Pankaj Gupta, “Innovative and unique generative design solution for the leg part of a robot using Autodesk Fusion 360 CAD software”, Journal of Engineering Design and Analysis, Volume 06, Issue 02, pages 26-35, 2024.

7. Atul Dhakar, Bhagat Singh and Pankaj Gupta, “Fault diagnosis of air compressor set-up using decision tree based J48 classification algorithm” Journal of Engineering Research, 2023.

8. Himanshu Kumar Mahto, Nitesh Pandey, Varshavasundhara Mahalik, Aditya Shrivastava, Abhishek Pandey, Pramiti Tewari, Amit Kumar Srivastava and Pankaj Gupta, “Design And Analysis Of The Component Of Glass Cleaning Robot Using Generative Designing Module”, International Research Journal of Modernization in Engineering Technology and Science, Volume 05, Issue 10, 2023.

9. Pramiti Tewari, Nitesh Pandey, Amit Kumar Shriwastava and Pankaj Gupta, “Designing a CAD model and Optization of a Glass Cleaning Robot Body Part by Generative Design Using Autodesk Fusion 360”, International Journal of Scientific Research in Multidisciplinary Studies, Vol. 10, Issue 02, pp. 18-24, 2024.

10. Aditya Shrivastava, Nitesh Pandey, Pramity Tewari, Amit Kumar Srivastava and Pankaj Gupta, “Cutting-Edge Generative Design Strategy for Transforming Robot Leg Dynamics in Autodesk Fusion 360”, Journal of Computational Mechanics, Power System and Control, Vol. 07, Issue 02, 2024.

11. Pankaj Gupta, Bhagat Singh and Yogesh Srivastava, “Comparison of signal processing techniques for prediction of optimal process variables to yield higher productivity during turning on CNC lathe”, Indian Journal of Engineering and Materials Sciences, Vol. 30, pp. 103-11, 2023.

12. Manish Kumar, Pradeep Rout, Aditya Kumar Jha and Pankaj Gupta, “Structural analysis of aircraft wing using finite element analysis” International Journal of Aerospace and Mechanical Engineering, Vol:17, No:1, 2023.

13. Rohit Mishra, Pankaj Gupta and Bhagat Singh, "An intelligent approach to extract chatter and MRR features impromptu from milling sound signal" Journal of Process Mechanical Engineering Part E, 2023.

14. Pankaj Gupta, Bhagat Singh and Yogesh Srivastava, "Theoretical and experimental prediction of optimal process variables for enhanced metal removal rate during turning on CNC lathe", EVERGREEN Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy, Vol. 10, Issue 02, 2023.

15. Varshavasundhara Mahalik, Nitesh Pandey, Himanshu Kumar Mahto, Aditya Shrivastava, Abhishek Pandey, Pramiti Tewari, Amit Kumar Srivastava and Pankaj Gupta, "Optimization of a Robot Part In Terms of Mass and Volume with Material Strength Analysis" International Journal of All Research Education and Scientific Methods, Vol.11, 2023.

16. Pankaj Gupta, Bhagat Singh and Yogesh Srivastava, "Robust techniques for signal processing: A comparative study", EVERGREEN Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy, 2022. Vol. 09, Issue 02, pp404-411, June 2022.

17. Pankaj Gupta and Bhagat Singh, "Investigation of tool chatter using local mean decomposition and artificial neural network during turning of Al 6061", Soft Computing, Springer, pp. 1-24, 2021.

18. Pankaj Gupta and Bhagat Singh, "A new ensemble approach to explore stability features in turning operation on CNC lathe", Journal of Mechanical Science and Technology, Springer, 35, 2819–2825, 2021.

19. Pankaj Gupta and Bhagat Singh, "Analyzing chatter vibration during turning on computer numerical control lathe using ensemble local mean decomposition and probabilistic approach", Noise & Vibration Worldwide, Sage, vol. 52, no. 6, pp. 168-180, 2021.

20. Pankaj Gupta and Bhagat Singh, "Exploration of tool chatter in CNC turning using a new ensemble approach", Materials Today Proceedings Journal, Elsevier, Vol. 43, pp. 640-645, 2021.

21. Pankaj Gupta and Bhagat Singh, "Local mean decomposition and artificial neural network approach to mitigate tool chatter and improve material removal rate in turning operation", Applied Soft Computing, Elsevier, vol. 96, pp. 106714, 2020.

22. Pankaj Gupta and Bhagat Singh, "Ensembled local mean decomposition and genetic algorithm approach to investigate tool chatter features at higher metal removal rate", Journal of Vibration and Control, Sage, pp. 1077546320971157, 2020.

23. Pankaj Gupta and Bhagat Singh, "Investigation of Tool Chatter Features at Higher Metal Removal Rate Using Sound Signals", Acoustics Australia, Springer, vol. 48, no. 1, pp.141-148, 2020.

Conference Proceedings-

1. Yash Bhagoria, Aditya Jha, Manish Kumar, Pradeep Rout,Pankaj Gupta, "Analyzing efficiency of meshless and finite element method using 2d beam" International Conference on Mechanical Engineering and Managerial Applications for Productivity Enhancement and Marketability (MMPM-2021). Accepted, In Press

2. Manish Kumar, Aditya Kumar Jha, Yash Bhagoria and Pankaj Gupta, "A review to explore different meshless methods in various structural problems", in Proceedings of International Conference on Futuristic and Sustainable Aspects in Engineering and Technology, IOP Conf. Ser.: Mater. Sci. Eng. 1116 012119, 2020.

3. Palkesh Maithil, Pankaj Gupta and M.L. Chandravanshi "Study of mechanical properties of the natural-synthetic fiber reinforced polymer matrix composite" Material Today Proceedings Journal, Elsevier, 2023.

4. Pradeep Rout, Aditya Kumar Jha, Pankaj Gupta, Bhagat Singh and Sasanka Choudhury, "Failure analysis of composite plate under ballistic impact", Material Today Proceedings Journal, Elsevier, Vol. 74, Part 4, pp. 1008-101, 2023.

5. Pankaj Gupta, Bhagat Singh and Yogesh Srivastava, "Grey relation analysis for optimal process variables during turning on CNC Lathe", Material Today Proceedings Journal, Elsevier, Vol. 51, pp. 228-233, 2022.

6. Manish Kumar, Jogesh Rajiyan and Pankaj Gupta, "A computational approach for solving elasto-statics problems", Material Today Proceedings Journal, Elsevier, Vol. 46, (15), pp. 6876-6879, 2021.

Book Chapter

1. Atul Dhakar, Bhagat Singh and Pankaj Gupta," Diagnosing Faults of Reciprocating Air Compressor (RAC) Setup Using Signal Processing Technique and Machine Learning Approach", Lecture Notes in Recent Advances in Mechanical Engineering, Springer, 2024.

2. Harmit Singh Ruhela, Shashwat Bhardwaj, Teerth Agarwal and Pankaj Gupta, "Explicit dynamics analysis of shinpads using finite element analysis" Lecture Notes in Mechanical Engineering, Recent Advances in Industrial Machines and Mechanisms, Springer, pp. 683–690, 2024.

3. Palkesh Maithil, Pankaj Gupta and M.L. Chandravanshi "Analysis of Hashin failure criteria for tensile and compression fracture of Fiber Reinforced composite using Finite Element Technique" Lecture Notes in Mechanical Engineering, Recent Advances in Industrial Machines and Mechanisms, Springer, pp. 453–460, 2024.

4. Pankaj Gupta, Bhagat Singh and Yogesh Srivastava, "Prediction of Stable cutting range using local mean decomposition merged with statistical approach", Lecture Notes in Mechanical Engineering, Springer, Singapore, pp. 1409–1420 2022.

5. Sachin Gupta, Santosh Kumar Yadav, Pankaj Gupta and Bhagat Singh, "Stable zone identification during machining on CNC lathe using ANFIS" Lecture Notes in Recent Advances in Intelligent Manufacturing, pp. 89-99, 2023.

Online Certification Courses Completed @ JUET

1. "Data Analytics with Python" course by IIT Roorkee, NPTEL
2. "Intelligent Machining" offered by University of Buffalo and the State University of New York.
3. "Material Processing" offered by Georgia Institute of Technology.
4. "Successful Negotiation: Essential Strategies and Skills" offered by University of Michigan.

5. “AI For Everyone” offered by deeplearning.ai.
6. “Machine Learning Foundations: A Case Study Approach” offered by University of Washington.
7. “Machine Learning: Classification” offered by University of Washington.
8. “Use Canva to Create Social Media Marketing Designs” using Canva graphic design platform.
9. “Writing a persuasive cover letter for your manuscript” Researcher Academy, Elsevier.
10. “Guide to reference managers: How to effectively manage your references” Researcher Academy, Elsevier.
11. “Research data management” offered by Researcher Academy, Elsevier.
12. “Research collaborations” offered by Researcher Academy, Elsevier.

Technical Events Conducted

1. Resource Support Team (RST) for Standards club activity of Bureau of Indian Standards (BIS), Bhopal on the occasion of World Standards Day, (WSD-2023).
2. Faculty coordinator for the event "Rally car design challenge (RCDC)-2018" held in Bikaner, Rajasthan.
3. Coordinator for the event "A World In Motion (AWIM)" National Olympics 2018 (Kota zonal round) organized by Mahindra & Mahindra and SAE India.
4. Coordinator for the event "A World In Motion (AWIM)" National Olympics 2019 (Guna zonal round) organized by Mahindra & Mahindra and SAE India.
5. Coordinator for the event "A World In Motion (AWIM)" National Olympics 2019 (Kota zonal round) organized by Mahindra & Mahindra and SAE India.
6. Member of Teachers Training Program on “Programming in Python” organised by department of computer science in April 2019 at JUET, Guna (M.P.), India.
7. Member of Teachers Training Program on “Programming in Python (including Django) and AI” organised by department of computer science during December 06-08, 2019 at JUET, Guna (M.P.), India.

Invited/Expert Lecture Delivered

1. Delivered lecture as Resource Person Team (RST) member, World Standards Day-2023, organized by BIS Bhopal & JUET, GUNA, 14 October 2023.
2. Delivered lecture as Resource Person in One Week Workshop on Data Analytics for Industries; organized by Department of Mechanical Engineering, Jaypee University of Engineering Technology, Guna (M.P.), India from 5th -9th December 2022.
3. Delivered lecture as Resource Person in a three-day National Workshop for School Teachers in online mode on “Fundamentals of 3D Printing and Robotics” during May 18-20, 2023.

Workshop Organized

1. One Week Workshop on “National Mathematics Day Celebration”, Organized by JUET, Guna & MPCST, Bhopal, 6-10 January, 2024.
2. One Week staff development programme on Engineering Graphics and Design, Organized by Department of Mechanical Engineering, JUET Guna, 11-15 December 2023.
3. Three-days National Workshop for School Teachers in online mode on “Fundamentals of 3D Printing and Robotics” organized by Department of Mechanical Engineering, JUET, Guna 18-20 May 2023.
4. One Week Workshop on Data Analytics for Industries, Organized by Department of Mechanical Engineering, JUET, Guna, 5-9 December 2022.
Conference/Seminar/Webinar/FDP/Work Shop and Training Programs attended @ JUET

1. Two weeks “Malaviya Mission Teacher Training Programme” Organized by DAVV, Indore (M.P.), 2024.
2. One Week Workshop on National Higher Education Framework in context of NEP 2020, Organized by IQAC, JUET, Guna, 10-15 July,2023.
3. One Week Faculty Development Programme on Autocad-2D and Staad Pro Organized by Department of Civil Engineering, JUET, Guna, 22-28 November 2022.
4. One Week workshop on Outcome based Education and CO- PO Mapping, organized by IQAC, JUET, Guna 17-22 October 2022.
5. Workshop on “NAAC Assessment and Accreditation (A&A) Process” IQAC, JUET, Guna, 25-29 July, 2022.
6. Faculty Development Programme on “Modern Trends in Manufacturing and Thermal Science (MTMTS-2022)" organized by Department of Mechanical Engineering, National Institute of Technology, Delhi, 05 April-10 April, 2022.
7. “Training on “Solid Works CAD Expert” during December 16-18, 2016 and April 1-2, 2017 conducted by TRANNSCAD – Indore, Madhya Pradesh, India.
8. "Application of Matlab in science & Engineering" organised by Department of Electronics & Communication Engineering during February 11-12, 2017 at JUET, Guna (M.P.), India.
9. Workshop on “Academic Research methodology, Publication and Ethics” organized by Elsevier through Webinar on 28th April to learn what Initiatives have been taken by AICTE for Higher Education during the unprecedented Lockdown times.
10. Webinar on “Turnitin Feedback Studio” organized by Turnitin on June 02, 2020.
11. Webinar on “Simulation World: Two days powerful talks” organized by ANSYS on June 10, 2020.
12. Webinar on “Beyond Productivity: How to Build a Joyful Academic Writing Practice with Social Writing” organized by Prowritingaid on June 11, 2020.
13. Webinar on “The Modern Writer’s Tech Toolbox” organized by Prowritingaid on June 15, 2020.
14. Webinar on “The Seven Processes of Publishing” organized by Prowritingaid on June 18, 2020.
15. Webinar on “Introduction to Simulink for System Modelling and Simulation” organized by MathWorks on June 22, 2020.
16. Webinar on the topic "State Level Online Awareness Programme on PDS-ShodhShuddhi in Madhya Pradesh”, organized by ShodhShuddhi, The Ministry of Education, Govt. of India on July 15, 2020.
17. Webinar on “Signal Processing for Machine Learning and Deep Learning” organized by MathWorks on July 28, 2020.
18. Online programme on “ICT Tools for Teaching, Learning Process & Institutes” organized by EICT academies- NIT Patna, MNIT Jaipur, IIT Roorkee, IIITDM Jabalpur, IIT Guwahati on August 21, 2020.
19. Faculty development program on the topics “Online teaching-learning” and “Connect and relate online” organised by JUET, Guna, Madhya Pradesh, India on August 11, 2020. Resource Person: Padma Shri Prof. D. B. Phatak, Indian Institute of Technology, Bombay, India.
20. Faculty development program on the topic “Online teaching-learning: Guru Dakshta” organised by JUET, Guna, Madhya Pradesh, India on August 14, 2020. Resource Person: Prof. Aparajita Ojha, Chief Investigator, Electronics and ICT Academy, IIITDM, Jabalpur, India.
21. Webinar on “Architecting Future Talent in Emerging Technologies Using MATLAB and Simulink” organized by MathWorks on August 20, 2020.
22. Webinar on the topic “Examination Reforms in Higher Education” organised by JUET, Guna, Madhya Pradesh, India on August 21, 2020. Resource Person: Dr. Neeraj Saxena, Advisor – AICTE, India.

23. Faculty development program on the topic “4 IR and Emerging Technology” organised by JUET, Guna, Madhya Pradesh, India on August 28, 2020. Resource Person: Prof. Lance Fung, Murdoch University, Australia.
24. Faculty development program on the topic “Ambient intelligence for smart living” organised by JUET, Guna, Madhya Pradesh, India and on September 11, 2020. Resource Person: Prof. Vincenzo Piuri, Department of computer Science, University of Milan, Italy.
25. Webinar on the topic “Presentation Skills” organised by JUET, Guna, Madhya Pradesh, India and Cambridge Assessment English on September 25, 2020. Resource Person: Ian Cawley, Cambridge, UK, Global Product Manager for Business (BEC) Qualifications.
26. Webinar on “Effective Leadership and Communication” organized by Prowritingaid on Jan 20, 2021.
27. Faculty Development Programme on “Electromechanical System, and Renewable Energy” organized by Department of Mechanical Engineering, National Institute of Technology, Delhi, during 10th March - 14th March 2021.
28. Webinar on “Learn how to supercharge your brand by creating professional content with Canva” organized by Canva on April 27, 2021.
29. Faculty Development Programme on “Modern Trends in Manufacturing and Thermal Science (MTMTS-2022)"” organized by Department of Mechanical Engineering, National Institute of Technology, Delhi, held during April 05-10th, 2022.