Curriculum Vitae of

Professor Bishakh Bhattacharya

HAL Chair

Department of Mechanical Engineering
Indian Institute of Technology Kanpur
Kanpur 208016
India

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http://home.iitk.ac.in/~bishakh/

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1. Personal Details

Dr. Bishakh Bhattacharya

Contact:
e-mail – **bishakh@iitk.ac.in, bishakhbiitk@gmail.com**
Tel.   +91-9936335473 (Mobile)
Postal Address:
Dr. Bishakh Bhattacharya, HN 666, IIT Kanpur,
Kanpur 208016, India

Date of Birth: 14.09.1967   Nationality: Indian

Marital Status: Married with two children
Orcid: https://orcid.org/0000-0002-9621-5246
Personal Web: http://home.iitk.ac.in/~bishakh/
Laboratory: https://www.iitk.ac.in/smss/
LinkedIn: https://www.linkedin.com/in/dr-bishakh-bhattacharya-2830
Facebook: https://www.facebook.com/public/Bishakh-Bhattacharya
ResearchGate: https://www.researchgate.net/profile/Bishakh-Bhattacharya

2. Education

Ph.D. (1998), Department of Aerospace Engineering, Indian Institute of Science Bangalore

  • Thesis Title: Vibration Suppression of Smart Laminated Composite Beams and Plates
  • Advisors: Professors A. V. Krishnamurthy and M. S. Bhat
  • Area of Study: Control-Structure Interaction in Smart Structures

M. E. (1991), Department of Mechanical Engineering, Jadavpur University, Calcutta

 • Thesis Title: Finite Element Analysis of Axisymmetric Structures under Non-axisymmetric Loading
• Advisor: Professor Abhijit Datta
• Area of Study: Applied Mechanics

B. E. (1988), Department of Civil Engineering, Jadavpur University, Calcutta

• Project Title: Finite Element Analysis and Design of Portal Structures

3. Professional/Research Experience

2020 - continuing: HAG Professor in the Department of Mechanical Engineering, IIT Kanpur

2012 – 2020: Professor in the Department of Mechanical Engineering, IIT Kanpur

2020 – continuing: Joint Faculty in the Department of Cognitive Science

2008-2011: Associate Professor in the Department of Mechanical Engineering, IIT-Kanpur.

2000-2007: Assistant Professor in the Department of Mechanical Engineering, IIT-Kanpur.

2002-Cont: Joint Faculty, Design Programme, IIT-Kanpur.

2015-2020: Joint Faculty, Cognitive Science Programme, IIT-Kanpur.

1997-2000: Research Associate in the Department of Mechanical Engineering, University of Sheffield, project funded by DERA (Defense Evaluation and Research Agency), UK on Dynamic Analysis & Performance Estimation of Energy Absorbing Composite Joints.

1994-1997: Project Associate in an AR & DB (Aeronautical Research and Development Board) sponsored project for the study of Vibration Suppression Feasibilities in Laminated Composite Plates, in the Aerospace Engineering Department, Indian Institute of Science, Bangalore.

1991-1992: Assistant Engineer, EMC SteelAl Limited, Calcutta, India; in the Structural Analysis and Design of Transmission Tower (EHV) Lines.

1988-1989: Engineer Trainee, Simplex Concrete Piles (I) Ltd, Calcutta, India, in the Design and Construction of Turbo Generator Deck for two 500 MW thermal power stations at Chandrapur Super Thermal Power Station, Maharashtra, India.

3.1 Teaching Experience

2000-: Department of Mechanical Engineering, IIT-Kanpur;

Courses Teaching:

As Instructor
Principles of Vibration Control
Dynamics & Control of Machines
Dynamics & Control of Robotic Manipulator
Automation and Control
Applied Dynamics & Vibration

Composite Materials
Material Selection in Mechanical Design
Integrated Product Development
Smart Materials and Structures
Mechatronics
Vibration and Control Laboratory

<u>As Tutor</u>
Engineering Dynamics
Engineering Graphics
Design of Machine Element

2002-: Design Programme, IIT-Kanpur, Courses taken:

<u>As Instructor</u>
Design Practice
Intelligent Product Design
Design Projects on Embedded System Design
New Product Development
Topics in Design [Design Research & Axiomatic Design]

<u>As Tutor</u>
Design Projects on Embedded System
New Product Development

4. Details of M Tech (76), MS (3), M Des (28) and PhD (13) Thesis Supervision

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M Tech Thesis [76]:

[2022]:
R. Das: Experimental Study and Modelling of Trust in Child Robot Interaction
R. K. Sah: Design and Development of Agriculture Robot Integrated with Robotic Arm for Pest Control

[2021]

S. Aswin: Numerical and experimental investigation of vibration attenuation in meta-sandwich beam with addition of mass resonators

[2020]

Anurag Kumar Dwivedi: Study of Phase Response Synchronization in Neuronal Population using Fractional Kuramoto Model

Ranjeet Kumar: Experimental investigation of natural frequency of the Shape Memory Alloy embedded composite

[2019]

Ishan Pande, *Modeling Neurons as Kuramoto Oscillators*

Akshat Rastogi*: Development of piezo-based energy harvesting from the vortex induced vibration of a cantilever beam in water flow*

Ashish Goel*: Analysis and Design of Piezoelectric Fuel Injection System*

Asif Siddiqui*: Design and analysis of air foil bearing for micro gas turbine engine*

[2018]

Abhinav Ranjan: *Design and Development of Assisted Thyroid Retractor*

Ayush Poddar: *Design and Development of Modular Pipeline Inspection Crawling Robot*

Sachin Umrao: *Structural Health Monitoring of Gas-Pipe Network Based on Machine Learning Techniques*

Jai Prakash Singh: *Analytical study of Active and Smart Cabin Pressure Control System for variable flight profile*

Abhishek Kumar: *Design of Eddy Current Damped Boring Bars*

Sanjay Singh Verma: *Modelling of a Cantilever Beam Probe for Inspection of Defects on the Inner Surface of Pipe integrated with PVDF Sensor*

[2017]

Shubham Kumar: *Design and development of active smart stick system for elderly people*

Dhrupal Shah: *Designing a Smart Stick for Elderly with continuous assistance during Sit-To-Stand transfer*

[2016]
Shubham Agarwal: *Modeling and System Identification of Viscoelastic Material and Inflated Structure using Frequency Response Transmissibility*

Hanit Bansal: *Design and development of a modified eddy current damper for improved high frequency isolation*

Kanhaiya Lal Chaurasia: *A Novel and Robust Cabin Pressure Control System (CPCS) for Combat Aircraft using Active Smart Valve System*

[2015]

Matin Ahmed: *Gas Path Simulation and Fault Diagnosis Model for an Aero Engine Gas Turbine*

Sharad Katiyar: *Modelling of the Electro-Thermo-Mechanical behaviour in a laminated composite beam with externally attached SMA actuator and its application in delamination detection*

Anirudhdha A Kulkarni: *Vibration transmissibility based identification of viscoelastic systems*

Anil K Meena: *Identification of mechanical system through impulse excitation*

Vaibhav Verma: *Design and development of pipe health monitoring robot*

Ajinkya Jain: *Two design challenges in exoskeleton system: optimal gait control and optimal gripper system design*

[2014]

Shikhar Pradhan: *Analysis and Design Optimization of a Seven Link Robot Gripper with an Integrated Actuation System.*

Vaibhav Chaturvedi: *Optimal Design of Smart Stiffener for Vibration Damping of a Parabolic Space Antenna*

Ajay K Jain: *Shape Memory Alloy (SMA) based Sensor for Two-Phase Flows*

Akshay Chawla: *Optimal Actuation of SMA-wire Network for Adaptive Shape Control of a Space Antenna System*

[2013]

Praveen D Kumar: *Active shape control of parabolic antenna using shape memory alloy wires*.

Partha Pratim Paul: *Development of a Coupled Thermo-Electro Mechanical and Temporal Model of SMA Wire using a Hybrid approach*.

Anmol Pandey: *Topology Optimization of Compliant Systems using Constructive Solid Geometry through Multi-objective Genetic Algorithm.*

[2012]

Chetan Ingale: *Design of a Passive Vibration Isolation System using Magnetic Damper*.

Gokul Khairnar: *Damage identification in composite structures using dynamic response and machine learning techniques*.

Shriram Kulkarni: *Muscle powered piezoelectric energy harvesting system for implantable medical devices*.

Nitesh Kurmar Shah: *Investigation of Damping in Viscoelastic Nanocomposite for Large Frequency Band*.

Faez Ahmed: *Topology Optimization of Compliant Systems using Constructive Solid Geometry*.

Dipak Kumhar: *Dynamic Response based Damage Detection in Turbine Blades*.

[2011]

Ramchandra Lad: *Studies on the Active Shape Control of Parabolic Antenna Model Using Shape Memory Alloy (SMA) Wire based Actuators*.

Saurabh Agrawal: *Studies on Damage Detection in Laminated Composite Structure Based on Dynamic Response Analysis*.

Nitish Kumar: *Studies on Friction Induced Oscillations of Disc Brake Idealized as Cantilever Beam with End Mass in Contact with Rotating Disk*.

Subhash Yadav: *Modelling and Development of broad band damping layer for flexible links*.

[2010]

Satish Satpal: *Development of passive vibration isolation device using Shape Memory Alloy (SMA) wire*.

Prashant Kumar: *Application of 3D Laser Doppler Vibrometer for Damage Detection in Composite Plates*.

Shashank S Pande: *Analysis and Control of Friction Induced Oscillations in an idealized Brake Model*.

[2009]

Sudhir Varanasi: *Finite element Model updating for Damage detection and Damping Identification in Composites using Dynamic Responses from Laser Scanning Doppler Vibrometer.*

Lalit Lahuti: *Partially compliant 4-bar manipulator for control of coupler curve and energy harvesting.*

Rahul. Verma: *Studies on Directional Damping of Laminated Composite Plates using Laser Doppler Vibrometer.*

[2008]

J. Durgam: *Application of 3D Laser Doppler Vibrometer for Vibration Analysis and Damage Detection in Composite Plate.*

Nurul Huda Shaik: *Control of Instabilities in Pipes Conveying Pulsating Fluid using Shape Memory Alloy Based Actuation.*

M. Duttatreudu: *Kineto-elastodynamic Analysis of Flexible Manipulator and Vibration Suppression using Ionic Polymer Metal Composite.*

Rajesh. Kudikala: *Multi-objective Optimization of Actuator Placement for Static Shape Control of Plates using Genetic Algorithm.*

N. S. R. Prasad: *Shape Memory Alloy based Actuation of Composite Beams and Shape Control of Parabolic Space Antenna.*

[2007]

Prasad Misri Kotkar: *Modeling and Development of Shape Memory alloy Based Actuator with an application to Parabolic Space Antenna.*

Seshu K Mahankali: *Optimal Distribution of Piezoelectric Actuators for Static Shape Control - Multi-objective Approach.*

Gaddam Raju: *Dynamic Analysis of Damaged Plate Structure and Experimental Validation using PVDF based Sensory Network.*

Pankaj Agarwal: *Design of a Robotic Gripper for Safe Handling of Nuclear Fuel Pellets Using PVDF Slip Sensors.*

Gaurav Bansal: *Development of an Autonomous Inspection System Based on PVDF based Cantilever Sensory Probe for Closed Conduits and Barrels.*

Vishal Kausal: *Design of a Compliant four Bar Pick and Place Mechanism Using SMP Rocker.*

M. Srinivasulu: *Comparison of Single Objective and Multi-Objective Based Form and Force Closure Grasp of 2D Prismatic Objects.*

[2006]

Manoj Katare: *Development of PVDF and Terfenol-D based Shear Force Sensors for Robotic Fingers.*

Badrinath Mekap: *Active Shape Control of Parabolic Antenna Reflector using SMA based binary segmented actuation.*

Nitin K Galpat: *Nonlinear System identification using neural networks.*

S K Nijamuddin: *Analysis of electromechanical deformations.*

[2005]

Abhijit Banerjee: *Measurement of Aerodynamic Forces and Flow Visualization Study of Butterfly sized elliptic wing flapping models.*

[2004]

Vikram S Choudhuri: *Finite Element Analysis of Particulate Composite with PVDF Sensor.*

Arvind K Jaiswal: *Development of Smart High Precision Finite Element for Vibration Control and Health Monitoring of Composite Laminates.*

Srikant Shekhar Padhee: *Modelling, Simulation and Analysis of Single Link Flexible Manipulator.*

[2003]

Suman Basu: *Analysis of Flow Structure & Heat Transfer in Tube Banks and a tube in Rotating Configuration.*

Pavan Pachuri: *Finite Element Modelling of Electromechanical System using ATILA.*

Manish Sinha: *Vibration Generation and Shape Control of Composite Structure using SMA wire.*

[2002]

Ankur Gupta: *Modelling, Simulation and Damping of Flexible Manipulators.*

[2001]

Tarun Kumar: *Studies on the effectiveness of Magnetostrictive Sensors for Sensing Delamination in Composites.*

Lalit Sharma: *Elastic behaviour of 3D Model Cellular Solids.*

MS Thesis [3]

[2018]
Saurabh Zajam: *Structural Health Monitoring of Gas Transportation Pipeline using Guided waves, Wavelet analysis and Machine Learning techniques*

Suraj Shinde: *Studies on the Dynamic Response of a Flexible Rotating Touch-Probe in a Confined Pipe System*

[2017]
Jatin Gupta: *Dynamic Modeling and Optimal Control of a Simple Lower Limb Exoskeleton System*

M Des Thesis [28]

[2017]

Vamshi Beeravelly, To Design and Develop an Innovative Remotely Operable Mixing System for Medical Applications

[2016]
Rohit K Singh, Design and Development of an Energy Harvesting System from Vortex Induced Vibration

Pankaj Rathoure, Design and Development of Pipe Health Monitoring System

[2015]
Asif Mohammad, A Novel Multifunctional and Deployable Mobile Solar Energy Harvesting Bicycle Basket

Chandan K Behera, Automatic Sleep Arousal Detection and Analysis of Therapeutic techniques for Sleep Disorders

[2014]

Basava K Mukkundi, Design of an Interactive Walking Stick for Elderly People

Rajesh Ranjan, Design and Development of Networked Health Monitoring and Drug Control System

[2013]

Priyanka Bharti, *Quality education over quantitative education at primary level in India.*

Jivtesh Singh Aulakh, *Engineering Design of Aluminium Composite Material with Rice Husk.*

Anshuman Karmakar, *Design of an Egocentric Display for Low Cost Collision Alerting Systems for Sport Aviation.*

[2012]

Reshma Maurya, *Design of a muscle power based energy harvesting device.*

Aravind Sanmuga Sundaram Muthuswamy, *Autonomous Play-Robot to Facilitate Learning in Children.*

[2011]

Sandipan Das, *Urban Mobility Solution.*

Rohit Raghuvanshi, *Development of an India-Centered Inspiration Process for Automobiles.*

Prithu Paul, *Studies in Asynchronous Web-Based Learning.*

[2010]

Atul R Sultane, *Design and development of a new energy harvesting device for mobile phones.*

Umang Shah Arvindkumar, *Concurrent Engineering and Industrial Design for the development of an Edutainment Product.*

Vimal Kumar, Smart Drug Infusion: *A New Product design.*

[2009]

M Arun, *Aesthetic explorations of advanced automobile design and balanced interior design of an intermediate public transport.*

Sneha Singh, *Discourse on Holistic Strategic Packaging Design.*

[2008]

V S Haveesh, *A new design solution for reducing scratches in small Indian cars.*

[2007]

Dharmendra K Gadaria, *Design of a Sitting Module for R129.*

[2006]

Rajendra Patsute, *Information Visualization and Design for Ancient Nalanda University.*

Abhishek Upadhya, *Virtual reconstruction of Architecture of Nalanda University based on Information Visualization.*

Mayank Tiwari, Web based interaction Design Modal to help reading disabled children in India.

[2005]

Manish K Nema, *Intelligent Product Design Using SMA based technology.*

[2004]

Adesh K Singh, *User Interface Design for Touch-screen Based Navigation System.*

Vijay K Jaiswal, *Design of a Kiosk Enclosure for an Interactive Navigation System.*

PhD Supervision

PhD Thesis [14]:

Aravind S S Muthusamy, Understanding play-experience in children during play with interactive toys [2022]

Ankur Dwivedi, Dynamics of piezo-embedded mechanical metamaterials [2022]

Jitendra Bhaskar, Dynamic behavior of Shape Memory Alloy Embedded Composite Structure [2021]

Rupal Srivastava, Thermoelastic and Vibration Response Studies of Shape Memory Alloy Embedded Bimorph Composites [2021]

Arun Kumar Sharma, Material Characterization and Dynamic Response Studies on Inflated Torus System [2020]

Manish Pande, Optimising the dynamic response of a car-body in a freight vehicle fitted with three-piece bogies [2019]

Kanishka Biswas, Innovative Design of Air Sampler based on Critical Case Study on "OFF-LINE" PM Air Sampling [2019]

Sahil Kalra, Active Control of Electromagnetic Radiation Pattern from Reconfigurable Parabolic Antenna actuated by using Shape Memory Alloy based Smart Actuators [2018]

Mohan K Misra, *Modelling and Adaptive Control of Layer Hardening of Steel Beams subjected to Electromagnetic Induction* [2016]

Ashesh Saha, *Analysis and control of friction-induced vibrations by time-delayed position feedback* [2013]

Anand Kumar, *Structural Health Monitoring of Composites using Smart Sensing and Actuation* [2010].

Atanu Banerjee, *Forward and inverse analyses of SMA actuated compliant links and mechanisms* [2009].

Ravindra K Patel, *Numerical Study of the Damping Behaviour of Polymer Matrix Composites* [2008].

Dibakar Bandopadhyay, *Active Vibration Control of Flexible Manipulator Using Terfenol-D and IPMC as Smart Actuator and an Application of IPMC in a Partially Compliant 4-bar* [2007].

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5. Knowledge Dissemination

Book

Pipe Inspection Robots for Structural Health and Condition Monitoring, Harutoshi Ogai and Bishakh Bhattacharya, Springer, 2018

Book-chapters published:
Smart Material Based Micro-sensors and Actuators for Micromachining, Introduction to Micromaching , Narosa, 2010, 17.1-20.

Practical Applications in Constrained Evolutionary Multi-objective Optimizations, Springer, 2016, pp. 159-179.

Advances in Structural Engineering, Volume Three, 2016, pp.2621-2647.

NPTEL/MOOC Courses:

Video courses

Principles of Vibration Control (http://nptel.ac.in/courses/112104211/)

Nature and Property of Materials (http://nptel.ac.in/courses/112104203/)

Foundations of Cognitive Robotics

(https://onlinecourses.nptel.ac.in/noc20_me92/preview)

Smart materials and Intelligent System Design

(https://onlinecourses.nptel.ac.in/noc19_me68/preview)

Web courses

• Materials Selection and Design (http://nptel.ac.in/courses/112104122/)

• Modelling and control of Dynamic Electro-Mechanical System

(http://nptel.ac.in/courses/112104158/)

• Principles of Vibration Control (http://nptel.ac.in/courses/112104040/)

• Smart Material, Adaptive Structures and Intelligent Mechanical Systems

(http://nptel.ac.in/courses/112104173/)

• Structural Health Monitoring of Composites (http://nptel.ac.in/courses/112104160/)

GIAN Courses
- Structural Health Monitoring using Pipe Crawler Robot with Prof. Harutoshi Ogai, IPS Waseda University, Japan (2017)
- Bio-inspired Robotics with Prof. Hiroaki Wagatsuma, Kyushu Institute of Technology, Japan (2017)

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6. Publications

International Journals & Proceedings [111]

1. Patel A., Yadav A., Law M., Bhattacharya B. & Wahi P., (2022), Damped Chatter Resistant Boring Bar Integrated with an Absorber Working in Conjunction with an Eddy Current Damper, **Journal of Vibration Engineering & Technologies**.
2. Gupta, V., Munian, R. K. and Bhattacharya, B. (2022). Dispersion analysis of the hourglass-shaped periodic shell lattice structure. **International Journal of Solids and Structures,** 254–255.

3. Chaurasiya, K. L., Harsha, A. S., Sinha, Y. and Bhattacharya, B. (2022). Design and development of non-magnetic hierarchical actuator powered by shape memory alloy based bipennate muscle. **Scientific Reports**, 10758.

4. Kuponu, S., Kadirkamanathan, V., Bhattacharya, B. and Pope S. A. (2022). A material system with integrated fault diagnosis and feedback controlled self-healing, **International Journal of Adaptive Control and Signal Processing**, 36(1).

5. Singh A., Bhattacharya B., Banerjee A., (2022), Vibration attenuation in graded meta-sandwich beam, **Active and Passive Smart Structures and Integrated Systems XVI**, 12043.

6. Singh A., Mukhopadhyay T., Adhikari S., Bhattacharya B., (2022), Voltage modulation of elastic properties of asymmetric hybrid lattice structure, **Active and Passive Smart Structures and Integrated Systems XVI**, 12043.

7. Gupta V., Munian R. K., Bhattacharya B., (2022), Dispersion analysis of periodic hourglass-shaped metamaterials for wave propagation, **Active and Passive Smart Structures and Integrated Systems XVI**, 12043.

8. Gourav K., Singh A., Bhattacharya B., (2022), A study on bandgap attenuation in metamaterials by varying the shape of cross-section, **Active and Passive Smart Structures and Integrated Systems XVI**, 12043.

9. Mirani H., Gupta V., Adhikari S., Bhattacharya B., (2022), Interface modes in topologically protected edge states using hourglass based metastructures, **Active and Passive Smart Structures and Integrated Systems XVI**, 12043.

10. Gupta, V., Adhikari, S. and Bhattacharya, B. (2022) Energy absorption of hourglass shaped lattice metastructures" has been accepted for publication in Experimental Mechanics, **Experimental Mechanics**, 62, pp. 943-952.

11. Srivastava, R. and Bhattacharya, B. (2022). De-coupling the Eigenmodes of SMA-reinforced Bimorph Composites using Multi-objective Optimization. **Journal of Vibration Engineering & Technologies**.

12. Dwivedi, A., Banerjee, A., Adhikari, S. and Bhattacharya, B. (2022) Bandgap merging with double-negative metabeam, **Mechanics Research Communications**, 122.

13. Sharma, A. K. and Bhattacharya, B. (2022) Engineering design of sustainable aluminium composite material with rice husk core, **International Journal of Sustainable Engineering**, 14.

14. Singh, A., Mukhopadhyay, T., Adhikari, S. and Bhattacharya, B. (2021). Active multi-physical modulation of Poisson's ratios in composite piezoelectric lattices: On-demand sign reversal, **Composite Structures**, 280.

15. Baishya, N. J., Bhattacharya, B., Ogai, H. and Tatsumi, K. (2021). Design of an Anti-Slip Mechanism for Wheels of Step Climbing Robots, **Actuators**, 10.

16. Baishya, N. J., Bhattacharya, B., Ogai, H. and Tatsumi, K. (2021). Analysis and Design of a Minimalist Step Climbing Robot, **Applied Sciences**, 11.

17. Singh, A., Banerjee, A., Bhattacharya, B. (2021). Waves in elastically coupled sandwich beam: An analytical investigation, **Mechanics Research Communications**, 115.

18. Dwivedi, A., Banerjee, A., Adhikari, S., Bhattacharya, B. (2021). Optimal electromechanical bandgaps in piezo-embedded mechanical metamaterials. **International Journal of Mechanics and Materials in Design**, 17.

19. Santhakumar, S., Chaurasiya, K. L., Aryan, P. and Bhattacharya, B. (2021). An innovative approach towards defect detection and localization in gas pipelines using integrated in-line inspection methods, **Journal of Natural Gas Science and Engineering**, 90.

20. Gupta, V., Adhikari, S. and Bhattacharya, B. (2020), Exploring the dynamics of hourglass shaped lattice metastructures, **Nature Scientific Reports** 10.

21. Jain, A. K., Sharma, A. K., Khandekar, S. and Bhattacharya, B., Shape Memory Alloy-Based Sensor for Two-Phase Flow Detection, **IEEE Sensors Journal**, 20.

22. Sampath, S., Sohn, H. and Bhattacharya, B., (2020) Development of novel integrated in-line inspection techniques for pipeline inspection, **SPIE Future Sensing Technologies,** 11525.

23. Srivastava R. and Bhattacharya B., (2021), Thermoelastic and Vibration Response Analysis of Shape Memory Alloy reinforced Active Bimorph Composites, **Smart Materials and Structures**, 30.

24. Singh, A., Mukhopadhyay, T., Adhikari, S. and Bhattacharya, B. (2020). Voltage-dependent modulation of elastic moduli in lattice metamaterials: Emergence of a programmable state-transition capability, **International Journal of Solids and Structures**, 208-209.

25. Pandey M., Regis R. G., Datta R. & Bhattacharya B. (2020). Surrogate-assisted multi-objective optimization of the dynamic response of a freight wagon fitted with three-piece bogies, **International Journal of Rail Transportation**, 9.

26. Biswas, K, Rajput, P., Gupta, A., Bhattacharya, B. and Gupta, T., A User-Centric Design Thinking Approach for Advancement in Off-Line PM Air Samplers: Current Status and Future Directions, **Aerosol Science and Engineering**, 4.

27. Sharma, A. K., Datta, R., Agarwal, S. and Bhattacharya, B. (2019). Displacement transmissibility based system identification for polydimethylsiloxane integrating a combination of mechanical modelling with evolutionary multi-objective optimization, **Engineering Optimization**, 52.

28. Gupta, V., Adhikari, S. and Bhattacharya, B., (2020), Locally resonant mechanical dome metastructure for band-structure estimation, **Active and Passive Smart Structures and Integrated Systems XIV**, 11376.

29. Singh, A., Banerjee, B. and Bhattacharya, B., (2020), Metamaterial inspired tensairity beam for frequency band attenuation, **Active and Passive Smart Structures and Integrated Systems XIV**, 11376.

30. Dwivedi, A., Banerjee, A. and Bhattacharya, B., (2020), A novel approach for maximization of attenuation bandwidth of the piezo-embedded negative stiffness metamaterial, **Active and Passive Smart Structures and Integrated Systems XIV**, 11376.

31. Bhaskar, J., Sharma, A. K, Bhattacharya, B. and Adhikari, S. (2020) A review on shape memory alloy reinforced polymer composite materials and structures, **Smart Materials and Structures**, 29.

32. Dwivedi, A., Banerjee A. and Bhattacharya, B. (2020). Simultaneous energy harvesting and vibration attenuation in piezo-embedded negative stiffness metamaterial, **Journal of Intelligent Material Systems and Structures**, 31.

33. Biswas K., Rajput P., Gupta A., Roy A., Bhattacharya B., and Gupta T., (2020). Field-based Inter-comparison of an Indigenously Designed and Developed offcentric $PM_{2.5}$

Impactor with a Standardized Impactor, **Journal of Energy and Environmental Sustainability**, 10.

34. Adhikari, S., Rastogi A. and Bhattacharya, B. (2020). Piezoelectric vortex induced vibration energy harvesting in a random flow field, **Smart Materials and Structures**, 29.
35. Kumar, P., Khandekar, S., Maydanik, Y. F. and Bhattacharya, B. (2019). Effect of Vibrations on Thermal Performance of Miniature Loop Heat Pipe for Avionics Cooling: An Experimental Analysis, **Journal of Heat Transfer**, 141.
36. Santhakumar, S., Bhattacharya, B., Aryan, P. and Sohn, H. (2019). A Real-Time, Non-Contact Method for In-Line Inspection of Oil and Gas Pipelines Using Optical Sensor Array, **Sensors**, 19.
37. Chaurasiya, K. L., Bhattacharya, B., Varma, A. K., Rastogi, S. (2019). Dynamic modeling of a cabin pressure control system, **Journal of Aerospace Engineering**, 234.
38. Pandey, M. and Bhattacharya, B. (2019). A Parametric Study Analysing the Effect of Bolster Suspension Parameters on the Carbody Dynamic Response in a Freight Wagon Fitted with Three-Piece Bogie, **Journal of Vibrational Engineering and Technologies**, 3.
39. Garg A., Bhattacharya B., Gupta D., (2019), Design of a flexible endotracheal tube holder device and study of its effect on cutaneous blood flow in the skin using laser Doppler velocimetry, **Health Monitoring of Structural and Biological Systems XIII**, 10972.
40. Pandey, M. and Bhattacharya, B. (2019), Effect of bolster suspension parameters of three-piece freight bogie on the lateral frame force, **International Journal of Rail Transportation**, 8.
41. Gupta, V., Chattoraj, A., Banarjee, A. and Bhattacharya B., (2019), Wave propagation in auxetic mechanical metamaterial: Bloch formalism for various boundary conditions, **Active and Passive Smart Structures and Integrated Systems XIII**, 10967.
42. Dwivedi, A., Banerjee, A., Bhattacharya, B., (2019), Study of piezo embedded negative mass metamaterial using generalized Bloch theorem for energy harvesting system, **Active and Passive Smart Structures and Integrated Systems XIII**, 10967.
43. Kalra, S., Munjal, B. S., Singh, V. R., Mahajan M. and Bhattacharya B., (2019), Investigations on the suitability of PEEK material under space environment conditions and its application in a parabolic space antenna, **Advances in Space Research**, 63.
44. Sharma, A. K., Bhattacharya, B. (2019), Parameter estimation of butyl rubber aided with dynamic mechanical analysis for numerical modelling of an air-inflated torus and experimental validation using 3D-laser Doppler Vibrometer, **Journal of Low Frequency Noise, Vibration and Active Control**, 38.
45. Zajam, S., Joshi, T. and Bhattacharya, B., (2019), Application of Wavelet Analysis and Machine Learning on Vibration Data from Gas Pipelines for Structural Health Monitoring, **Procedia Structural Integrity**, 14.
46. Kalra S. and Bhattacharya B., (2018), Development of shape memory alloy actuator integrated flexible poly-ether-ether-ketone antenna with simultaneous beam steering and shaping ability, **Journal of Intelligent Material Systems and Structures**, 29.
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7. Technology Development & Patents

List of Technology Development:

- Energy Absorbing Composite Joint Technology for Vibration Damping, TU Sheffield
- Non-contact Magnetostrictive Damper for Rolls Royce UTC, TU Sheffield
- Hybrid Damping for Flexible Rotor, IIT Kanpur
- Dynamic Response based Structural Health Monitoring System in Laser Doppler Vibrometer, IIT Kanpur
- Laser Doppler Vibrometer based Hardness Estimation System, IIT Kanpur
- Portable Induction Hardening System, IIT Kanpur
- Smart Flexible and Mechanically Reconfigurable Antenna System, IIT Kanpur
- Energy Harvesting System from Vortex Induced vibration, IIT Kanpur
- Pipe Health Monitoring System based on Smart Sensors, IIT Kanpur
- Shape Memory Alloy based Auto-turn Indicator Mechanism, IIT Kanpur
- A Smart Cabin Pressure Control System Simulator, IIT Kanpur
- A Generic Scanning and Fault Detection System for Axisymmetric Metallic Structure, IIT Kanpur
- Eddy Current Damper for Vibration Control, IIT Kanpur
- A Carbon-di-oxide sensing system for Bronchoscope, SGPGI, Lucknow

List of Patents:

US/Intl. Patents:

A Novel Non-contact damping technique using magnetostrictive particulate Coatings , GB2365376, Bishakh Bhattacharya, Geof Tomlinson and Jem Rongong, The Patent and Design Journal No 5986 .

Vibration damping system and a method of damping vibrations, United States Patent 6688439, Bishakh Bhattacharya, Geof Tomlinson and Jem Rongong

Indian Patents:

S.No.	Inventors	Title	IPA	Date	Type
1	Dr. Bishakh Bhattacharya (ME), Mr. Atul R Sultane (DP)	**A green harvesting device for low power electronic equipment**	232707	18/11/2010	Design
2	Dr. Bishakh Bhattacharya, (Mechanical Engg.), Mr. Ankur Agarwal, Student, (Mechnical Engg.)	**A modular robotic System**	2307/DEL/2011	08.08.2011	Product
3	Ms. Shanu Sharma,Student (DP), Dr. Bishakh Bhattacharya, (DP), Mr. Arvind Shanmuga Sundaram M, Student, (DP) & Dr. J Ramkumar (DP)	**A Versatile tube-well hand pump with energy harvested water filtration**	2727/Del/2012	04.09.2012	Product
4	Mr. Rajesh Ranjan (M.Des), Mr. Basava Kumar M (M.Des), Prof. Bishakh Bhattacharya (DP)	**Drug Flow Control Device**	3847/DEL/2013	31.12.2013	Product
5	Mr. Rajesh Ranjan (M.Des), Mr. Basava Kumar M (M.Des), Prof. Bishakh Bhattacharya (DP)	**Medical Actuator**	3846/DEL/2013	31.12.2013	Product
6	Mr. Rajesh Ranjan (M.Des), Mr. Basava Kumar M (M.Des), Prof. Bishakh Bhattacharya (DP)	**Methods and Systems for Health Monitoring**	5/DEL/2014	01.01.2014	Product
7	Mr. Rohit Kumar Singh (Student) and Prof. Bishakh Bhattacharya (ME)	**Vibration Energy Harvesting Device**	823/DEL/2014	21.03.2014	Product

8	Mr. Basav Kumar M and Dr. B Bhattacharya (ME)	**Multifunctional interactive walking stick**	1954/DEL/2014	11.07.2014	Product
9	Dr. Bishakh Bhattacharya and Mr. Jivtesh Singh Aulakh (Research Scholar)	**Composite Panels With Rice Husk Core**	3386/DEL/2014	20.11.2014	Product
10	Mr. Himanshu Panday, Ms. Vaishnavi Bhope and Prof. Bishakh Bhattacharya (ME & Design)	**Home Automation System Utilizing Digital Waste**	212/DEL/2015	23.01.2015	Product
11	Prof. Bishakh Bhattacharya (ME), Prof. Nachiketa Tiwari (ME), Mr. Nayan Jyoti Baishya (Project Engineer), Mr. Himanshu Panday (Student), Mr. Vaibhav Verma (Student), Mr. S Barathy (GAIL), Mr. Raj Kumar Kashyap, Mr. Parivesh Chugh (GAIL), Mr. T P Yuvaraj	**A Novel Self Powered, Intelligent Pipe Health Monitoring Robot (PHMR) for Inspecting Gas Pipe line**	441/DEL/2015	16.02.2015	Product
12	Dr. S Khandekar (ME), Dr. B Bhattacharya (ME) and Mr. Ajay Kumar Jain (Student)	**Shape memory alloy (SMA) wire as sensor for Taylor bubble flow regime of two-phase flows**	903/DEL/2015	31.03.2015	Product
13	Prof. Sameer Khandekar, ME and Prof. Bishakh Bhattacharya, ME	**An Integrated Solar Energy Harvesting and Storage Device**	201611002574	22.01.2016	Product
14	Prof. Bishakh Bhattacharya, Prof. Nachiketa Tiwari, Dr. J Ramkumar, Mr. Girijesh Mathur (Design) , Mr. Shivyansh Tandon (Mathematics), Mr. Chetan Lodhi (BSBE)	**Packaging System for Large Caliber Ammunition**	280638	18.02.2016	Design
15	Prof. Bishakh Bhattacharya, Prof. Nachiketa Tiwari, Dr. J Ramkumar, Mr. Girijesh Mathur (Design) , Mr. Shivyansh Tandon	A PACKING CASE FOR ONE OR MORE LARGE-CALIBER AMMUNITION SHELLS	201711043201	01.12.2017	Product

	(Mathematics), Mr. Chetan Lodhi (BSBE)				
16	Dr. Bishakh Bhattacharya (ME), Mr. Shubham Kumar(Student, ME), Mr. Dhrupal R Shah(Student, ME), Mr. Harshit Kumar Sankhla(Student, LNMIIT, Jaipur)	**A SMART STICK for Sit to Stand Motion Transfer**	201711043515	05.12.2017	
17	Mr. Kaniska Biswas (PhD Student, DP), Mr. Pushpal Dey (RA,DP), Ms. Esha Ray (Student, Earth Sciences), Dr. B. Bhattacharya (ME), Dr. Tarun Gupta (CE)	**Ergonomic Retractable Novel Stair** (Open and Closed view)	301960/301961	02.02.2018	Design

Brief List of Products

1. Design of a Kiosk Enclosure for an Interactive Navigation System
2. User Interface Design for Touch-screen Based Navigation System
3. Design of a Sitting Module for R129
4. Design and development of a new energy harvesting device for mobile phones.
5. Autonomous Play-Robot to Facilitate Learning in Children.
6. Design of a muscle power based energy harvesting device
7. Design of an Egocentric Display for Low Cost Collision Alerting Systems for Sport Aviation
8. Engineering Design of Aluminium Composite Material with Rice Husk.
9. Design and Development of Networked Health Monitoring and Drug Control System
10. Design of an Interactive Walking Stick for Elderly People
11. Automatic Sleep Arousal Detection and Analysis of Therapeutic techniques for Sleep Disorders
12. A Novel Multifunctional and Deployable Mobile Solar Energy Harvesting Bicycle Basket
13. Energy Harvesting System from Vortex Induced Vibration
14. Pipe Health Monitoring Robot
15. Smart Antenna System
16. SMA based Auto-locking System
17. SMA based Turn-Indicator System
18. Adjustable Surgical Support System
19. A smart 7 Link Gripper Mechanism
20. A Pond Cleaning Robot

21. Design and Development of a Pipe Scanning System for Fault Detection and Sensor Calibration
22. Design and Development of High Precision Agriculture Robot
23. Design and Development of Autonomous River Health Monitoring Robot
24. Design and Development of Artificial Bipennate Muscle Actuator based on SMA

Images of a few Selected Products

8. Research Funding (Sponsored and Consultancy)

Sponsored Projects (PI)					
Sr. No.	Project Name	Project Title	Duration	Funding	Status
1	MHRD /ME /20020027	Development of Smart Composite Prosthetic Limbs	2 Years	10,00,000	Completed
2	ARDB /ME /20030189	Smart Hybrid Damping Of Vibration On Rotating Flexible Links	2 Years	7,73,000	Completed
3	ISRO /ME /20060030	Control of Flexible And Reconfigurable Parabolic Antenna Using SMA Based Smart Actuators	2 Years	14,50,000	Completed
4	DST /ME /20060263	Design of A Smart Fully Compliant Mechanism Of Trajectory Tracking	3 Years	21,93,000	Completed
5	ARDB /ME /20070188	Modelling And Development Of Multiphase Micro-Structured Damping Layer For Broadband Vibration Damping In Flexible Links	2 Years	8,80,000	Completed
6	DST /ME /20090154	Optimal Vibration Control of Composite Structure	3 Years	12,11,175	Completed
8	UKIERI/MDES/20120045	Integrated Sensing, Monitoring and Healing For Complex Autonomous Systems	3 Years	11,43,100	Completed
9	STC /ME /20120326	Phase-Ii Expanded Proposal on Design of Active Flexible And Re-Configurable Parabolic Antenna Using Sma Based Smart Actuators	2.5 Years	21,91,200	Completed
10	GAIL /ME /2015079	Development Of Compressed Air Based Test Bed For Pipe-Line Health Monitoring Robot	2.5 Years	71,06,000	Completed

11	MHRD /DOFA/2015298D	Pipe Inspection Robots For Structural Health Monitoring (GIAN)	3 Months	8,16,000	Completed
12	MHRD /SIIC/2015371	Make In India Event (Mumbai)	1 Year	10,00,000	Completed
14	MSDE /ME /2017174	National Entrepreneurship Awards Scheme 2017	1 Year	20,00,000	Completed
15	MHRD /ME /2017245	Fundamentals Of Bio-Inspired Robotics	3 Months	6,19,400	Completed
16	STC /ME /2018044	Shape Memory Alloys Actuated Mechanically Active Reconfigurable Lightweight PEEK material Based Parabolic Reflector For Active Control On RF Patterns for high Frequency Micro/Nano Spacecraft Application	2 Years	36,78,400	Completed
17	IUSSTF/ME /2017400	Design & Development of Aquatic Autonomous Observatory (Niracara Svayamsasita Vedhshala-Nsvs) For In Situ Monitoring, Real Time Data Transmission & Web Based Visualization	5 Years	9,00,00,000	Ongoing
18	STC /ME /2017183	Design Validation Of Active Flexible And Reconfigurable Parabolic Antenna Using SMA Based Smart Actuator	1 Year	8,40,000	Completed
19	GAIL /ME /2017069	Design and Development of Adoptive Intelligent PHMR For Fuel Transportation Systems	2 .5Years	2,01,48,000	Completed

20	MHRD /ME /2016142L	Design and Construction of Computer Controlled Automated Radio-Chemistry Synthesizer	2 Years	5,12,539	Completed
21	MHRD /ME /2016142M	Designing and Manufacturing of Prototype of Dynamic Endotracheal Tube Holder	2 Years	6,87,758	Ongoing
22	MHRD /ME /2016142N	Development of A Fiber Optic Intubation Device With A Co-Sensor At Its Tip For Facilitation Of Endoctracheal Intubation	2 Years	4,68,500	Ongoing
23	MHRD /ME /2016474	Design and Development of Adaptive Intelligent PHMR For Fuel Transportation Systems MHRD(DST) UAY	3 Years	1,89,80,000	Ongoing
24	DBT/ME/2014172	Seamless Affordable Assistive Technology for Health (SAATH)	3 Years	32,00,000	Completed
25	STC/ME/2014086	Design of A Smart Inflated Torus and Antenna Membrane	4 Years	46,18,800	Ongoing
26	MHRD /ME /2018544	Sparc: Vibration Absorption Using Metamaterial Based Composites	2 Years	97,23,515	Ongoing
27	DST /ME /2018247	Neuro-Cognitive Instrumentation of Validated Human-Robot Interactions to Enhance Learning and Developmental Processes in Children	2 Years	6,28,000	Ongoing
28	PORTESCAP INDIA Private Ltd	Development of an Intelligent Sit-O-Stand (STS) and Mobility Support System for the Elderly		9,50,000	Ongoing

29	PORTESCAP INDIA Private Ltd	Design and Development of a Miniature Rotary Actuator Based On Flexinol SMA		19,00,000	Ongoing
30	Johnson Control India Ltd	SMA based bipennate Actuator Development		57,96,000	Ongoing
		Total		184,514,387	(INR)
Consultancy Projects (PI)					
1	HAL /ME /20030013	Calibration of Portable Hardness Tested And Micro Hardness Testing of Steel Samples	1 Month	10,000	Completed
2	HAL /ME /20030304	Design and Establishing Parameters For Mechanical Test Samples	2 Weeks	7,500	Completed
3	GM /MDES/20040312	Development of a Novel Turning Indicator Mechanism Using Shape Memory Alloy Based System	9 Months	4,92,600	Completed
4	NAIK(N/ME /20070241	Feasibility Study Report For Development Of Digital Bore Measuring Instrument	9 Months	1,54,275	Completed
7	GAIL /ME /20080163	Deflection & Vibration Compensation of Gas-pipe Line At Ramganga	1 Week	14,045	Completed
8	HAL /ME /20090015	Matlab Based Modeling, Simulation and Validation of LCH Main and Tail Rotor Actuators	1 Year	2,13,700	Completed
9	GHANAR/MDES/20110256	Design Consultancy of Steel Gates of Ramganga Barrage	1 Year	2,89,538	Completed
10	GAIL /ME /20130112	Design and Development of a Pipeline Health Monitoring Robot Based On Smart	2 Years	42,82,534	Completed

		Sensor Embedded Rotating Probes And An Efficient Data Communication				
11	OFKNP /ME /2014056	Modelling and Estimation of Structure Capacity of EOT Crane	1 Year	5,61,800	Completed
12	TECHNO/ME /2014362	Vetting of Design And Drawings Of Vertical Lift Gates Of Pahari Dam In Dist Jhansi of Uttar Pradesh	1 Year	4,80,760	Completed
13	HAL /ME /2015072	Development of Cabin Pressure Control System For LCA	1 Year	14,26,000	Completed
14	MISC /ME /2019025	Miscellaneous Structural and Product Design	1 Year	2,21,250	
		Total		8,154,002	(INR)

9. Peer Recognition

- HAL Chair Professor Award, 2021, HAL Lucknow
- Mentor of the best B Tech Project, Dept. of Mechanical Eng, 2020
- Centre of Excellence Award, 2019, Johnson Controls, India
- GCRF Visiting Fellowship, 2019, Swansea University, UK
- DST-JSPS Fellowship, (2018-2019), Kyushu Institute of Technology, Japan
- Dr. and Mrs. Mehta Chair Professor, 2014-2017, IIT Kanpur
- Sakura Fellowship, JSPS, 2017 and 2018, Kyushu Institute of Technology, Japan
- Member of the Board of AR&DB Systems Panel [2018-cont.]
- Academic Representative, Mentor Council of DGET, Industrial Automation & Instrumentation [2014-]
- Empaneled Eminent Expert, National Manufacturing Competitiveness Program [2013-]
- UKIERI award by UK India Research Initiative Council [2012-2014]
- DST-UKIERI award by DST and UK India Research Initiative Council [2009-2011]

- Young Scientist's award for the year 2006 by the Systems Society of India
- Nominated as a special member in the Senate, IIT-Kanpur from 2003-2005
- Department of Science and Technology, India, Young Scientist Award, 2001
- Recipient of Best Thesis Award in the Department of Aerospace Engineering, 1998
- Senate Commendation for excellent teaching in the courses: *Principles of Vibration Control* and *Design Practice*
- Student Mentor in Design Program for the following National Awards

  2nd Runners up, Nokia Bhasha 2011 - Rahul, Madhavan, Meenakshi, Aravind, Nishant

  1st Prize|Design Challenge-08|Yahoo R&D, Bangalore for designing of a transportation system for the differently able people.

  Display Selection in Auto Expo 2008

  1st Prize|Design Challenge-09|IISC, Bangalore for designing a sustainable mobile phone

Member of the Editorial Boards

International Journal of Low Frequency Noise, Vibration and Active Control

Associate Editor: ISSS Jl. of Micro and Smart Systems

Associate Editor: International Journal of Systems Science

Associate Editor: Journal of Vibration Engineering Technologies

Reason – a Technical Journal

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10 Contributions to the Institute:

Administrative Experience

Coordinator, Space Technology Cell [2021-.]

Head, Cognitive Science [2017-2020]

Coordinator, Space Technology Cell [2014-2020]

Head, Central Workshop [2014-2017]

Head, Design Programme [2011-2013]

Coordinator, Dynamics & Vibration UG Lab, Department of Mechanical Engineering, IIT Kanpur [2010-Continuing]

Coordinator, Automation & Control UG Lab, Department of Mechanical Engineering, IIT Kanpur [2007-Continuing]

Coordinator, Smart Materials, Structures & Systems Research Lab, Department of Mechanical Engineering, IIT Kanpur [2000-Continuing]

Coordinator, Living System Inspired Design Research Lab, Design Programme, IIT Kanpur [2013-Continuing]

Coordinator, Post-Graduate Association of Mechanical Engineers [2001-2003]

Coordinator Master of Design Programme [2002-2004]

Convener, Departmental Post Graduate Committee, MDES [2002-2004]

Convener, Solid Mechanics and Design Stream, Department of Mechanical Engineering Representative [2007]

Senate Library Committee & Programme Advisory Committee (PAC) member of Design Programme [2002-2007]

Coordinator, Experimental Stress Analysis Lab, Department of Mechanical Engineering, IIT Kanpur [2004-2007]

Convener, Departmental Post Graduate Committee, ME [2004-2005]

Governing Body Member, Campus School [2013-2017]

11. Other Academic Activities

Keynote Address

Energy harvesting by smart and metamaterials: feasibility and application potential, Innovation in Practice conference, University of Lublin, Poland.

Invited Speaker

Smart Beam and High Precision Plate Elements for Aerospace Application, IIT Jammu [2021]

An Overview of Intelligent System Design using Smart Material based Sensors and Actuators: Current Experiences and Future Possibilities, Swansea University, UK [2019]

Design and Development of Adaptive Intelligent Pipe Health Monitoring Robots for Fuel Transportation Systems, Ritsumeikan University, Japan [2019]

Smart Materials for Micro machining, in the Short-Term School on "Micromanufacturing and Its Applications" April 05, IIT Kanpur [2014].

IITK-UKIERI Airbus seminar: 12th March, 2014, *Dynamic Response based Damage Detection* and *Adaptive Structural Control (Morphing)* [2014].

IPS 9th Symposium at Waseda University, Japan on *Adaptive Control of Parabolic Antenna System by SMA Actuators* [2013].

UKIERI Presentation at Sheffield University, UK on *Mechanical and Chemical Healing of Damaged Composites* [2013].

SAC, Ahmadabad (ISRO) on *Intelligent System Design* [2013].

IIT Patna on *Embodiment of Intelligence in Product Design: Inspirations from Nature* [2013].

Boeing India, Bangalore, *Smart Materials and Intelligent Systems Design at IIT Kanpur* [2013].

HBTI, Kanpur, *Future Directions in Material Selection for Advanced Design* [2013].

Seminar & Workshops

Chairman of the Organizing Committee of 7th ISSS National Conference on MEMS and Smart Materials, Structures and Systems, 2016

Convener of 1st National Workshop from Space Society of India on Inflated Space Structures, 2016

Convener of SAATH Workshop on Smart Stick and Exoleg System, 2015

Session-Chair: Dynamic System Modelling, Design and Optimization, ACODS-2014

UG Convener: IITK-INAE joint competition on *Innovation in Manufacturing Practice* [2014]

Coordinator: Design Clinic, December, 2012

Noise Vibration and Harshness 2012 – jointly with Dr. Nachiketa Tiwari and Prof. N. S. Vyas.

Continuing Education Workshops:
(a)   Material Selection for Engineering Design – 3 weeks short course offered on line.
(b)   Engineering Product Design jointly with IACT [2013 and 2012]

A Short Course in Noise and Vibration jointly with Dr. Nachiketa Tiwari and Prof. N. S. Vyas [2011].

Coordinator – National Workshop on Smart Materials for Design of Intelligent Systems and Industrial Application (SMDISA-2007)

Coordinator - National Workshop on Smart Materials and Structures (SMCS-2002)

Faculty Selection Committee Member

Mechanical Engineering Department, IIT Mandi [2021]

Cognitive Science Department, IIT Kanpur [2020-Cont..]

Mechanical Engineering Department, IIT Kanpur [2015-2017]

Mechanical Engineering Department, IIT Patna [2008]

Mechanical Engineering Department, HBTI, Kanpur [2007]

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12. Reviewer

Nature Scientific Report

Smart Materials & Structures

Journal of Vibration & Control

Journal of Vibration & Acoustics

Journal of Low Frequency Noise, Vibration and Active Control

Journal of the Institution of Engineers India: Series C

Scripta Physica

Transactions on Magnetics

IEEE Journal of Sensors

Journal of Intelligent Material Systems

IEEE Transactions on Vehicular Technology