

---

---

## Curriculum Vitae

---

---



**Dr. Sandhyarani Biswas**  
Assistant Professor  
Department of Mechanical Engineering  
National Institute of Technology, Rourkela-769 008  
Odisha, INDIA



---

---

### ***1. PERSONAL DATA***

**Name** : Dr. Sandhyarani Biswas  
**Mailing Address** : Department of Mechanical Engineering  
National Institute of Technology, Rourkela-769 008  
Odisha, INDIA  
**Email** : sandhya\_biswas@yahoo.co.in, biswas.sandhya@gmail.com  
**Phone** : +91-661-2462505 (O) +91-9437254078 (M)  
**Fax** : +91-661-2472926

### ***2. ACADEMIC QUALIFICATION***

<b>Degree/ Examination</b>	<b>Institute</b>	<b>Year of Passing</b>
Ph.D. (Composite materials)	National Institute of Technology, Rourkela, INDIA	2010
M. Tech. (Production Engineering)	National Institute of Technology, Rourkela, INDIA	2006
B.E. (Manufacturing Science & Engineering)	University College of Engineering, Burla, INDIA	2004

### ***3. TEACHING EXPERIENCE***

**Assistant Professor** in the Department of Mechanical Engineering, National Institute of Technology, Rourkela, INDIA from 30.06.2006 to till date.

### ***4. RESEARCH INTEREST***

Research in the field of engineering materials, polymer composites, tribology, design of experiments, manufacturing technology, plastic processing technology, machining of materials, optimization techniques and finite element analysis.

### ***5. PROFESSIONAL RECOGNITION, AWARDS, FELLOWSHIPS RECEIVED:***

- i. Recipient of **Mrs. Sheela Baya National Award 2013** for Technology Advancement in Mechanical Engineering from Institution of Engineers (India), Udaipur Local Centre.
- ii. Recipient of **Young Engineers Award 2011** from Institution of Engineers (India) for outstanding research contribution in the field of Production Engineering.

- iii. Recipient of **Orissa Young Scientist Award 2009** from Orissa Bigyan Academy for outstanding research contribution in the field of Engineering and Technology.
- iv. Recipient of **Er. Ganesh Mishra Memorial Award** in the year 2011 from Institution of Engineers India (Orissa State Centre) for best technical paper in the area of Mechanical Engineering on 53<sup>rd</sup> Annual Technical Session of Orissa State Centre, Institution of Engineers (India).
- v. Recipient of **Er. Ganesh Mishra Memorial Award** in the year 2010 from Institution of Engineers India (Orissa State Centre) for best technical paper in the area of Mechanical Engineering on 52<sup>nd</sup> Annual Technical Session of Orissa State Centre, Institution of Engineers (India).
- vi. Recipient of **Er. Ganesh Mishra Memorial Award** in the year 2009 from Institution of Engineers India (Orissa State Centre) for best technical paper in the area of Mechanical Engineering on 50<sup>th</sup> Annual Technical Session of Orissa State Centre, Institution of Engineers (India).
- vii. Recipient of **Brundaban Sahu Memorial Award** in the year 2008 from Institution of Engineers India (Orissa State Centre) for best technical paper in the area of Industrial Engineering on 49<sup>th</sup> Annual Technical Session of Orissa State Centre, Institution of Engineers (India).
- viii. Recipient of “**Ministry of Human Resource Development Fellowship**”, Govt. of India during M.Tech. at National Institute of Technology Rourkela, India, July, 2004 to June, 2006.
- ix. Qualified “**Graduate Aptitude Test in Engineering (GATE)**” in Production Engineering, 2004.

## ***6. MEMBERS OF LEARNED SOCIETIES AND NATIONAL BODIES:***

- i. **Associate (AIE) (A-5434352)** of The Institution of Engineers (India)
- ii. **Life Member (LM-3951)** of Tribology Society of India
- iii. **Life Member (L-101)** of Asian Polymer Association
- iv. **Life Member (LM-415)** of Electron Microscope Society of India
- v. **Life Member (L15601)** of The Indian Science Congress Association
- vi. **Life Member (LMB-1696)** of Materials Research Society of India
- vii. **Life Member (LM-90788)** of Indian Society for Technical Education
- viii. **Member (20130531002)** of Science and Engineering Institute (SCIEI)

## ***7. PUBLICATIONS***

### **National/ International Journals**

1. Amar Patnaik, **Sandhyarani Biswas** and S.S.Mahapatra, 2007, “An Evolutionary Approach for Parameter Optimization of Submerged Arc Welding in Hardfacing Process”, International Journal of Manufacturing Research, vol. 2(4), pp.462-483.
2. **Sandhyarani Biswas** and S.S.Mahapatra, 2008, “Modified Particle Swarm Optimization for Solving Machine Loading Problem in Flexible Manufacturing System (FMS)”, International Journal of Advanced Manufacturing Technology, vol. 39, pp.931-942.
3. **Sandhyarani Biswas** and S.S.Mahapatra, 2008, “Permutation Flow Shop Scheduling using Particle Swarm Optimization with Mutation”, Journal of Institution of Engineers (India), pp.55-93.

4. **Sandhyarani Biswas** and S.S.Mahapatra, 2008 “A Novel Immune Approach for Solving Machine Loading Problem in Flexible Manufacturing System”, 49<sup>th</sup> Technical Journal of Orissa State Centre, Institutions of Engineers (India), pp.158-164.
5. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, 2009, “Use of Red Mud: An Alumina Plant Waste to Develop Erosion Resistant Glass-Epoxy Composites with Potential Engineering Applications”, 50<sup>th</sup> Technical Journal of Orissa State Centre, Institutions of Engineers (India), pp.14-27.
6. **Sandhyarani Biswas** and S.S.Mahapatra, 2009, “An Improved Meta-heuristic Approach for Solving Machine Loading Problem in Flexible Manufacturing System”, International Journal of Services and Operations Management, vol. 5 (1), pp.76-93.
7. **Sandhyarani Biswas** and Alok Satapathy, 2009, “Tribo-performance analysis of red mud filled glass-epoxy composites using Taguchi experimental design”, Materials and Design, vol. 30, pp. 2841-2853.
8. Alok Satapathy, **Sandhyarani Biswas** and Amar Patnaik, 2009, “Manufacturing of Low-Cost Polymer Composites using available Bio-resources of Rural Orissa”, 50<sup>th</sup> Technical Journal of Orissa State Centre, Institutions of Engineers (India), pp.206-216.
9. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas**, 2009, “Effect of different filler materials on the abrasive wear behavior of glass fiber reinforced polymer matrix composites”, Materials Science: An Indian Journal, vol.5 (3), pp. 175-183.
10. **Sandhyarani Biswas**, Subhrajit Ray, Alok Satapathy and Amar Patnaik, 2009, “Erosion Wear Behavior of TiO<sub>2</sub> Filled Glass Fiber Reinforced Epoxy Composites”, Materials Science: An Indian Journal, vol.5 (3), pp. 258-266.
11. Amar Patnaik, MD Abdulla, **Sandhyarani Biswas**, Alok Satapathy, 2009, “Thermal conductivity of particulate filled polymer composites”, Materials Science: An Indian Journal, vol. 5(4), pp.306-318.
12. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas**, 2009, “Sliding wear analysis of natural fiber reinforced polymer composite”, Environmental Science: An Indian Journal, vol. 4(6).
13. **Sandhyarani Biswas** and Amar Patnaik, A comparative Study of Experimental and Finite Element Simulation of Cement By-Pass Dust Filled Polymer Composite for Erosive Environment, 52<sup>nd</sup> Technical Journal of Orissa State Centre, Institutions of Engineers (India), 2010, pp.184-191.
14. Amar Patnaik, Md Abdulla, Alok Satapathy, **Sandhyarani Biswas**, Bhabani K. Satapathy, 2010, “A study on a Possible Correlation between Thermal Conductivity and Wear Resistance of Particulate Filled Polymer Composites”, Materials and Design, vol.31, pp. 837-849.
15. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, 2010, “Erosion Wear Behaviour of Polymer Composites: A Review”, Journal of Reinforced Plastics and Composites, vol. 29 (19), pp. 2898-2924.
16. Amar Patnaik, Alok Satapathy, Maheshwar Dwivedy and **Sandhyarani Biswas**, 2010, “Wear behaviour of Plant-fiber (Pine-Bark) and Cement-kiln-dust Reinforced Polyester Composites using Taguchi Experimental Model”, Journal of Composite Materials, vol.44 (5), pp. 559-574.

17. Amar Patnaik, Alok Satapathy Navin Chand, N.M. Barkoula and **Sandhyarani Biswas**, 2010, "Solid Particle Erosion Wear Characteristics of Fiber and Particulate Filled Polymer Composites: A Review", *Wear*, vol.268, pp. 249-263.
18. **Sandhyarani Biswas** and Alok Satapathy, 2010, "Use of copper slag in glass-epoxy composites for improved wear resistance", *Waste Management and Research*, vol.28, pp.615–625.
19. **Sandhyarani Biswas** and Alok Satapathy, 2010, "Erosion Wear Analysis of SiC Filled Glass-Epoxy Composites using Taguchi Technique", *International Polymer Processing*, vol. 1, pp.23-33.
20. **Sandhyarani Biswas** and Alok Satapathy, 2010, "A Comparative Study on Erosion Characteristics of Red Mud Filled Bamboo-Epoxy and Glass-Epoxy Composites", *Materials and Design*, vol.31 (4), 1752-1767.
21. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas**, 2010, "Investigations on Three-body abrasive wear and mechanical properties of particulate filled glass Epoxy composites", *Malaysian Polymer Journal*, vol. 5(2), pp. 37-48
22. **Sandhyarani Biswas** and Alok Satapathy, 2010, "An Assessment of Erosion Wear Response of SiC Filled Epoxy Composites Reinforced with Glass and Bamboo Fibers", *International Polymer Processing*, vol. 3, pp.205-222.
23. **Sandhyarani Biswas** and Alok Satapathy, 2010, "A Study on Tribological Behaviour of Alumina Filled Glass-Epoxy Composites using Taguchi Experimental Design", *Tribology Transactions*, vol. 53(4), pp.520-532.
24. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas**, 2010, "Effect of Particulate Fillers on Erosion Wear of Glass Polyester Composites: A comparative Study using Taguchi Approach", *Malaysian Polymer Journal*, vol. 5(2), pp. 49-68.
25. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, 2010, "Effect of Ceramic Fillers on Mechanical Properties of Bamboo Fiber Reinforced Epoxy Composites: A Comparative Study", *Advanced Materials Research*, vol.123-125, pp.1031-1034.
26. Amar Patnaik, Ritesh Kaundal, Alok Satapathy, **Sandhyarani Biswas**, 2010, Pradeep Kumar, "Solid Particle Erosion of particulate filled Short Glass Fiber Reinforced Polyester Resin Composites", *Advanced Materials Research*, vol.123-125, pp. 213-216.
27. **Sandhyarani Biswas**, Amar Patnaik, Alok Satapathy and Mamatha T.G, Effect of Silicon Carbide (SiC) Particulate on Thermo-Mechanical and Damping Behaviour of ZA-27 Alloy Composites, 53<sup>rd</sup> Technical Journal of Orissa State Centre, Institutions of Engineers (India), 2011, pp.184-191.
28. Amar Patnaik, **Sandhyarani Biswas**, Alok Satapathy and Ritesh Kaundal, (2011) "Processing, Characterization and Erosion Wear Analysis of SiC Filled Glass-Epoxy-Composites", *International Journal of Computational Materials Science and Surface Engineering (IJCMSSE)* 4(2), pp.168-184.
29. **Sandhyarani Biswas**, Sanjay Kindo and Amar Patnaik, 2011 "Effect of Fiber Length on Mechanical Behavior of Coir Fiber Reinforced Epoxy Composites", *Fiber and Polymers*, 12 (1), pp.73-78.
30. **Sandhyarani Biswas**, Basu Deo, Amar Patnaik, Alok Satapathy, (2011). Effect of Fiber Loading and Orientation on Mechanical and Erosion Behaviour of Glass/Epoxy Composites, *Polymer Composites*, vol. 32(4), pp. 665-674.

31. Mamatha T.G, **Amar Patnaik**, Sandhyarani Biswas, Predeep Kumar. (2011). Finite element modeling and development of SiC filled ZA-27 alloy composites in erosive wear environment: A comparative analysis. Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology, vol. 225, pp.1106-1120.
32. Anu Gupta, Ajit Kumar, Amar Patnaik , **Sandhyarani Biswas**, Effect of different parameters on mechanical and erosion wear behavior of bamboo fiber reinforced epoxy composites. International Journal of Polymer Science (Special Issue: Natural Fibers, Bio- and Nanocomposites) (doi: 10.1155/2011/592906).
33. Anu Gupta, Ajit Kumar, Amar Patnaik , **Sandhyarani Biswas**, (2012). Effect of Filler Content and Alkalization on Mechanical and Erosion Wear Behavior of CBPD Filled Bamboo Fiber Composites, Journal of Surface Engineered Materials and Advanced Technology, Vol. 2 (3), pp. 149-157.
34. Amar Patnaik, T.G. Mamatha, **Sandhyarani Biswas** and Pradeep Kumar, Damage assessment of Titania Filled Zinc-Aluminium Alloy Metal Matrix Composites in Erosive Environment: A Comparative Study, Materials and Design, 36 (2012) 511-521.
35. T.G. Mamatha, Amar patnaik, **Sandhyarani Biswas**, Bhabani K. Satapathy and Amit Kumar Redhewall, Thermo-mechanical and crack position on stress intensity factor in particle-reinforced Zinc-aluminium alloy composites, Computational Materials Science, 55 (2012) 100-112.
36. **Sandhyarani Biswas** and Prity Aniva Xess, Erosion Wear Behaviour of Bamboo/Glass Fiber Reinforced Epoxy Based Hybrid Composites, International Journal of Mechanical & Industrial Engineering (IJMIE), ISSN No. 2231 –6477, Vol-1, Issue-4, 2012, PP.79-83.
37. Amar Patnaik, Pradeep Kumar, **Sandhyarani Biswas**, Mukesh Kumar, Investigations on micro-mechanical and thermal characteristics of glass fiber reinforced epoxy based binary composite structure using finite element method, Computational Materials Science 62 (2012) 142–151.
38. Brijesh Gangil, Amar Patnaik, Anoop Kumar, **Sandhyarani Biswas**, Thermo-Mechanical and Sliding Wear Behaviour of Vinyl-Ester-CBPD particulate filled Homogenous and their Functionally Graded Composites, Proceedings of the Institution of Mechanical Engineers, Part J, Journal of Engineering Tribology, DOI: 10.1177/1350650112460363.
39. **Sandhyarani Biswas**, Mechanical properties of bamboo-epoxy composites a structural application, Advances in Materials Research, Vol 1, No. 3, 2012.
40. Amar Patnaik, TG Mamatha, **Sandhyarani Biswas**, Amit Kumar Redhewall and Sunand Kumar, Evaluation of thermo-mechanical behavior and stress intensity factor of titania-filled zinc-aluminium alloy composites, Proceedings of the Institution of Mechanical Engineers, Part L, Journal of Materials: Design and Applications, DOI: 10.1177/1464420712459323.
41. Srimant Kumar Mishra, **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, Erosion Wear Analysis of Al<sub>2</sub>O<sub>3</sub>, Particles Reinforced Za-27 Alloy Metal Matrix Composite Using ANN, International Journal of Materials, Manufacturing and Design (IJMMD) Volume 1, Number 1, 2012, 65-76.

42. **Sandhyarani Biswas**, Amar Patnaik, Ritesh Kaundal, Effect of Red Mud and Copper Slag Particles on Physical and Mechanical Properties of Bamboo-Fiber-Reinforced Epoxy Composites, *Advances in Mechanical Engineering*, doi:10.1155/2012/141248.
43. **Sandhyarani Biswas**, Erosion Wear Behaviour of Copper Slag Filled Short Bamboo Fiber Reinforced Epoxy Composites, *International Journal of Engineering and Technology*, Vol. 6 (2), 2014, 91-94.
44. Srimant Kumar Mishra, **Sandhyarani Biswas** and Alok Satapathy, A study on processing, characterization and erosion wear behavior of silicon carbide particle filled ZA-27 metal matrix composites, *Materials and Design*, Vol. 55 2014, 958-965.
45. Vineet Kumar Bhagat, **Sandhyarani Biswas** and Janki Dehury, Physical, Mechanical and Water absorption Behaviour of Coir/Glass Fiber Reinforced Epoxy based Hybrid Composites Polymer Composites, *Polymer Composites*, DOI 10.1002/pc.22736.
46. Vivek Mishra and **Sandhyarani Biswas**, Evaluation of three body abrasive wear behavior of bidirectional jute fiber reinforced epoxy Composites, *Journal of Industrial Textiles*, DOI: 10.1177/1528083713516663.
47. Vivek Mishra and **Sandhyarani Biswas**, (2014) Three-Body Abrasive Wear Behavior of Needle-Punch Nonwoven Jute Fiber Reinforced Epoxy Composites, *International Polymer Processing*, XXIX, pp 356-363.
48. Vivek Mishra and **Sandhyarani Biswas**, (2013) Physical and Mechanical Properties of Bi-directional Jute Fiber epoxy Composites, *Procedia Engineering*, 51, pp. 561-566.
49. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Micromechanical Analysis of Effect of Interphase on Mechanical Properties of Kevlar Fiber Reinforced Epoxy Composites, *International Journal of Current Engineering and Technology*, DOI: <http://dx.doi.org/10.14741/ijcet/spl.2.2014.21>, 115-120.
50. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, Physical and Mechanical Behavior of Al<sub>2</sub>O<sub>3</sub> Filled Jute Fiber Reinforced Epoxy Composites, *International Journal of Current Engineering and Technology*, DOI: <http://dx.doi.org/10.14741/ijcet/spl.2.2014.13>, 67-71.
51. Vivek Mishra and **Sandhyarani Biswas**, 2014, Three-body Abrasive Wear Behaviour of Short Jute Fiber Reinforced Epoxy Composites, *Polymer Composites*, DOI:10.1002/pc.23178.
52. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Effect of Fiber Geometry and Representative Volume Element on Elastic and Thermal Properties of Unidirectional Fiber-Reinforced Composites, *Journal of Composites*, 2014, 1-12.
53. Prity Aniva Xess, **Sandhyarani Biswas** and Manoj Masanta, Optimization of the EDM Parameters on Machining Ti-6Al-4V alloy with Multiple Quality Characteristics, *Applied Mechanics and Materials* Vol. 619, 2014 pp. 89-93.
54. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, Selection of Materials Using Multi Criteria Decision Making Method by Considering Physical and Mechanical Properties of Jute/Al<sub>2</sub>O<sub>3</sub>Composites, *Applied Mechanics and Materials*, vol. 592-594, pp. 729-733.
55. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Physical and Mechanical Behavior of Unidirectional Banana/Jute Fiber Reinforced Epoxy Based Hybrid Composites, *Polymer Composites*, 2015, DOI 10.1002/pc.23706.

56. Geetanjali Das and **Sandhyarani Biswas**, Effect of fiber parameters on physical, mechanical and water absorption behaviour of coir fiber/epoxy composites, Journal of Reinforced Plastics and Composites, 2016, doi:10.1177/0731684415626594.
57. Geetanjali Das and **Sandhyarani Biswas**, Erosion wear behaviour of coir fiber reinforced epoxy composites filled with Al<sub>2</sub>O<sub>3</sub> filler, 2016, Journal of Industrial Textile, doi: 10.1177/1528083716652832.
58. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Physical and Thermal Properties of Unidirectional Banana–Jute Hybrid Fiber-Reinforced Epoxy Composites, Journal of Reinforced Plastics and Composites, 2016, Vol. 35(15) 1157–1172.
59. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Thermophysical properties of short banana-jute fiber reinforced epoxy based hybrid composites, Journal of Materials: Design and Applications, 2016, DOI: 10.1177/1464420716656883.
60. Geetanjali Das and **Sandhyarani Biswas**, Physical, Mechanical and Water Absorption Behaviour of Coir Fiber Reinforced Epoxy Composites Filled with Al<sub>2</sub>O<sub>3</sub> Particulates, Materials Science and Engineering 115 (2016) 012012 doi:10.1088/1757-899X/115/1/012012.
61. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, A comparative analysis of physico-mechanical, water absorption and morphological behaviour of surface modified woven jute fiber composites, Polymer Composites, 2017, DOI: 10.1002/pc.24294.
62. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, Influence of fiber surface treatments on physico-mechanical behaviour of Jute/Epoxy composites impregnated with Al<sub>2</sub>O<sub>3</sub> filler, Journal of Composite Materials, 2017, DOI: 10.1177/0021998317695420.

#### **Conferences/Symposium/Seminars**

1. **Sandhyarani Biswas** and S.S.Mahapatra, “A Comparative Study on Implementation of TQM in Manufacturing and Service Sector”, All India Seminar on Quality and Reliability, November 4-5, 2006, National Institute of Technology, Rourkela.
2. **Sandhyarani Biswas** and S.S.Mahapatra, “A Comparative Study of Particle Swarm Optimization and Genetic Algorithm applied to Permutation Flow Shop Scheduling”, National Conference on Recent Trends in Mechanical Engineering, November 17-18, 2006, Sri Jayachamarajendra College of Engineering, Mysore.
3. **Sandhyarani Biswas** and S.S.Mahapatra, “Permutation Flow Shop Scheduling using Particle Swarm Optimization with mutation”, National Conference on Recent Trends in Intelligent Computing, November 17-19, 2006, Kalyani Government Engineering College, West Bengal.
4. **Sandhyarani Biswas**, Amit Sahu and S.S.Mahapatra, “Performance Analysis of Drum Buffer Rope (DBR) Scheduling using Discrete Event Simulation”, Fourth AIMS International Conference on Management, December 28-31, 2006, Indian Institute of Management, Indore, India, pp 714-723
5. **Sandhyarani Biswas** and S.S.Mahapatra, “Comparative Study of Meta-Heuristic Approaches for Permutation Flow Shop Scheduling”, XXIst National Convention of Computer Engineers and National Seminar on Advances in Soft Computing” February 10-11,2007,Institutions of Engineers(India), Orissa State Centre, Bhubaneswar.

6. **Sandhyarani Biswas** and S.S.Mahapatra, "Machine Loading in Flexible Manufacturing System: A Swarm Optimization Approach", Eighth International Conference on Operations and Quantitative Management, October 17-20, 2007, Assumption University, Bangkok, Thailand.
7. **Sandhyarani Biswas** and S.S.Mahapatra, "A Meta-heuristic Approach for Solving Machine Loading Problem in Flexible Manufacturing System (FMS) Environment", International Conference on Advanced Manufacturing Technologies (ICAMT-2007), November 29-30, 2007, Central Mechanical Engineering Research Institute, Durgapur.
8. S.S.Mahapatra and **Sandhyarani Biswas**, "Machine Loading in Flexible Manufacturing System using a Novel Immune Approach", XI Annual International Conference of Society of Operations Management, December 21-23, 2007, Symbiosis Institute of Operations Management, Nashik.
9. **Sandhyarani Biswas** and S.S.Mahapatra, "A Fuzzy Analytic Hierarchy Process Approach for Selection of Professors in an Educational Setting", International Conference on Soft Skills Development Strategies: Corporate and Academia Perspectives, September 19-20, 2008, BITS PILANI, Rajasthan.
10. S.S.Mahapatra and **Sandhyarani Biswas**, "An AIS Approach for Machine Loading in Random-type Flexible Manufacturing System" National Conference on Computational Intelligence, Control, And Computer Vision In Robotics & Automation (CICCRA-2008) March 10-11, 2008, National Institute of Technology, Rourkela.
11. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, "Analysis of Erosion Wear Behavior of Red Mud Filled Glass-Epoxy Hybrid Composites Using Taguchi Method" National Conference on Mechanism Science and Technology: from Theory to Application, November 13-14, 2008, National Institute of Technology, Hamirpur.
12. **Sandhyarani Biswas** and Alok Satapathy, "Bamboo Fibers/Epoxy Composites For Tribological Application Using Genetic Algorithm (GA)", Sixth AIMS International Conference on Management, December 28-31, 2008, Indian Business Academy, Greater Noida, Delhi Region, India.
13. **Sandhyarani Biswas** and Alok Satapathy, "An Experimental Study on Erosion Rate of Copper Slag Filled Glass-Epoxy Composites", 25<sup>th</sup> Annual meeting of the polymer processing society (PPS-25), March 1-5, 2009, Goa, India.
14. Alok Satapathy and **Sandhyarani Biswas**, "Parametric Appraisal and Damage Assessment during Erosion of Glass-Epoxy-Alumina Hybrid Composites", Seventh AIMS International Conference on Technology and Business Management, March 29-April 1, 2009, Dubai.
15. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas** "Investigation on Three Body Abrasive wear and Mechanical Properties of Particulate Filled Glass Epoxy composites", Seventh AIMS International Conference on Technology and Business Management, March 29-April 1, 2009, Dubai.
16. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, "Solid Particle Erosion Characteristics of SiC Filled Glass Fiber Reinforced Epoxy based Hybrid Composites", The Fourth Asian Particle Technology Symposium (APT 2009), September 14-16, 2009, New Delhi.
17. Amar Patnaik, Alok Satapathy, and **Sandhyarani Biswas**, "Effect of Particulate Fillers on Erosion Wear of Glass Polyester Composites: A Comparative Study using



- Optimization Technique”, The Fourth Asian Particle Technology Symposium (APT 2009), September 14-16, 2009, New Delhi.
18. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, “Erosion Wear Behaviour of Bamboo Fiber Reinforced Composites Filled with Red mud Particulate” Polymer Congress APA-2009 on Polymer Science and Technology: Vision and Scenario, December 17-20, 2009, New Delhi, India
  19. Amar Patnaik, Alok Satapathy and **Sandhyarani Biswas**, “Solid Particle Erosion of Short E-Glass Fibre Reinforced Flyash Filled Polyester Resin Composites” Polymer Congress APA-2009 on Polymer Science and Technology: Vision and Scenario, December 17-20, 2009, New Delhi, India,
  20. **Sandhyarani Biswas** and Alok Satapathy “A Comparative Study on Erosion Wear Behavior of Copper Slag Filled Bamboo-Epoxy and Glass-Epoxy Composites” International Conference on Advancements in Polymeric Materials APM-2010, Trends & Technology, February 20-22, 2010, CIPET, Bhubaneswar.
  21. Ganguluri Kranthi, Rajlakshmi Nayak, **S. Biswas**, Alok Satapathy, “Wear Performance Evaluation of Pine Wood Dust Filled Epoxy Composites”, International Conference on Advancements in Polymeric Materials APM-2010, Trends & Technology, February 20-22, 2010, CIPET, Bhubaneswar.
  22. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, Influence of particulate on erosion wear behavior of bamboo fiber reinforced epoxy composites, International conference on Recent Trends in Materials and Characterization (ICRTMC-2010), 14-15 February 2010, NIT Surathkal.
  23. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, Effect of Impingement Angle and Erodent Temperature on Erosion Behaviour of Bamboo Fiber Reinforced Epoxy Composites, 3<sup>rd</sup> National Symposium for Materials Research Scholars (MR-10), 7-8 May 2010, IIT Mumbai
  24. Amar Patnaik, **Sandhyarani Biswas** and Alok Satapathy, A Study on Mechanical and Wear Properties of Particulate Filled Short Glass-Fiber Reinforced Epoxy Composites, 3<sup>rd</sup> National Symposium for Materials Research Scholars (MR-10), 7-8 May 2010, IIT Mumbai
  25. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, Erosion Wear Behaviour of Bamboo Fibre Reinforced Epoxy Composites Filled with Alumina Particulate, Second International Conference on Natural Polymers, Bio-Polymers, Bio-Materials, their Composites, Blends, IPNs, Polyelectrolytes and Gels: Macro to Nano Scales (ICNP - 2010): September 24, 25 & 26, 2010, Kottayam, Kerala, India.
  26. Amar Patnaik, **Sandhyarani Biswas** and Alok Satapathy “Solid Particle Erosion behavior of Particulate filled Short Glass Fiber Reinforced Polyester Resin Composites: A comparative study” Second International Conference on Natural Polymers, Bio-Polymers, Bio-Materials, their Composites, Blends, IPNs, Polyelectrolytes and Gels: Macro to Nano Scales (ICNP - 2010): September 24-26, 2010, Kottayam, Kerala, India.
  27. **Sandhyarani Biswas**, Alok Satapathy and Amar Patnaik, Effect of Ceramic Fillers on Mechanical Properties of Bamboo Fiber Reinforced Epoxy Composites: A Comparative Study, The 3<sup>rd</sup> International Conference on Multi Functional Matrials and Structures, Septmber 14-18, 2010, Jeonbuk Provincial Government, Jeonju, Korea.

28. Amar Patnaik, Mr. Ritesh Kaundal, Alok Satapathy, **Sandhyarani Biswas**, and Pradeep Kumar, Solid Particle Erosion of particulate filled Short Glass Fiber Reinforced Polyester Resin Composites, The 3<sup>rd</sup> International Conference on Multi Functional Materials and Structures, September 14-18, 2010, Jeonbuk Provincial Government, Jeonju, Korea.
29. **Sandhyarani Biswas**, Utilization of an Industrial Waste for Improvement of Wear Resistance of Short Bamboo Fiber Reinforced Epoxy Composites, International Conference on Advances in Polymer Science & Rubber Technology Challenges Towards 2020 and Beyond, March 3-5, 2011, IIT Kharagpur, India.
30. Kishore Debnath and **Sandhyarani Biswas**, Mechanical Behavior of Particulate Filled Short Glass Fiber Reinforced Epoxy Composites: Effect of Filler Type and Content, International Conference on Advances in Polymer Science & Rubber Technology Challenges Towards 2020 and Beyond, March 3-5, 2011, IIT Kharagpur, India.
31. Alok Satapathy, Amar Patnaik and **Sandhyarani Biswas**, Erosion Wear Behavior of Hybrid Polymer Composites, APM 2011, International Conference on Advancement In Polymeric Materials March 25th To 27th, 2011, CIPET, Chennai.
32. **Sandhyarani Biswas**, Effect of Alumina Particulate on Erosion Wear Behaviour Of Short Bamboo Fiber Reinforced Epoxy Composites, 11<sup>th</sup> UNESCO/IUPAC Conference Workshop and Conference on Functional Polymeric Materials & Composites, 26-29 April 2011, Stellenbosch, South Africa.
33. Amar Patnaik and **Sandhyarani Biswas**, Solid Particle Erosion Behaviour of Fly Ash Filled Short Glass Fiber Reinforced Polymeric Materials & Composites, 11<sup>th</sup> UNESCO/IUPAC Conference Workshop and Conference on Functional Polymeric Materials & Composites, 26-29 April 2011, Stellenbosch, South Africa.
34. Srimant Kumar Mishra, **Sandhyarani Biswas**, Alok Satapathy, Solid particle erosion wear response of ZA-27 metal matrix composites reinforced with particulate fillers, Proceedings of the International Conference on Mechanical Engineering, ICME 2011, BUET, Dhaka, 2011.
35. Srimant Kumar Mishra, **Sandhyarani Biswas**, Alok Satapathy, Amar Patnaik, Wear Response Simulation of ZA-27 Metal Matrix Composites Using Artificial Neural Network, Proceedings of the National Conference cum Workshop on Recent Developments in Engineering Materials, Birla Institute of Technology, Mesra, May, 2011.
36. Srimant Kumar Mishra, **Sandhyarani Biswas**, Alok Satapathy, A Study on Erosion Wear of SiC Reinforced ZA-27 Metal Matrix Composites Using Taguchi Experimental Design, Proceedings of the National Conference on Processing and Characterization of Materials (NCPCM 2011), National Institute of Technology, Rourkela, December, 2011.
37. Srimant Kumar Mishra, **Sandhyarani Biswas**, Alok Satapathy, Parametric Optimization of Erosion Wear Process of SiC Reinforced ZA-27 Metal Matrix Composites Using Taguchi Experimental Design, IEEE - International Conference on Advances in Engineering, Science and Management (ICAESM-2012), March 30, 31, 2012, EGS Pillay Engineering College, Nagapattinam, 2012.
38. **Sandhyarani Biswas**, Kishore Debnath and Amar Patnaik, Mechanical Behaviour of Short Bamboo Fiber Reinforced Epoxy Composites Filled with Alumina Particulate,

- International Conference Kathmandu Symposia on Advanced Materials (KASAM 2012), **May 9-12, 2012**, Kathmandu, Nepal.
39. Amar Patnaik, **Sandhyarani Biswas** and Alok Satapathy, Wear Behaviour of Glass Fiber Reinforced Epoxy Composites Filled with Pine Bark Dust, International Conference Kathmandu Symposia on Advanced Materials (KASAM 2012), May 9-12, 2012, Kathmandu, Nepal.
  40. Prity Aniva Xess and **Sandhyarani Biswas**, Physical, Mechanical and Thermo-Mechanical Behaviour of Short Bamboo/Glass Fiber Reinforced Hybrid Composites, 27<sup>th</sup> National Convention of Production Engineers and National Seminar on Advancements in Manufacturing - Vision 2020, 25<sup>th</sup>-26<sup>th</sup> May, 2012, BITS Mesra, Ranchi.
  41. **Sandhyarani Biswas** and Prity Aniva Xess, Erosion Wear Behaviour of Bamboo/Glass Fiber Reinforced Epoxy Based Hybrid Composites, International Conference on Mechanical & Industrial Engineering (ICMIE-2012), 27<sup>th</sup> May, 2012, Darjeeling.
  42. Vivek Mishra and **Sandhyarani Biswas**, Physical and Mechanical Properties of Bi-directional Jute Fiber epoxy Composites, 3<sup>rd</sup> Nirma University International Conference on Engineering (NUICONE 2012), Ahmadabad
  43. Vivek Mishra and **Sandhyarani Biswas**, Physical and Mechanical Characterization of Short Jute-Epoxy Composites, 4<sup>th</sup> International conference on recent advances in composite materials (ICRACM-2013), Feb. 18-21, 2013, Goa.
  44. Siva Bhaskara Rao. Devireddy and **Sandhyarani Biswas**, Elastic Properties of Carbon Fiber Reinforced Epoxy Composites by Finite Element Analysis, International conference on advanced materials and manufacturing (ICAMM-2013), April 11-12, 2013, Kanyakumari.
  45. Vivek Mishra and **Sandhyarani Biswas**, Physical and Mechanical Behaviour of Needle Punched Nonwoven Jute Fiber Reinforced Composites, International Conference on Advances in Mechanical Engineering (ICAME-2013), May 29-31, 2013, Pune.
  46. **Sandhyarani Biswas**, Erosion Wear Behaviour of Copper Slag Filled Short Bamboo Fiber Reinforced Epoxy Composites, 2013 3th World Conference on Science and Engineering (WCSE2013), August 24 - 25, 2013, Singapore.
  47. Siva Bhaskara Rao. Devireddy and **Sandhyarani Biswas**, Finite Element Analysis of Glass/Epoxy Composite-A Micromechanical Based Approach, International Conference on Smart Technologies for Mechanical Engineering (STME-2013) 25-26<sup>th</sup> October 2013, Delhi Technological University.
  48. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Single and Multiple Fiber Unit Cell Modeling for Elastic Properties of Kevlar Fiber Reinforced Polymer Composites, 3<sup>rd</sup> National Conference on Processing and Characterization of Materials (NCCPM – 2013), December 06-07, 2013, NIT Rourkela.
  49. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, The Effect of Interphase on Mechanical and Thermal Properties of Glass Fiber Reinforced Epoxy Composites, 14<sup>th</sup> International Conference in Asia (IUMRS-ICA 2013), December 16-20, 2013, IISC Bangalore.
  50. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Micromechanical Analysis of Effect of Interphase on Mechanical Properties of Kevlar Fiber Reinforced Epoxy

- Composites, 1<sup>st</sup> International Conference on Advances in Mechanical Sciences (ICAMS-2014), January 09-11, 2014, Hyderabad.
51. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, Physical and Mechanical Behavior of Al<sub>2</sub>O<sub>3</sub> Filled Jute Fiber Reinforced Epoxy Composites, 1<sup>st</sup> International Conference on Advances in Mechanical Sciences (ICAMS-2014), January 09-11, 2014, Hyderabad.
  52. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Micromechanical Analysis of Fiber Reinforced Hybrid Polymer Composites, 1<sup>st</sup> International Conference on Mechanical Engineering: Emerging Trends for Sustainability (IC MEETS 2014), January 29-31, 2014, NIT Bhopal.
  53. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Effect of Reinforcement on Thermal Analysis of Hybrid Fiber Reinforced Polymer Composites- Micromechanical Approach, International Conference on Advancements in Polymeric Materials (APM-2014), February 14-16, CIPET Bhubaneswar,
  54. Priyadarshi Tapas Ranjan Swain and **Sandhyarani Biswas**, Selection of Materials using Multi criteria Decision making Method by considering Physical and Mechanical properties of jute/Al<sub>2</sub>O<sub>3</sub> Composites, International Mechanical Engineering Congress - 2014 (IMEC-2014), June 13-15, 2014, NIT Tiruchy.
  55. Prity Aniva Xess, **Sandhyarani Biswas** and Manoj Masanta, Optimization of the EDM Parameters on Machining Ti-6Al-4V Alloy with multiple Quality Characteristics, International Conference on Mechanical and Electrical Technology (ICMET-2014), July 17-18, 2014, Bangkok, Thailand.
  56. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Numerical prediction of thermal conductivity of banana fiber reinforced polymer composites, 4th National Conference on Processing and Characterization of Materials (NCPCM 2014), December 5-6, 2014, NIT Rourkela.
  57. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Prediction of elastic properties of banana fiber reinforced polymer composites by micromechanical approach, 4th National Conference on Processing and Characterization of Materials (NCPCM 2014), December 5-6, 2014, NIT Rourkela.
  58. Siva Bhaskara Rao Devireddy and **Sandhyarani Biswas**, Thermal conductivity of hybrid natural fiber reinforced polymer composites by theoretical and finite element method, National seminar on Polymer Nanocomposites for Engineering Applications, March 14, 2015, NIT Rourkela.
  59. Geetanjali Das and **Sandhyarani Biswas**, Physical, Mechanical and Water Absorption Behaviour of Coir Fiber Reinforced Epoxy Composites Filled With Al<sub>2</sub>O<sub>3</sub> Particulates, 5th National Conference on Processing & Characterization of Materials, December 12-13, 2015, NIT Rourkela.

## 8. **BOOK CHAPTER AUTHORED**

- **Sandhyarani Biswas**, Amar Patnaik, Pradeep Kumar, (2011). Silicon carbide filled polymer composite for erosive environment application: A comparative analysis of experimental and FE simulation results, INTECH Open Access Publisher, “**Silicon Carbide/Book 4**”, ISBN: 978-953-307-348-4.
- Amar Patnaik, **Sandhyarani Biswas**, Ritesh Kaundal, Alok Satapathy, (2011) Damage Assessment of Short Glass Fiber Reinforced Polyester Composites: A

comparative Study, INTECH Open Access Publisher, “**Composite Materials/Book 4**”, ISBN: 978-953-307-1100-7.

- Kishore Debnath and **Sandharani Biswas**, Mechanical and Erosion Wear Behaviour of Natural Fiber Composites, LAP Lambert Academic Publishing, GmbH & Co. KG, GERMANY, ISBN: 978-3-659-40414-6, pp. 1-69, 2013.

### **9. SPONSORED RESEARCH PROJECT (Completed: 01)**

**Project Title:** Development, Characterization and Performance Evaluation of Bamboo Fiber Reinforced Epoxy Matrix Hybrid Composites for Tribological Applications

**Funding agency:** Department of Science and Technology, under SERC Fast Track scheme for Young Scientists (**Sanction letter No. and date under which the assistance was approved:** SR/FT/ET-026/2009, dated September 10, 2009).

**Principal investigator:** Dr. Sandhyarani Biswas

**Duration:** 2 years

### **10. PEER REVIEWER FOR TECHNICAL JOURNALS**

- i. Wear
- ii. Tribology Transactions
- iii. Tribology Online
- iv. Materials and Design
- v. Polymer Composites
- vi. Surface and Interface Analysis
- vii. International Polymer Processing
- viii. Research Journal of Textile and Apparel
- ix. Journal of Composite Materials
- x. Fibers and Polymers
- xi. Journal of Industrial Textiles
- xii. Journal of Engineering and Computer Innovations
- xiii. Indian Journal of Engineering & Materials Sciences
- xiv. Materials Chemistry and Physics
- xv. Journal of Mechanical Engineering Research
- xvi. Journal of Mechanical Science and Technology
- xvii. Journal of Mechanical Engineering
- xviii. International Journal of Physical Sciences
- xix. Journal CURIE (Journal of cooperation among University, Research and Industrial Enterprises)
- xx. International Journal of Engineering Science and Technology
- xxi. Journal of Reinforced Plastics and Composites
- xxii. Computational Thermal Sciences
- xxiii. Journal of Polymer Engineering
- xxiv. Materials Characterization
- xxv. Journal of Engineering Science and Technology
- xxvi. Engineering Science and Technology: an International Journal
- xxvii. Iranian Journal of Science and Technology, Transactions of Mechanical Engineering

### ***11.EDITORIAL MEMBER OF TECHNICAL JOURNALS***

- Editorial Member of Journal of Robotics and Mechanical Engineering Research
- Lead Guest Editor of “Tribology of Polymer Composites” Special Issue on Advances in Tribology

### ***12. RESEARCH GUIDANCE***

- **Ph.D. Thesis Supervised:** 01 (Completed), 01 (Submitted), 03 (Ongoing)
- **M.Tech (R) Thesis Supervised:** 02 (Completed)
- **M.Tech Thesis Supervised:** 10 (Completed), 02 (Ongoing)
- **B.Tech Thesis Supervised:** 22 (Completed)

### ***13. PARTICIPATION IN CONTINUING EDUCATION PROGRAMME:***

- National Workshop on Industry-Institute Interaction” funded by TEQIP, during 30.11.06 to 01.12.06 at NIT, Rourkela
- QIP Short Term Course on Rapid Product Development during December, 11-15, 2006 at Department of Mechanical Engineering, IIT, Guwahati.
- QIP Short Term Course on Total Quality Management in Service Organizations during March, 22-26, 2007 at IEM Department, IIT, Kharagpur
- AICTE-Staff Development Programme on Design for X (DFX) during June 11-22, 2007 at Department of Mechanical Engineering, MNNIT, Allahabad
- QIP Short Term Course on Supply Chain Management during October, 03-07, 2007 at IEM Department, IIT, Kharagpur
- UGC Sponsored Workshop on Capacity Building for Women Managers in Higher Education during December 19-23, 2007 at NIT, Rourkela
- ISTE-AICTE Sponsored Short Term Course on Recent Trends in Advanced Composites during June 02-06, 2008 at NIT Rourkela.
- 5<sup>th</sup> Summer School in Tribology, 24-28 June 2013 at Indian Oil Institute of Petroleum Management, Gurgaon.

### ***14.OVERSEAS VISIT***

- Thailand
- South Korea
- South Africa
- Nepal
- Singapore

### ***15.CONDUCTING TRAINING PROGRAMMES/SHORT TERM COURSES***

- Coordinated a TEQIP Sponsored Training Programme on “Rapid Prototyping and Automated Production Systems” during 17<sup>th</sup>-19<sup>th</sup> December 2007 at N.I.T Rourkela.
- Coordinated a TEQIP-II Sponsored Short Term Course on “Industrial and Municipal Waste Management” during 24<sup>th</sup>-25<sup>th</sup> January 2017 at N.I.T Rourkela.

### ***16.CONDUCTING SYMPOSIA/CONFERENCES***

- National Conference on “IPR Issues: Challenges and Opportunities” funded by BP & Copyright Division, MHRD, Government of India on 11<sup>th</sup> November 2006.

### ***17.DETAILS OF CONTRIBUTIONS TO INSTITUTE MANAGEMENT AT NIT, ROURKELA, INDIA***

- Faculty adviser of National Service Scheme (NSS) from 2008 to 2015
- Laboratory-in-charge of Departmental Computer Laboratory from 2008 to 2009
- Faculty adviser of M.Tech. First year Mechanical Engineering Students (Specialization: Plastics, Composites and Timber Engineering) from 2015 till date
- Faculty adviser of B.Tech. First year Mechanical Engineering Students from 2016 to till date
- Member of Departmental Purchase Committee from 2013 to 2015
- Member of Departmental Library from 2013 to 2014
- Member of Convocation Committee in the year 2008, 2009, 2010, 2011 and 2012
- Member of Selection Committee (Technical Assistant) in the year 2012 and 2013
- Member of Sports Committee in the year 2008, 2009, 2010, 2011 and 2012
- Member of Organizing Committee of Annual Techfest and Inter-NIT technical Meet in the year 2010

### ***18.COURSES TAUGHT AT NIT ROURKELA***

- Industrial Management
- Metal Machining and Automation
- Engineering Thermodynamics
- Quality Engineering and Reliability
- Product Design for Manufacturing
- Plastic Products and Mould Design
- Plastic Processing Technology
- Workshop Practice-I
- Industrial Engineering Project-I
- Advanced Manufacturing Practice-I
- Advanced Manufacturing Practice-II
- Workshop Practice-II
- Production Engineering Laboratory
- Project-I
- Seminar-III
- Seminar and Technical Writing-II
- Seminar and Technical Writing-I
- Seminar and Technical Writing-II
- Machine Drawing and Solid Modeling
- Product Development Laboratory
- Plastic Mould Design Laboratory-II
- Composite Modeling and Simulation Laboratory

**(Dr. Sandhyarani Biswas)**