

## **Publication Details: Department Of Mechanical Engineering**

### **Year 2026**

#### **Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Chakraborty O. (2026) Numerical analysis of fins and Nano-Enhanced PCM for heat transfer improvement in parabolic trough collectors. Solar Energy. Jan 1; 303:114158. DOI: [10.1016/j.solener.2025.114158](https://doi.org/10.1016/j.solener.2025.114158)
2. Swapnaneel Sarma, Himangshu Sekhar Brahma, Debarshi Mallick. (2026) Pyrolysis study of various biomass feedstocks using Thermogravimetric analysis. Edited by K. Debnath, U. K. Saha, P. N. Rao, Recent Innovations and Developments in Mechanical Engineering, Volume 2, DOI 10.1007/978-981-95-8868-8
3. Himangshu Sekhar Brahma, Swapnaneel Sarma, Debarshi Mallick. (2026) Characterization and performance analysis of various biomass feedstocks in a downdraft gasifier. Edited by K. Debnath, U. K. Saha, P. N. Rao, Recent Innovations and Developments in Mechanical Engineering, Volume 2, DOI 10.1007/978-981-95-8868-8
4. Dheeman Bhuyan, P Ramesh Babu, Jyoti Prasad Kalita. (2026) 3D reconstruction of human aorta from computerized Tomography data and generation of compliant phantom for Ex-vivo, investigation of blood flow phenomena. Edited by K. Debnath, U. K. Saha, P. N. Rao, Recent Innovations and Developments in Mechanical Engineering, Volume-1, DOI 10.1007/978-981-95-9318-7\_16

### **Year 2025**

#### **Publication Details (Journal Papers/Book Chapters/Conference Papers)**

- 1 Chakraborty O, Das B. (2025) Performance Enhancements in Parabolic Solar Trough Collectors via Insert Diversity. In Parabolic Solar Trough Collector: Design, Development and Usage 2025 Nov 21. Cham: Springer Nature.
- 2 Chakraborty O and Nath S. (2025) Optimization of thermal performance of LS-2 model parabolic solar trough collectors using advanced nanofluid blends. Journal of Thermal Analysis and Calorimetry, 1-26. Springer Nature, Publication date: 2025/3/18, Impact Factor-3.1

3. Chakraborty O and Nath S. (2025) Performance analysis of a parabolic solar trough collector with multiple revolving tubes for ternary nanofluid and different base fluids. *Journal of Thermal Analysis and Calorimetry*, 3421-3447.
4. KJ, Das S, Das S. (2025) Experimental Analysis and Optimization of Microwave Welding Parameters for Improved Joint Strength. *Advanced Welding Technologies* 1; 369-384, Springer Nature, Publication date:2025/02/04, Impact Factor-3.1
5. Chakraborty O, Das B, Algarni S, Alqahtani T, Irshad K. (2025) Numerical investigation of parabolic trough collectors using hybrid nanofluids and modified receiver tube. *Applied Thermal Engineering*. Jul 17:127597.
6. Chakraborty, Oveepsa, and Sourav Nath. (2025) Performance analysis of a parabolic solar trough collector with multiple revolving tubes for ternary nanofluid and different base fluids. *Journal of Thermal Analysis and Calorimetry* 150, no. 5: 3421-3447.

## **Year 2024**

### **Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Mohite A, Bora BJ, Sharma P, Sarıdemir S, Mallick D, Sunil S, Ağbulut U. (2024) Performance enhancement and emission control through adjustment of operating parameters of a biogas-biodiesel dual fuel diesel engine: An experimental and statistical study with biogas as a hydrogen carrier. *International Journal of Hydrogen Energy*. Jan 2;52: 752-64.
2. Pathak KK, Giri A, Barkataki R, Saikia MA, Mahanta S. (2024) Thermal Analysis of a Steam Turbine Unit of Namrup Thermal Power Plant, Assam, India. In: Pandey SM, Maurya A, Hirwani CK, Shukla OJ, editors. *Challenges and Opportunities in Industrial and Mechanical Engineering: A Progressive Research Outlook*. 1st ed. CRC Press: Taylor and Francis; p.235-245. ISBN Number: 9781032713229. <https://doi.org/10.1201/9781032713229>.
3. Sonowal J, Pathak KK, Das B. (2024) Experimental study of free convective heat transfer from shrouded finned horizontal channel. India. In: Pandey SM, Maurya A, Hirwani CK, Shukla OJ, editors. *Challenges and Opportunities in Industrial and Mechanical*

Engineering: A Progressive Research Outlook.1st ed. CRC Press: Taylor and Francis; p. 360-367. ISBN Number: 9781032713229. <https://doi.org/10.1201/9781032713229>.

4. Oveepsa Chakraborty, Biplab Das, Sourav Nath. (2024) Impact of ternary nanofluid in the thermal performance of parabolic trough collector for semi- elliptical receiver with inserts. 5th International Conference on Recent Advancements in Mechanical Engineering, 02-04 February, 2024, organised by Department of Mechanical Engineering, National Institute of Technology Silchar, Assam, India.
5. Chakraborty O, Nath S. (2024) Optimizing the thermal performance in parabolic solar trough collectors: investigating the impact of ionic nanofluid and revolving fins inserts. Clean Technologies and Environmental Policy. 2024 Nov 23:1-22, Springer, Impact Factor- 4.2.
6. Chakraborty O, Nath S. (2024) Numerical study on solar trough collectors: Optimizing heat transfer with ternary nanoparticles in ionic base fluid and spinning tube fins. Renewable Energy. 2024 Dec 1; 236:121473, Elsevier (Impact Factor- 9)
7. Baruah P, Pathak KK, Borah PP, Newar PP. (2024) Design, Development and Performance Analysis of a Solar Dryer. December 28, (pp. 219-234). Springer Nature Singapore. DOI: 10.1007/978-981-97-7535-4\_18
8. Deka KJ, Das S, Das S. (2024) Experimental Analysis and Optimization of Microwave Welding Parameters for Improved Joint Strength, Advanced Welding Technologies, Sandip Kunar and Gurudas Mandal (eds.) Advanced Welding Technologies, Elsevier, (pp 373-388), Scrivener Publishing LLC, ISBN: 9781394331895

**Year: 2023**

**Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Das, Sangeeta, Preetam Bezbarua, and Shubhajit Das. "Sustainable nanomaterial coatings for anticorrosion: A review." Nanomaterials for Sustainable Tribology (2023): 203-214.

2. Preetam Bezbarua, Sangeeta Das, Shubhajit Das (2023) Machining investigation of textured tungsten carbide tools, *Materials Today: Proceedings*, Volume 76, Part 3, 542-550. <https://doi.org/10.1016/j.matpr.2022.11.161>
3. Mallick D, Sharma P, Bora BJ, Baruah D, Bhowmik R, Barbhuiya SA, D Balakrishnan. Mechanistic investigation of pyrolysis kinetics of water hyacinth for biofuel employing isoconversional method. *Sustainable Energy Technologies and Assessments* 57 (2023): 103175, DOI: 10.1016/j.seta.2023.103175.
4. P P Borah, K K Pathak, A Gupta, S Roy, B Das, Experimental study of a solar air heater with modified absorber plate through square obstacles with threaded pin fins, *Applied Thermal Engineering*, 228 (2023): 120544, DOI: <https://doi.org/10.1016/j.applthermaleng.2023.120544>.

**Year: 2022**

**Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Kankan K Pathak, Thermo Hydraulic Analysis of slightly inclined finned channel under natural convection, *Journal of Applied Fluid Mechanics (J)*, <https://doi.org/10.47176/JAFM.15.04.33307>.
2. Kankan K Pathak, A comparative numerical study of estimation of velocity components in mixed convection through vertical shrouded plate finned channel, *ASME J. Thermal Sci. Eng. Appl.(J)*, <https://doi.org/10.1115/1.4055264>.
3. Aunshuman Chatterjee, Performance Analysis of Francis Turbine Test Rig, *International Journal of Latest Trends in Engineering and Technology (J)*, <http://dx.doi.org/10.21172/1.202.01>.
4. Debarshi Mallick, Biohythane production from organic waste: challenges and techno-economic perspective, *Waste-to-Energy Approaches Towards Zero Waste (B)*, <https://doi.org/10.1016/B978-0-323-85387-3.00011-2>.
5. Debarshi Mallick, Pyrolysis Characterization of Biomass Feedstock Using Thermogravimetric Analysis, *Recent Advances in Thermo fluids and Manufacturing Engineering (C/B)*, <https://doi.org/10.1007/978-981-19-4388->

6. Sharmi Dev Sharma, Emerging commercial opportunities for conversion of waste to energy: aspect of gasification technology, Waste-to-Energy Approaches Towards Zero Waste (B), <https://doi.org/10.1016/B978-0-323-85387-3.00012-4>.
7. Rajib Bhowmik, Emerging commercial opportunities for conversion of waste to energy: aspect of gasification technology, Waste-to-Energy Approaches Towards Zero Waste (B), <https://doi.org/10.1016/B978-0-323-85387-3.00012-4>.
8. Kankan K Pathak, Impact of Biofertilizers in Sustainable Growth of Agriculture Sector, Handbook of Biomass Valorisation for Industrial Applications (B), <https://doi.org/10.1002/9781119818816.ch21>.
9. Kankan K Pathak, A study of internet of things in smart grid and smart grid security, Advances in smart energy systems (B), <https://link.springer.com/book/9789811924118>.
10. Kankan K Pathak, Environmental Management of Industrial Effluent through Bioremediation Techniques, Bioremediation of Industrial Effluents (B), Accepted for publication (Springer).
11. Himangshu S Brahma, Emerging commercial opportunities for conversion of waste to energy: aspect of gasification technology, Waste-to-Energy Approaches Towards Zero Waste (B), <https://doi.org/10.1016/B978-0-323-85387-3.00012-4>.
12. Aunshuman Chatterjee, Experimental determination of flexural strength of Bholuka Bamboo (Bambusa Balcooa) of Assam, India, Materials Today: Proceedings (J), Accepted for publication (Elsevier).

**Year: 2021**

**Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Rajib Bhowmik, Predicting the elastic properties of hemp fiber- A comparative study on different polymer composite, Materials Today: Proceedings (J), <https://doi.org/10.1016/j.matpr.2021.09.562>.
2. Sangeeta Das, Composites for Sensors and Actuators, Reference Module in Materials Science and Materials Engineering (B), <https://doi.org/10.1016/B978-0-12-803581-8.11906-X>.

3. Sangeeta Das, Functionally Grade Composite Material Production, Reference Module in Materials Science and Materials Engineering(B), <https://doi.org/10.1016/B978-0-12-803581-8.11880-6>.
4. Sangeeta Das, Properties for Polymer, Metal and Ceramic Based Composite Materials, Reference Module in Materials Science and Materials Engineering(B), <https://doi.org/10.1016/B978-0-12-803581-8.11897-1>.
5. Sangeeta Das, Green Machining Techniques- A review, Green Tribology (B), <https://doi.org/10.1201/9781003139386-10>.
6. Rajib Bhowmik, Shorea robusta (Sal) fallen leaves briquette: A potential bioenergy fuel for rural community, Innovations in Sustainable Energy and Technology(B), [https://link.springer.com/chapter/10.1007/978-981-16-1119-3\\_23](https://link.springer.com/chapter/10.1007/978-981-16-1119-3_23).
7. Kankan K Pathak, Thermal Analysis of a Steam Turbine Unit of Namrup Thermal Power Plant, Assam, India, International conference on Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021) (C/B), <https://link.springer.com/book/9789811977084>.
8. Kankan K Pathak, Experimental study of free convective heat transfer from shrouded finned horizontal channel, International conference on Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021) (C/B), <https://link.springer.com/book/9789811977084>.

**Year: 2020**

**Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Debarshi Mallick, Co-gasification of biomass blends: Performance evaluation in circulating fluidized bed gasifier, Energy(J), <https://doi.org/10.1016/j.energy.2019.116682>
2. Kankan K Pathak, Thermal performance of heat sinks with variable and constant heights: An extended study, International Journal of Heat and Mass Transfer(J), <https://doi.org/10.1016/j.ijheatmasstransfer.2019.118916>

3. Sangeeta Das, WEDM investigation and fuzzy logic modelling of AA7075/SiC metal matrix composites, *Materials Today: Proceedings(J)*, <https://doi.org/10.1016/j.matpr.2020.02.434>
4. Sangeeta Das, Modelling and turning investigations of Al2024 based metal matrix composites, *Materials Today: Proceedings(J)*, <https://doi.org/10.1016/j.matpr.2020.02.409>
5. Sangeeta Das, Optimization of wear coefficient and coefficient of friction of borosilicate glass ceramics using Taguchi coupled grey fuzzy logic technique, *Materials Today: Proceedings(J)*, <https://doi.org/10.1016/j.matpr.2020.03.262>
6. Sangeeta Das, Mechanical, surface morphological multi-objective optimization of tribological properties of V<sub>2</sub>O<sub>5</sub> doped lead calcium titanate borosilicate glass ceramics, *Ceramics International (J)*, <https://doi.org/10.1016/j.ceramint.2020.04.252>
7. Sangeeta Das, Electrical Study of Lead Calcium Titanate Borosilicate Glass Ceramics, *Advances in Lightweight Materials and Structures, Springer Proceedings in Materials (B)*, [https://doi.org/10.1007/978-981-15-7827-4\\_36](https://doi.org/10.1007/978-981-15-7827-4_36).
8. Sangeeta Das, Dielectric and Impedance Spectroscopic Characteristics of Lead Calcium Titanate Borosilicate Glass Ceramics, *Glass Physics and Chemistry (J)*, <https://doi.org/10.1134/S108765962101003X>.
9. Rakesh Nath, Design and Parametric Evaluation of a Staircase Climbing Forklift, *International Research Journal of Engineering and Technology (IRJET) (J)*, <https://www.irjet.net/archives/V7/i7/IRJET-V7I7499>.
10. Rakesh Nath, A Review on Second Generation Biodiesel Blending & their Future Perspectives, *International Journal of Engineering Research and Applications (IJERA) (J)*, <https://doi.org/10.9790/9622-1008015159>.
11. Swapnaneel Sarma, Effectiveness of Japanese Encephalitis Warning System developed by North Eastern Space Application Centre in case fatality ratio mitigation in three districts of Assam, 2<sup>nd</sup> International Conference on Future Learning Aspects of Mechanical Engineering (C/B), [https://doi.org/10.1007/978-981-15-9956-9\\_38](https://doi.org/10.1007/978-981-15-9956-9_38)
12. Kankan K.Pathak, Impact of Bioenergy on Environmental Sustainability, Biomass Valorization to Bioenergy. *Energy, Environment, and Sustainability. Springer, Singapore (B)*, [https://doi.org/10.1007/978-981-15-0410-5\\_10](https://doi.org/10.1007/978-981-15-0410-5_10), 04.

13. Sangeeta Das, Impact of Bioenergy on Environmental Sustainability, Biomass Valorization to Bioenergy. Energy, Environment, and Sustainability. Springer, Singapore (B), [https://doi.org/10.1007/978-981-15-0410-5\\_10](https://doi.org/10.1007/978-981-15-0410-5_10).
14. Bhabajit Baruah, Sustainable Development Goals in context to BRICS Countries, Solar Energy (Springer, Singapore) (B), [https://doi.org/10.1007/978-981-15-0675-8\\_2](https://doi.org/10.1007/978-981-15-0675-8_2).
15. Rakesh Nath, Sustainable Development Goals in context to BRICS Countries, Solar Energy (Springer, Singapore) (B), [https://doi.org/10.1007/978-981-15-0675-8\\_2](https://doi.org/10.1007/978-981-15-0675-8_2).

**Year: 2019**

**Publication Details (Journal Papers/Book Chapters/Conference Papers)**

1. Kankan K Pathak, A study of enhanced heat and mass transfer from variable height fin array undergoing natural convection, ASME J. Thermal Sci. Eng. Appl. (J), <https://doi.org/10.1115/1.4044426>
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3. Debarshi Mallick, Co-gasification of coal/biomass blends in 50 kWe circulating fluidized bed gasifier, Journal of Energy Institute (J), DOI: 10.1016/j.joei.2019.04.005
4. Sangeeta Das, Structural, optical, and nuclear magnetic resonance studies of V<sub>2</sub>O<sub>5</sub>-doped lead calcium titanate borosilicate glasses, Journal of Physics and Chemistry of Solids(J), DOI: 10.1016/j.jpcs.2018.10.030, 19
5. Dheeman Bhuyan, Numerical Investigation of Blood Flow Characteristics Through Cannulated Aorta, Journal of Biomimetics, Biomaterials and Biomedical Engineering(J), DOI: .org/10.4028/www.scientific.net/jbbbe.43.28
6. Rakesh Nath, Parametric Evaluation of Beam Deflection on Piezoelectric Material Using Implicit and Explicit Method Simulations: A study in Energy Engineering, Practice, Progress, and Proficiency in Sustainability (B), <https://doi.org/10.4018/978-1-5225-7958-8.ch004>

7. Debarshi Mallick, Detailed study of pyrolysis kinetics of biomass using thermogravimetric analysis, international conference on Current Trends in Renewable and Alternate Energy (ICRAE) AIP Conference Proceedings 2019 (C/B), <https://doi.org/10.1063/1.5096505>
8. Debarshi Mallick, Production and performance analysis of Biodiesel from Algae, International Conference in Advanced Materials for Energy Science and Technology (Carbon - Science and Technology (ISSN 0974-0546) (C/J), DOI: 10.13140/RG.2.2.24513.61284
9. Debarshi Mallick, Pyrolysis kinetics of water hyacinth using thermogravimetric analysis, International Conference in Advanced Materials for Energy Science and Technology (Carbon-Science and Technology) (ISSN 0974-0546) (C/J), DOI: 10.13140/RG.2.2.24513.61284
10. Rajat K. Kakati, Production and performance analysis of Biodiesel from Algae, International Conference in Advanced Materials for Energy Science and Technology (Carbon - Science and Technology) (ISSN 0974-0546) DOI: 10.13140/RG.2.2.24513.61284
11. Rajat K. Kakati, Pyrolysis kinetics of water hyacinth using thermogravimetric analysis, International Conference in Advanced Materials for Energy Science and Technology (Carbon -Science and Technology) (ISSN 0974-0546) (C/J), DOI: 10.13140/RG.2.2.24513.61284
12. Sangeeta Das, Applications of Tribology on Engine Performance, Automotive Tribology (B), [https://doi.org/10.1007/978-981-15-04341\\_16](https://doi.org/10.1007/978-981-15-04341_16)
13. Aunshuman Chatterjee, Application of back propagation neural network in predicting hc emission from i. C. Engines, International Journal of Latest Trends in Engineering and Technology (J), <http://dx.doi.org/10.21172/1.133.09>
14. Dheeman Bhuyan, A Brief History of Prosthetics and Orthotics of the Lower Body and Their Types, Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement (B), <https://doi.org/10.4018/978-1-7998-8050-9.ch018>
15. Dheeman Bhuyan, Design of a Prosthetic Ankle Complex: A Study in Biomimetic System Design, Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement (B), <https://doi.org/10.4018/978-1-7998-80509.ch019>
16. Dheeman Bhuyan, Design of Prosthetic Heart Valve and Application of Additive Manufacturing, Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement (B), DOI: [org/10.4018/978-1-7998-8050-9.ch024](https://doi.org/10.4018/978-1-7998-8050-9.ch024)