LAXMINARAYAN COLLEGE JHARSUGUDA

Faculty Profile

Name	Fg Offr Dr. Uddhaba Biswal
Designation	Lecturer
Department	Mathematics
Address (Office)	Laxminarayan College, Jharsuguda
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Qualification

Name of the Exam/degree	Passing Year	Council/ Board/ University	Subject Details	Division/Grade
B. Sc.	2014	Rajendra (Auto.) College, Balangir (Now Rajendra University)	Mathematics Hons.	1st
M. Sc.	2016	Pondicherry University	Mathematics Hons.	1st
Ph. D.	2023	National Institute of Technology, Rourkela	Computational Fluid Dynamics, Uncertainty Modelling	NA
CSIR-JRF	2016	CSIR-HRDG, New Delhi	Mathematics	74 (AIR)
GATE	2017	GATE	Mathematics	149 (AIR)

Area of Interest / Specialization

Computational fluid Dynamics, Computational methods, Uncertainty modelling, Fuzzy theory

Teaching Experiences

Organisation/Institute	Designation	Duration	Role
NIT Rourkela	Research Scholar	2017-2022	Teaching Assistance
Laxminarayan College, Jharsuguda	Lecturer in Mathematics	Aug 2022 – till date	Teaching

Courses Taught

B.Sc. Mathematics Honours, GE & QALT papers as per CBCS syllabus, Sambalpur university.
+2 Mathematics as per CHSE syllabus.

Extra-Curricular Assignments

(i) Serving as superintendent of Boys' hostel.

(ii) Serving as Associate NCC Officer for NCC Air wing and commissioned with the rank of Flying Officer.

Publication Details

Journal Papers

1. **Biswal, U.**, Chakraverty, S. and Ojha, B. K. (2019), "Natural convection of non-Newtonian nanofluid flow between two vertical parallel plates", ***International Journal of Numerical Methods for Heat & Fluid Flow***, Vol. 29 No. 6, pp. 1984-2008. https://doi.org/10.1108/HFF-06-2018-0302.

2. **Biswal, U.**, Chakraverty, S. and Ojha, B. K., 2020. Natural convection of nanofluid flow between two vertical flat plates with imprecise parameter. ***Coupled systems mechanics***, *9*(3), pp.219-235.

3. **Biswal, U.**, Chakraverty, S., Ojha, B. K. and Hussein, A.K., (2021), "Numerical simulation of magnetohydrodynamics nanofluid flow in a semi-porous channel with a new approach in the least square method", ***International Communications in Heat and Mass Transfer***, *121*, p.105085. https://doi.org/10.1016/j.icheatmasstransfer.2020.105085.

4. **Biswal, U.**, Chakraverty, S. and Ojha, B. K., (2021), "Application of homotopy perturbation method in inverse analysis of Jeffery–Hamel flow problem", ***European Journal of Mechanics-B/Fluids***, *86*, pp.107-112. https://doi.org/10.1016/j.euromechflu.2020.12.004.

5. **Biswal, U.**, Chakraverty, S., Ojha, B. K. and Hussein, A. K., 2021. Study of Jeffery-Hamel flow problem for nanofluid with fuzzy volume fraction using double parametric based Adomian decomposition method. ***International Communications in Heat and Mass Transfer***, *126*, p.105435.

6. **Biswal, U.** and Chakraverty, S., 2022. Investigation of Jeffery-Hamel flow for nanofluid in the presence of magnetic field by a new approach in the optimal homotopy analysis method. ***Journal of Applied and Computational Mechanics***, *8*(1), pp.48-59.

7. Mebarek-Oudina, F., Laouira, H., Hussein, A.K., Omri, M., Abderrahmane, A., Kolsi, L. and **Biswal, U.**, 2022. Mixed convection inside a duct with an open trapezoidal cavity equipped with two discrete heat sources and moving walls. ***Mathematics***, *10*(6), p.929.

8. Younis, O., Alizadeh, M., Kadhim Hussein, A., Ali, B., **Biswal, U.** and Hasani Malekshah, E., 2022. Mhd natural convection and radiation over a flame in a partially heated semicircular cavity filled with a nanofluid. ***Mathematics***, *10*(8), p.1347.

9. Sannad, M., Hussein, A.K., Abidi, A., Homod, R.Z., **Biswal, U.**, Ali, B., Kolsi, L. and Younis, O., 2022. Numerical study of MHD natural convection inside a cubical cavity loaded with copper-water nanofluid by using a non-homogeneous dynamic mathematical model. ***Mathematics***, *10*(12), p.2072.

10. **Biswal, U.**, Chakraverty, S. and Ojha, B.K., 2022. Forward and Inverse Problems Related to Nanofluid Flow Between Nonparallel Planes in Uncertain Environment. ***Journal of Computational and Nonlinear Dynamics***, *17*(8), p.081002.

11. **Biswal, U.**, Chakraverty, S., Ojha, B.K. and Hussein, A.K., 2022. Numerical investigation on nanofluid flow between two inclined stretchable walls by Optimal Homotopy Analysis Method. ***Journal of Computational Science***, *63*, p.101759.

12. Laidoudi, H., Hussein, A.K., Mahdi, A.B., Younis, O., Malekshah, E.H., Togun, H. and **Biswal, U.**, 2022. Numerical Investigation of Buoyancy-driven Flow in a Crescent-shaped Enclosure. ***Jordan Journal of Mechanical & Industrial Engineering***, *16*(4).

13. Hussein, A.K., Rashid, F.L., Abed, A.M., Al-Khaleel, M., Togun, H., Ali, B., Akkurt, N., Malekshah, E.H., **Biswal, U.**, Al-Obaidi, M.A. and Younis, O., 2022. Inverted solar stills: A comprehensive review of designs, mathematical models, performance, and modern combinations. ***Sustainability***, *14*(21), p.13766.

14. Younis, O., Hussein, A.K., Attia, M.E.H., Rashid, F.L., Kolsi, L., **Biswal, U.**, Abderrahmane, A., Mourad, A. and Alazzam, A., 2022. Hemispherical solar still: Recent advances and development. ***Energy Reports***, *8*, pp.8236-8258.

15. Hussein, A.K., Hussein, A.A.R.A., Abidi, A., Basem, A., Rashid, F.L., HAMIDA, M.B.B., **Biswal, U.**, Ali, B. and Abdulameer, S.F., 2023. Opposing Mixed Convection in an Open Parallelogram Cavity with the Horizontal Channel: Effects of the Heat Source Length and Location. ***Journal of Advanced Research in Numerical Heat Transfer***, *14*(1), pp.118-135.

16. Alizadeh, M., Fazlollahtabar, A., Hussein, A.K., Ameen, H.A., Ganji, D.D., **Biswal, U.** and Ali, B., 2023. Effect of thermal radiation and magnetic field on heat transfer of SWCNT/water nanofluid inside a partially heated hexagonal cavity. ***Korean Journal of Chemical Engineering***, pp.1-17.

17. Hussein, A.K., Rashid, F.L., Togun, H., Sultan, H.S., Homod, R.Z., Sadeq, A.M., Attia, M.E.H., Ali, B., **Biswal, U.**, Rout, S.K. and Abdulkadhim, A.H., 2024. A review of design parameters, advancement, challenges, and mathematical modeling of asphalt solar collectors. ***Journal of Thermal Analysis and Calorimetry***, *149*(1), pp.41-61.

18. Attia, M.E.H., Hussein, A.K., Rashid, F.L., Ali, B., Saggai, S., **Biswal, U.**, Rout, S.K., Abdulameer, S.F. and Barik, D., 2024. Use of Electrolysis to Produce H2 from Natural and Modified Water. ***Energy Technology***, *12*(1), p.2300918.

19. Kadhim Hussein, A., Pakdee, W., Bechir Ben Hamida, M., Ali, B., Lafta Rashid, F., **Biswal, U.** and S Alhassan, M., 2024. MHD mixed convection flow of alumina-water nanofluid into a lid-driven cavity with different patterns of wavy sidewalls. ***Journal of Computational Applied Mechanics***, *55*(1), pp.92-112.

Book Chapters

1. **Biswal, U.**, Chakraverty, S. and Ojha, B.K., 2020. Natural convection of non-Newtonian nanofluid flow between two vertical parallel plates in uncertain environment. In *Recent Trends in Wave Mechanics and Vibrations* (pp. 295-309). **Springer**, Singapore.

2. Karunakar, P., **Biswal, U.** and Chakraverty, S., 2020. Fluid Dynamics Problems in Uncertain Environment. *Mathematical Methods in Interdisciplinary Sciences*, pp.125-144, **Wiley.**

3. **Biswal, U.**, Chakraverty, S. and Ojha, B.K., 2021. Natural convection in a nanofluid flow. In *New Paradigms in Computational Modeling and Its Applications* (pp. 57-70). **Elsevier**.

4. **Biswal, U.**, Chakraverty, S. and Ojha, B.K., 2021. Vibration of a cantilever beam immersed in a fluid with uncertain parameters. In *Modeling and Computation in Vibration Problems, Volume 2: Soft computing and uncertainty* (pp. 15-1). Bristol, UK: **IOP Publishing**.

5. Hussein, A.K., Kolsi, L., Attia, M.E.H., Younis, O., **Biswal, U.**, Ali, H.M., Ali, B., Hashemian, M., Mallikarjuna, B. and Nikbakhti, R., 2022. Nanoscience and its role in the future of solar stills. In *Industrial Applications of Nanocrystals* (pp. 427-440). **Elsevier**.

Book

1. Chakraverty, S. and **Biswal, U.**, 2022. *Modeling and simulation of nanofluid flow problems*. **Springer Nature**.

Conferences

1. **Biswal, U.**, Chakraverty, S., and Ojha, B. K., 2018. Natural convection of non-Newtonian nanofluid flow between two vertical parallel plates in uncertain environment, **8th National Conference on Wave Mechanics and Vibrations, NIT Rourkela**, Odisha, India.
2. **Biswal, U.**, Chakraverty, S., and Ojha, B. K., 2019. Inverse Analysis of Jeffery-Hamel Flow Problem, **National Conference on Modeling Analysis & Simulation, IIT (ISM)**, Dhanbad, Jharkhand, India.
3. **Biswal, U.,** Chakraverty, S., and Ojha, B. K., Nanofluid flow between two plates in uncertain environment, **International Conference on Mathematical Modelling, Applied Analysis and Computation-2022 (ICMMAAC-22),** dated 4-6 August, 2022, JECRC University, Jaipur (Raj.), India.