

## **Dr. Pankaj Dumka**

Assistant Professor(SG)

**Education:** B. Tech., M. Tech., Ph.D.

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**Areas of Interest:** Thermodynamics, Fluid Dynamics, Renewable Energy, and Solar water desalination, Engineering applications of Python programming

### **Brief Profile:**

Dr Pankaj Dumka completed his B. Tech. from Indraprastha Engineering College Ghaziabad (affiliated to U.P.T.U) in Mechanical Engineering in the year 2007, M. Tech. from Indian Institute of Technology Kanpur in "Fluids and Thermal Sciences (Mechanical Engineering)" in 2010, and Ph.D. from Jaypee University of Engineering and Technology, Guna in "Solar water desalination" in 2021.

His research involves:

1. Fabrication of winglet inserted microchannels.
2. Study of flow pattern and mixing phenomenon in microchannels.
3. Confocal analysis of different objects as well as mixing in the twisted channel.
4. Use of solar energy to desalinate brackish/salty water for potable water production with the help of conventional solar still and its modifications.

He has published many research articles in reputed SCI, and SCOPUS indexed Journals. He has been working with this University since July 07, 2011.

### **Reviewer of International Journals:**

1. Desalination and Water Treatment (ISSN: 1944-3986)
2. Energy Conversion and Management (ISSN: 0196-8904)
3. Advances in Engineering Software (ISSN:0965-9978)

### **Publication@JUET**

[Publication details google profile link](#)

### **Journals:**

1. Pankaj Dumka, Kritik Rana, Surya Pratap Singh Tomar, Dhananjay R. Mishra, "Modelling air standard thermodynamic cycles using python" , Advances in Engineering Software, 172, 103186, 2022, doi.org/10.1016/j.advgsoft.2022.103186
2. Rishika Chauhan, Pankaj Dumka, Dhananjay R Mishra, "Modelling conventional and solar earth still by using the LM algorithm-based artificial neural network" , International Journal of Ambient Energy, 43 (1), 1389-1396, 2022, doi.org/10.1080/01430750.2019.1707113
3. Pankaj Dumka, Rishabh Rathor, Saksham Sharma, Kirti Katiyar, Harshit Gautam, Chinmay Gunawat, Dhananjay R. Mishra, "Impact of Coconut Husks on the Productivity of Conventional

- Solar Still: A Heat Transfer Study" , Current Advances in Geography, Environment and Earth Sciences Vol. 4,1-14,2022, doi: 10.9734/bpi/cagees/v4/2542B
4. Pankaj Dumka, Rishabh Rathor, Kirti Katiyar, Dhananjay R Mishra, "Techno-economic investigation of passive solar still augmented with permanent magnets and ultrasonic fogger" , International Journal of Renewable Energy Technology, 13 (3), 285-305,2022, doi: 10.1504/IJRET.2022.123966
  5. Parth singh Pawar , Dhananjay R. Mishra, Pankaj Dumka, "Obtaining Exact Solutions of Visco- Incompressible Parallel Flows Using Python" , International Journal of Engineering Applied Sciences and Technology 6 (11), 213-217, 2022
  6. Pankaj Dumka, Ayush Singh, Gaurav P Singh, Dhananjay R Mishra, "Kinematics of Fluid: A Python Approach" , International Journal of Research and Analytical Reviews, 9 (2), 131-135,2022, doi.one/10.1729/Journal.30183
  7. Pankaj Dumka, Parth Singh Pawar, Abhay Sauda, Gaurav Shukla, Dhananjay R Mishra, "Application of He's homotopy and perturbation method to solve heat transfer equations: A python approach" , Advances in Engineering Software 170, 103160, 2022, doi.org/10.1016/j.advengsoft.2022.103160
  8. Rishika Chauhan, Pankaj Dumka, Dhananjay R Mishra, "Experimental Evaluation and Development of Artificial Neural Network Model for the Solar Stills Augmented with the Permanent Magnet and Sandbag" , Journal of Advanced Thermal Science Research 9, 9-23, 2022, doi.org/10.15377/2409-5826.2022.09.2
  9. Adarsh Deo, Arnav R Joshi, Aman Parashar, Dhananjay R Mishra, Pankaj Dumka, "Analysing One Dimensional Tapered Pin-Fin using Finite Difference" , Research and Applications of Thermal Engineering 5 (1), 1-6, 2022, doi.org/10.5281/zenodo.6424500
  10. Parth singh Pawar, Dhananjay R Mishra, Pankaj Dumka, "Solving First Order Ordinary Differential equations using Least Square Method: A comparative study" , International Journal of Innovative Science and Research Technology, 7(3), 857-864, 2022
  11. Pankaj Dumka, Harshit Gautam, Saksham Sharma, Chinmay Gunawat, Dhananjay R Mishra, "Impact of Sand Filled Glass Bottles on Performance of Conventional Solar Still" , Journal of Basic & Applied Sciences 18, 8-15, 2022, doi.org/10.29169/1927-5129.2022.18.02
  12. Pankaj Dumka, Saksham Sharma, Harshit Gautam, Dhananjay R Mishra, "Finite Volume Modelling of an Axisymmetric Cylindrical Fin using Python" , Research and Applications of Thermal Engineering 4 (3), 1-11, 2022, doi:10.5281/zenodo.6345803.svg
  13. Pankaj Dumka, Saksham Sharma, Harshit Gautam, Chinmay Gunawat, "Impact of Solar Powered Fountain on The Performance of Conventional Solar Still" , International Journal of Engineering Research & Technology 10 (11), 109-112, 2021
  14. Pankaj Dumka, Dhananjay R Mishra, "Influence of salt concentration on the performance characteristics of passive solar still" , International Journal of Ambient Energy 42 (13), 1463-1473, 2021, doi.org/10.1080/01430750.2019.1611638

15. Pankaj Dumka, Dhananjay R Mishra, "Energy, exergy and techno-economic analysis of novel solar stills for sea coastal area" , International journal of Ambient Energy, 2021, doi.org/10.1080/01430750.2021.1945489
16. Saksham Sharma, Rishabh Rathor, Harshit Gautam, Kirti Katiyar, Chinmay Gunawat, Pankaj Dumka, "Influence of coco peat powder on the solar still productivity: An exergo-economic study" , IOP Conf. Series: Earth and Environmental Science 2021 795, 012012, 2021, 10.1088/1755-1315/795/1/012012
17. Pankaj Dumka, Rishika Chauhan, Dhananjay R Mishra, "Experimental and theoretical evaluation of a conventional solar still augmented with jute covered plastic balls" , Journal of Energy Storage 32, 101874, 2020, doi.org/10.1016/j.est.2020.101874
18. Pankaj Dumka, Dhananjay R Mishra, "Experimental investigation and thermal analysis of a double slope long still: study of heat and mass transfer" , International Journal of Ambient Energy, 1-9, 2020, doi.org/10.1080/01430750.2020.1818128
19. Pankaj Dumka, Ananya Jain, Dhananjay R Mishra, "Energy, exergy, and economic analysis of single slope conventional solar still augmented with an ultrasonic fogger and a cotton cloth" , Journal of Energy Storage 30, 101541, 2020, doi.org/10.1016/j.est.2020.101541
20. Rishika Chauhan, Saksham Sharma, Rishika Pachauri, Pankaj Dumka, Dhananjay R Mishra, " Experimental and theoretical evaluation of thermophysical properties for moist air within solar still by using different algorithms of artificial neural network" , Journal of Energy Storage 30, 101408, 2020, doi.org/10.1016/j.est.2020.101408
21. Pankaj Dumka, Dhananjay R Mishra, "Comparative experimental evaluation of conventional solar still (CSS) and CSS augmented with wax-filled metallic finned-cups" , FME Transactions 48 (2), 482-495, 2020, doi:10.5937/fme2002482D
22. Pankaj Dumka, Dhananjay R Mishra, "An estimation of the distillate output from a CSS based on multi-variable regression analysis" , International Journal of Ambient Energy, 2020, doi.org/10.1080/01430750.2020.1736625
23. Pankaj Dumka, Dhananjay R Mishra, "Performance evaluation of single slope solar still augmented with the ultrasonic fogger" , Energy, 190, 116398, 2020, doi.org/10.1016/j.energy.2019.116398
24. Pankaj Dumka, Aman Sharma, Yash Kushwah, Aman S Raghav, Dhananjay R Mishra, "Performance evaluation of single slope solar still augmented with sand-filled cotton bags" , Journal of Energy Storage, 25, 100888, 2019, "doi.org/10.1016/j.est.2019.100888"
25. Pankaj Dumka, Yash Kushwah, Aman Sharma, DR Mishra, "Comparative analysis and experimental evaluation of single slope solar still augmented with permanent magnets and conventional solar still" , Desalination 459, 34-45, 2019, doi.org/10.1016/j.desal.2019.02.012
26. Mayank Sharma, Anil K Tiwari, Pankaj Dumka, Dhananjay R Mishra, "Performance evaluation of long still for the utilization of industrial hot waste water" , Journal of Energy Storage 20, 485-491, 2018, doi.org/10.1016/j.est.2018.10.023

27. Pankaj Dumka, Dhananjay R Mishra, "Experimental investigation of modified single slope solar still integrated with earth (I) & (II): Energy and exergy analysis" , Energy, 160, 1144-1157, 2018, doi.org/10.1016/j.energy.2018.07.083

28. Pankaj Dumka, Dhananjay R Mishra, "Energy and exergy analysis of conventional and modified solar still integrated with sand bed earth: Study of heat and mass transfer" , Desalination, 437, 15-25, 2018, doi.org/10.1016/j.desal.2018.02.026

### **Conferences:**

1. Dhananjay R Mishra, Pankaj Dumka, Saksham Sharma, Harshit Gautam, " Impact of wax-filled glass bottles on the performance of conventional solar still" , ISPEC 9th International Conference Agriculture, Animal Science and Rural Development, 2022

2. P Dumka, S Sharma, H Gautam, C Gunawat, DR Mishra, "Estimation of heat transfer internal heat transfer coefficients of conventional solar still augmented with solar pump" , İstanbul International Modern Scientific Research Congress -II, 274-280, 2022

3. Saksham Sharma, Rishabh Rathor, Harshit Gautam, Kirti Katiyar, Chinmay Gunawat, Pankaj Dumka, "Influence of coco peat powder on the solar still productivity: An exergo-economic study" , IOP Conf. Series: Earth and Environmental Science 2021 795, 012012, 2021

4. Pankaj Dumka, Prince Goyal, Kedar Mishra, Gaurav Goswami, Manishi Parashar, Dhananjay R Mishra, "Investigation of the performance of single slope solar still at different salt concentrations" , Solaris 2019-India, Renewable Energy and Sustainable Climate, 2019

5. Pankaj Dumka, Dhananjay R Mishra, "Techno-economic analysis of CSS and MSSIE for sea coastal area" , 6th World Conference on Applied Science, Engineering and Technology (WCASET-18), 2018

### **Short Term Training:**

1. A short-term training on "Power Generation Overview 660MW supercritical thermal power plant", organized by NTPC Limited (A Government of India Enterprise) at Power Management Institute from 17.12.2012 to 30.12.2012.