

BIO-DATA

Dr. Hemant Kumar



1. **Name** : **Dr. HEMANT KUMAR**
2. **Designation** : **ASSISTANT PROFESSOR**
3. **Department** : **MECHANICAL ENGINEERING**
4. **Date of Birth** : **14.06.1980**
5. **Address** : **Department of Mechanical Engineering**
Punjabi University, Patiala, 147002
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6. **Areas of Specialization** : **Heat transfer, CFD, Fluidized bed combustion, Microchannels**

7. Academic Qualification:

Sr. No.	Degree held	Year	University	% marks	Subjects
1.	B.Tech	2002	PTU Jalandhar	68.5	Mechanical Engineering
2.	M.Tech	2008	PTU Jalandhar	67.8	Thermal Engineering
3.	Ph.D	2017	Thapar University	-	Mechanical Engineering

8. Membership of Professional Bodies/Organizations

Life member – ISTE (Indian Society of Technical Education)

9. Details of Experience:

Sr. No.	Name of the Institution	Position held	Duration	Job responsibility
1.	IET, Bhaddal, Punjab	lecturer	Aug., 2003 to May 2008	Teaching
2.	IET, Bhaddal, Punjab	Sr. lecturer	June 2008 to July 2008	Teaching
3.	IET, Bhaddal, Punjab	Assistant Professor	July 14, 2008 to December 26, 2011	Teaching & Research
4.	Punjabi Uni. Patiala	Assistant Professor	December 27, 2011 till date	Teaching & Research

10. Published work (numbers only):

a. Research papers in Journals:

International: 17

b. Conference Proceedings: 21

c. Books: 1

11. M.Tech students guided (Details):

S. No.	Name of the Student & Roll No.	Title of Thesis	Supervisors	Year of Completion
1.	Paramjit Dhiman (04171106)	Studies on performance of a water-cooled heat sink	Er. Hemant Kumar	March, 2010
2.	Sanjay Kumar (11193014)	Field Study and Numerical Simulation of Bubbling Fluidized Bed Combustor Based on Co - firing	Er. Hemant Kumar	October, 2013
3.	Manvir Singh (11193024)	Influence of Tool Shape on Mechanical Properties and Microstructure of Friction Stir Welded Aluminium Alloys	Er. Hemant Kumar Er. Parminder Singh	October, 2013
4.	Manish Rajoria (11193051)	Modeling of Fluidized Bed Combustion Based on Rice Husk	Er. Hemant Kumar	October, 2013
5.	Maninder Singh (11173021)	To Study The Effect of Aging Time and Aging Temperature on Biogenically Derived Bi – Phasic Calcium Phosphate Powders and Corals	Er. Hemant Kumar Er. Ravinder Pal Singh	July 2014
6.	Varinder Singh (11293035)	Effect of Plenum Shape on Thermo Hydraulic Performance of Microchannel Heat Sink	Er. Hemant Kumar Dr. S.S.Sehgal	September, 2014
7.	Gurbir Singh (11293050)	CFD Analysis of Shell and Tube Heat Exchanger	Er. Hemant Kumar	February, 2015
8.	Narinder Singh (11173012)	Comparative Study of Finishing Aluminium Tube Using Different Magnetic Abrasives	Er. Hemant Kumar Er. Jagdeep Singh Gill	May, 2015
9.	Mohit Gaba (11173038)	Field Study and Modeling of Real Plant Bubbling Fluidized Bed Combustor Based on Biomass & Co-firing	Er. Hemant Kumar Dr. S.K.Mohapatra	July, 2015
10.	Nitish Kumar (112730220)	Experimental Investigation of process parameters for rapid prototyping technique (Selective Laser Sintering) to enhance the part quality of prototype by Taguchi method	Er. Hemant Kumar Er. Jagdeep Singh Khurmi	February, 2016
11.	Harmeet Singh (11393014)	Modeling and Analysis by Response Surface Methodology of Hardness and Impact toughness for Submerged Arc Welding Joints Using Developed Agglomerated Fluxes	Er. Hemant Kumar Er. Rajdeep Singh	February, 2016
12.	Harpreet Kaur	Experimental Investigation & Modeling of	Er. Hemant Kumar	February,

	(11393023)	Fluidized Bed Combustion Fuelled by Rice Husk & Pet Coke	Er. Rajdeep Singh	2016
13.	Maniratan Singh (11493041)	Study, Analysis & Experimentation of Graphene based Nanoplatlets Nanofluid in Rectangular Microchannel	Er. Hemant Kumar Dr. Harry Garg	August, 2016
14.	Bhupinder Singh	Experimental Investigation of Heat Transfer through Different Shapes of Microchannels	Er. Hemant Kumar Dr. Harry Garg	August 2016
15.	Shivdeep Singh Kaleka (11593046)	Organizational Measures for Effective Implementation of MRP1 And MRP2 in Manufacturing Companies	Dr. Hemant Kumar Er. Rajdeep Singh	April 2017
16.	Amrit Pal Singh Boparai (11593042)	Role of TPM Paradigms in Achieving Manufacturing Excellence in Industry	Dr. Hemant Kumar Er. Rajdeep Singh	April 2017
17.	Aamir Ayoub Bhat (11693032)	Study and Analysis of Microchannel Heat Sink using Nanofluid as Multi-walled Carbon Nanotubes (MWNT) in Ethylene Glycol	Dr. Hemant Kumar	September 2018

12. List of Papers/Courses taught at P.G. and U.G. Level

- Heat & Mass Transfer
- Refrigeration & Air conditioning
- Industrial Quality Control
- Fluid Machinery
- Power Plant engineering
- Management of Production Systems

13. List of Papers Published

Research Papers in Journals

1. Amanpreet Singh, Hemant Kumar, Satish Kumar (2021), Analysis of tribological performance of HVOF sprayed composite coatings on pipeline material, AIP Conference Proceedings (**Scopus**), vol. 2341(1), 040026
2. Amanpreet Singh, Hemant Kumar, Satish Kumar (2021), Tribological performance of thermally sprayed Ni-Cr₂O₃ and Ni-Al₂O₃ coatings on pipeline steel using Taguchi's approach, Materials Today: Proceedings (**Scopus**), vol. 41, 976-981
3. Amanpreet Singh, Hemant Kumar, Satish Kumar (2021), Comparison of slurry erosion performance of thermally sprayed coatings with the addition of TiO₂ feedstock powder, Materials Today: Proceedings (**Scopus**), vol. 45, 5202-5206
4. Rajiv, Hemant Kumar, Gurpreet Singh Sokhal (2020), Effect of geometries and nanofluids on heat transfer and pressure drop in microchannels: a review, Materials Today: Proceedings (**Scopus**), vol. 28, 1841-1846.
5. Varinder Singh, Hemant Kumar, Satbir S. Sehgal, Rajeev Kukreja (2020), Effect of plenum shape on thermohydraulic performance of microchannel Heat Sink, Journal of The Institution of Engineers (India): Series C (**Scopus**), vol. 101 (1), 73-84
6. Satish Kumar, Amanpreet Singh, Hemant Kumar (2018), "Assessment of tracing element characteristics of F-type fly and bottom ash mixture", Energy Sources, Part A: Recovery, Utilization, and Environmental Effects (**SCI, Taylor & Francis**), vol. 40, 24, pp. 2967–2973

7. Maniratan Singh, Hemant Kumar, Harry Garg (2018), “An experimental investigation into the execution of microchannel heat sinks in forced convection heat transfer”, *International Journal of Applied Engineering Research*, vol.13, pp. 14196-14202
8. Hemant Kumar, S.K. Mohapatra, Ravi Inder Singh (2017), “Review on CFD Modelling of Fluidized Bed Combustion Systems based on Biomass and Co-firing”, *J. Inst. Eng. India Ser. C (Scopus)*, vol.99, 4, pp.449-474.
9. Mohit Gaba, Hemant Kumar, S.K. Mohapatra (2017), “Modeling of Bubbling Fluidized Bed Combustor Based on Biomass & Co-firing”, *Materials Today: Proceedings (Scopus)*, 4, pp.1615–1625
10. Rajdeep Singh, Hemant Kumar (2017), “Role of TPM paradigms in achieving manufacturing excellence in industry, *International Journal of Innovative Research in Science, Engineering and Technology*, vol. 6, 8, pp.16624-16633
11. Narinder Singh, Hemant Kumar, Jagdeep Singh Gill (2016), “Internal finishing of Aluminium tube with sintered magnetic abrasive”, *International Journal of Engineering and Applied Sciences*, vol.3, pp.76-79.
12. Nitish Kumar, Hemant Kumar, Jagdeep Singh Khurmi (2016), “Experimental Investigation of process parameters for rapid prototyping technique (Selective Laser Sintering) to enhance the part quality of prototype by Taguchi method”, *Procedia Technology (Elsevier)*, vol. 23, pp. 352 – 360.
13. Hemant Kumar, S.K. Mohapatra, Ravi Inder Singh (2015), “Three-dimensional CFD modeling of a fluidized bed combustor fuelled by biomass and coal”, *Materials Research Innovations (SCI, Taylor & Francis)*, vol. 19, 8, pp. 118-124.
14. Hemant Kumar, S.K. Mohapatra, Ravi Inder Singh (2015), “Study of a 30 MW bubbling fluidized bed combustor based on co-firing biomass and coal”, *Sadhana – Academy Proceedings in Engineering Sciences (SCI, Springer)*, vol. 40, Part 4, pp. 1283–1299.
15. Hemant Kumar, Mohit Gaba (2015), “Study of Bubbling Fluidized Bed Combustor Based on Co-Firing Biomass & Coal”, *International Journal of Research in Engineering and Applied Sciences*, vol. 5, pp 57-66.
16. Manish Rajoria, Sanjay Verma, Hemant Kumar (2014), “Mathematical Modelling of Bubbling Fluidized Bed Combustor of 12.5 MW Power Plant Based on Rice Husk,” *International Journal of Advanced Information Science and Technology*, vol 22, pp 131-136.
17. Hemant Kumar, Mohit Gaba (2014), “SEM Analysis of the Agglomeration effects of Real Plant Bubbling Fluidized Bed based on Biomass”, *International Journal of Multidisciplinary Approach and Studies*, vol. 1, pp 171-180.
18. Gurbir Singh, Hemant Kumar (2014), “Computational Fluid Dynamics Analysis of Shell and Tube Heat Exchanger”, *Journal of Civil Engineering and Environmental Technology*, vol. 1, pp 66-70.
19. Manvir Singh, Hemant Kumar, Parminder Singh (2013), “Influence of Tool Shape on Mechanical Properties and Microstructure of Friction Stir Welded Aluminium Alloys”, *International Journal of Innovative Research and Development*, vol. 2, pp 357-363.
20. Hemant Kumar, S.S Sehgal (2013), “Study of Fluid Flow and Heat Transfer through Mini-channel Heat Sink”, *Asian Journal of Engineering and Applied Technology*, vol. 2, pp 25-28.

Research Papers in Conferences

1. Mohit Gaba, Hemant Kumar, “Field study and XRD analysis of the agglomeration effects of real plant FB combustor based on agricultural residues & co-firing”, IVth International Conference on Production and Industrial Engineering, 19-21 December, 2016, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India

2. Maniratan Singh, Bhupinder Singh, Harry Garg, Inderpreet Kaur, Hemant Kumar, "Experimental and Numerical Analysis of Micro-Scale Heat Transfer using Carbon based Nanofluid in Microchannel for Enhanced Thermal Performance", IOP Conf. Series: Materials Science and Engineering (**Scopus**)149 (2016) 012200, IConAMMA-2016, Bangalore, India.
3. Hemant Kumar, S.K. Mohapatra, Ravi Inder Singh, "CFD analysis of a fluidized bed combustor based on co-firing", Proceedings of the ASME International Mechanical Engineering Congress & Exposition (IMECE2015), November 13-19, 2015, Hoston, USA.
4. Mohit Gaba, Hemant Kumar, "Mathematical Modeling of Bubbling Fluidized Bed based on Co-firing", Proceedings of International Conference on Emerging Areas of Mathematics for Science and Technology in Conjunction with 12th Annual Conference of The Indian Society of Industrial and Applied Mathematics, 30th – 1st February, 2015, Punjabi University, Patiala, India.
5. Mohit Gaba, Hemant Kumar, "Real plant field study showing the difference between combustion of Biomass fuel and Cofiring using fluidized bed combustion", Proceedings of National Conference on Emerging Trends in Engineering & Technology, 7th – 8th November, 2014, Asra College of Engineering & Technology under the aegis of PTU, Sangrur, India, pp190 – 194.
6. Hemant Kumar, Gurbir Singh, "CFD Analysis of Heat Exchangers-A Review", TEQIP-II Sponsored National Conference on Latest Developments in Materials, Manufacturing and Quality Control, 13th–14th February, 2014, Punjab Technical University (PTU), Giani Zail Singh (GZS) Campus, Bathinda, India, pp180-184.
7. Hemant Kumar, S.S Sehgal and Varinder Singh, "Fluid Flow and Heat Transfer through Micro-channel Heat Sink - A Review", TEQIP-II Sponsored National Conference on Latest Developments in Materials, Manufacturing and Quality Control, 13th–14th February, 2014, PTU GZS Campus, Bathinda, India, pp247-250.
8. Hemant Kumar, Manish Rajoria, Sanjay Verma, "Simulation of Bubbling Fluidized Bed Combustor based on rice husk", Proceedings of 1st International Conference on Mechanical Engineering Emerging Trends for Sustainability, 29th – 31st January, 2014, Maulana Azad National Institute of Technology, Bhopal, India, pp1140-1148.
9. Hemant Kumar, S. S. Sehgal (2013), "Study of Fluid Flow and Heat Transfer through Mini-channel Heat Sink", Proceedings of International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering, 3rd – 4th October, 2013, Punjab Technical University, Jalandhar, India, pp172-175.
10. Hemant Kumar, Manish Rajoria, Sanjay Verma, "Numerical Simulation of Fluidized Bed Combustor– A Review", Proceedings of International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering, 3rd – 4th October, 2013, Punjab Technical University, Jalandhar, India, pp 237-240.
11. Hemant Dhiman, Sehgal S S, "Liquid Cooling: An Advancement in Conventional Cooling Methods of Electronic Components", International Conference on Engineering Innovations- A Fillip to Economic Development, 18th – 20th February, 2010, Continental Group of Institutes, Fatehgarhsahib, India
12. Hemant Dhiman, Sehgal S S, Dhiman Dipti, "Enhancement of Heat Transfer Through Mini channel Heat Sink", International Conference on Innovative Technologies (IEEE sponsored), 18th – 19th June, 2009, PDMCE, Bahadurgarh, Haryana, India
13. Hemant Dhiman, Dhiman Dipti, "Design and Development of Fiber Optic Pressure Sensors for Monitoring Civil Structures", International Conference on Innovative Technologies (IEEE sponsored), 18th – 19th June, 2009, PDM College of Engineering, Bahadurgarh, Haryana, India

14. Hemant Dhiman, Sehgal S S, Dhiman Dipti, "Advance Cooling Techniques in Electronics - A Review", National Conference on Mechanism Science and Technology: from Theory to Application, 13th – 14th November, 2008, NIT Hamirpur, HP, India
15. Hemant Dhiman, Kumar Rakesh, "Experimental Investigation of Pressure and Temperature Drop in Single Phase Fluid Flow within a Microtube", National Conference on Mechanism Science and Technology: from Theory to Application, 13th – 14th November, 2008, NIT Hamirpur, HP, India
16. Hemant Kumar, Sehgal S S, Singh Sarbjit, Kumar Rakesh, "Development of an Experimental set up to investigate Fluid Flow and Heat Transfer through Minichannel Heat sink", National Conference on Emerging Trends in Mechanical Engineering, 28th – 29th August, 2008, BMS College of Engineering, Bangalore, India.
17. Hemant Kumar, Sehgal S S, Kumar Rakesh, "Micro Heat Exchanger: An Application of Microchannel", National Conference on Trends in Mechanical Engineering, 08th – 09th February 2008, Chandigarh Engineering College (CEC) Landran, India.
18. Hemant Kumar, Kumar Rakesh, Bansal Dipti," Vapour Compression Cooling in Electronics", National Conference on Trends in Mechanical Engineering, 08th – 09th February 2008, CEC Landran, India.
19. Hemant Kumar, Bansal Dipti," Design and Development of Fibre Optic based Pressure Sensor", National Conference on Emerging Trends in Communication & IT, 24th - 25th February 2007, Ryat Institute of Engineering & Technology (RIET), Railmajra, India.
20. Hemant Kumar, Mohapatra S.K, Dhiman Vikrama,"Enhancing the Strength of Fibre Reinforced Composites by Microcracking", National Conference on Recent Trends in Polymer Science & Technology, 06th – 07th May 2005, Thapar Institute of Engineering & Technology, Patiala, India.
21. Hemant Kumar, Mohapatra S.K, Dhiman Vikrama," Microcracking in Fiber Reinforced Composites A Preliminary Review", National Conference on Composite Materials, 18th – 19th March 2005, Institute of Engineering & Technology (IET) Bhaddal, India.