

CURRICULUM VITAE

LAVEET KUMAR

Assistant Professor

Department of Mechanical Engineering

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D.O.B : 23-February-1993 (29 Years)



QUALIFICATIONS

- **Doctor of Philosophy (PhD.) (Solar Energy)**, UM Power Energy Dedicated Advanced Centre (UMPEDAC), University of Malaya, Malaysia. (September 2018 to December 2021)
Thesis Title: “*MODEL DEVELOPMENT AND REAL TIME EXPERIMENTAL INVESTIGATION OF SOLAR INDUSTRIAL PROCESS HEATING SYSTEM*”.
- **Master of Engineering (M.E.) (Energy System Engineering)**, Mehran University of Engineering and Technology, Jamshoro, Pakistan, March 2015 – July 2017, with (4.0 / 4.0 CGPA, 1st Class 1st Position)
- **Exchange Student in Department of Mechanical Engineering**, Saginaw Valley State University, Michigan, USA. Jan 2014 – May 2014
- **Bachelor of Engineering (B.E.) (Mechanical Engineering)**, Mehran University of Engineering and Technology, Jamshoro, Pakistan, Jan 2011 – March 2015, with (3.88 / 4.0 CGPA, 3rd Position)

EMPLOYMENT HISTORY

- **Visiting Research Fellow**, 1st July 2022 to Present - School of Engineering & Technology, Sunway University, 47500, Bandar Sunway, Malaysia
- **Researcher**, December 2016 – Present, Energy and Environmental Engineering Research Group, Mehran University of Engineering and Technology, Jamshoro, Pakistan
- **Assistant Professor (BPS-19)**: May 2022 – Present, Department of Mechanical Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan
- **Lecturer (BPS-18)**: December 2016 – April 2022, Department of Mechanical Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan
- **Trainee Engineer (Mechanical)** - September 2015 to December 2016, Sui Southern Gas Company Limited
- **Graduate Trainee (Mechanical)** – April 2015 – June 2015, Novartis Pharma Pakistan

TEACHING/RESEARCH EXPERIENCE

- **Teaching Experience: 5 Years and 7 Months**
- **Research Experience: 5 Years and 7 Months**
- **Industrial Experience: 2 Years**
- **Research Supervisor of**
 - Eight (10) ME/M.Phil/MS Students (Completed)
 - Three (03) PhD Students (In Progress)
 - Five (05) ME/MS Students (In Progress)
 - 1-2 Groups, Final Year Undergraduate Students, Every Year

- **Research Papers Published (Total Impact Factor = 97.662)**
 1. Memon, M., Shaikh, A.A., Siddiqui, A.M. and **Kumar, L.**, 2022. Analytical Solution of Slow Squeeze Flow of Slightly Viscoelastic Fluid Film between Two Circular Disks Using Recursive Approach. *Mathematical Problems in Engineering*, 2022. (IF = 1.430)
 2. Hossain, M.S., **Kumar, L.**, El Haj Assad, M. and Alayi, R., 2022. Advancements and Future Prospects of Electric Vehicle Technologies: A Comprehensive Review. *Complexity*, 2022. (IF = 2.121)
 3. **Kumar, L.**, Hasanuzzaman, M., & Abd Rahim, P. Thermo-Economic Analysis of a Solar-Assisted Industrial Process Heating System. *Nasrudin, Thermo-Economic Analysis of a Solar-Assisted Industrial Process Heating System. (Under Review) (IF = 8.001)*
 4. Khatri, S. A., Harijan, K., Uqaili, M. A., Shah, S. F., Mirjat, N. H., & **Kumar, L.** Solar photovoltaic potential and diffusion assessment for Pakistan. *Energy Science & Engineering. (IF = 4.170)*
 5. Khatri, S. A., Harijan, K., Uqaili, M. A., Shah, F., Mirjat, N. H., & **Kumar, L.** Wind Energy Potential Assessment and Forecasting its Diffusion in Pakistan: A Logistic Modelling Analysis. *Frontiers in Energy Research*, 403. (IF = 4.008)
 6. Fayaz, H., Rasachak, S., Ahmad, M. S., **Kumar, L.**, Zhang, B., Mujtaba, M. A., ... & Omidvar, M. R. (2022). Improved surface temperature of absorber plate using metallic titanium particles for solar still application. *Sustainable Energy Technologies and Assessments*, 52, 102092. (IF = 5.335)
 7. Kandhro, B., Sahito, A. R., Nixon, J. D., Uqaili, M. A., Mirjat, N. H., Harijan, K., ... & **Kumar, L.** (2022). Seasonal variation in biogas production in reinforced concrete dome biogas plants with buffalo dung in Pakistan. *Biomass Conversion and Biorefinery*, 1-15. (IF = 4.987)
 8. Abed, F. M., Ahmed, A. H., Hasanuzzaman, M., **Kumar, L.**, & Hamaad, N. M. (2022). Experimental investigation on the effect of using chemical dyes on the performance of single-slope passive solar still. *Solar Energy*, 233, 71-83. (IF = 5.742)
 9. Shaikh, F., Shah, S. F., Siddiqui, A. M., & **Kumar, L.** (2022). Application of recursive approach of pseudoplastic fluid flow between rotating coaxial cylinders. *Alexandria Engineering Journal. (IF = 3.732)*

10. Rasachak, S., Khan, R. S. U., **Kumar, L.**, Zahid, T., Ghafoor, U., Selvaraj, J., ... & Ahmad, M. S. (2022). Effect of Tin Oxide/Black Paint Coating on Absorber Plate Temperature for Improved Solar Still Production: A Controlled Indoor and Outdoor Investigation. *International Journal of Photoenergy*, 2022. **(IF = 2.113)**
11. Khan, S., Shaikh, F., Siddiqui, M. M., Hussain, T., **Kumar, L.**, & Nahar, A. (2022). Hourly Forecasting of Solar Photovoltaic Power in Pakistan Using Recurrent Neural Networks. *International Journal of Photoenergy*, 2022. **(IF = 2.113)**
12. Mustafa, F., Sahito, A. A., Khatri, S. A., & **Kumar, L.** (2022). Hybrid Energy System Modelling for Oil & Gas Fields: A Case Study of Pasakhi Satellite Oil & Gas Complex. *Distributed Generation & Alternative Energy Journal*, 281-310.
13. Kumar, P., Shah, S. F., Uqaili, M. A., **Kumar, L.**, & Zafar, R. F. (2021). Forecasting of Drought: A Case Study of Water-Stressed Region of Pakistan. *Atmosphere*, 12(10), 1248. **(IF = 2.686)**
14. Abed, F. M., Ahmed, A. H., Hasanuzzaman, M., **Kumar, L.**, & Hamaad, N. M. (2022). Experimental investigation on the effect of using chemical dyes on the performance of single-slope passive solar still. *Solar Energy*, 233, 71-83. **(IF = 5.75)**
15. Fayaz, H., Rasachak, S., Ahmad, M. S., **Kumar, L.**, Zhang, B., Mujtaba, M. A., ... & Omidvar, M. R. (2022). Improved surface temperature of absorber plate using metallic titanium particles for solar still application. *Sustainable Energy Technologies and Assessments*, 52, 102092. **(IF = 5.35)**
16. Huot, M., **Kumar, L.**, & Selvaraj, J., Hasanuzzaman, M., & Rahim, N.A. (2021). A Comparative Performance Analysis between Serpentine-flow Solar Water Heater and Photovoltaic Thermal Collector under Malaysian Climate Conditions. *International Journal of Photoenergy*. **(IF = 2.113)**
17. Abbasi SA., Harijan. K., Memon, ZA., Shaikh, F., Mirjat, N. H., & **Kumar, L.** (2021). Long-term Optimal Power Generation Pathways for Pakistan. *Energy Science and Engineering* **(IF = 4.170)**
18. **Kumar, L.**, Hasanuzzaman, M., & Rahim, N. A. (2021). Real-Time Experimental Performance Assessment of a Photovoltaic Thermal System Cascaded with Flat Plate and Heat Pipe Evacuated Tube Collector. *Journal of Solar Energy Engineering*, 144(1), 011004. **(IF =2.384)**
19. **Kumar, L.**, Hasanuzzaman, M., Rahim, N. A., & Islam, M. M. (2021). Modeling, simulation and outdoor experimental performance analysis of a solar-assisted process heating system for industrial process heat. *Renewable Energy*, 164, 656- 673. **(IF = 8.001)**
20. Samneang, H., **Kumar, L.**, Zafar, A., Ali, M. U., Zahid, T., Bibi, S., ... & Selvaraj, J. (2021). A systematic indoor and outdoor study of effect of particle size and concentration of TiO₂ to improve solar absorption for solar still application. *Frontiers in Materials*, 345. **(IF = 3.515)**
21. Han, S., Ghafoor, U., Saeed, T., Elahi, H., Masud, U., **Kumar, L.**, Selvaraj, J., and Ahmad, MS. (2021). Silicon particles/black paint coating for performance enhancement of solar absorbers. *Energies*. **(IF = 3.004)**
22. Abed, F. M., Zaidan, M. H., Hasanuzzaman, M., **Kumar, L.**, & Jasim, A. K. (2021). Modelling and experimental performance investigation of a transpired solar collector and underground heat exchanger assisted hybrid evaporative cooling system. *Journal*

of *Building Engineering*, 44, 102620. (IF = 5.318)

23. Islam, M. M., Hasanuzzaman, M., Rahim, N. A., Pandey, A. K., Rawa, M., & **Kumar, L.** (2021). Real time experimental performance investigation of a NePCM based photovoltaic thermal system: An energetic and exergetic approach. *Renewable Energy*, 172, 71-87. (IF = 8.001)
24. Hossain, M. S., **Kumar, L.**, & Nahar, A. (2021). A Comparative Performance Analysis between Serpentine-flow Solar Water Heater and Photovoltaic Thermal Collector under Malaysian Climate Conditions. *International Journal of Photoenergy*. (IF = 2.113)
25. Khushk, N H., Shaikh, F., & **Kumar, L.** (2021). Assessment of Environmental and Operational Performance of Thermal Powerhouses in Pakistan by Employing Data Envelopment Analysis Technique. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(8), 1987-1996.
26. Hussain, S., Shaikh, F., **Kumar, L.**, Ali, Z., & Memon, Z., (2021). Operational performance evaluation and efficiency assessment of thermal power sectors of Pakistan using data envelopment analysis. *Int. J. Operational Research*.
27. Ali, Z., Shaikh, F., **Kumar, L.**, Hussain, S., & Memon, Z., (2021). Analysis of energy consumption and forecasting sectoral energy demand in Pakistan. *Int. J. Energy Technology and Policy*.
28. Malik, N. H., Shaikh, F., **Kumar, L.**, & Hossain, M. S. (2020). Quantification of the water-energy-carbon nexus of the coal fired powerplant in water stressed area of Pakistan. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 1-23. (IF = 3.447)
29. **Kumar, L.**, Hasanuzzaman, M., & Rahim, N. A. (2019). Global advancement of solar thermal energy technologies for industrial process heat and its future prospects: A review. *Energy conversion and management*, 195, 885-908. (IF = 9.709)
30. Kakar, M. Z. K., Harijan, K., & **Kumar, L.** (2018). Load assessment of solar PV system: case study of tor tang village of Baluchistan: load assessment of solar PV system: case study of tor tang village of Baluchistan. *International Journal of Renewable Energy Resources*, 8(2), 29-35.
31. Bashir, S., Shaikh, F., & **Kumar, L.** (2019). Estimation of the rooftop solar photovoltaic potential for engineering university in Pakistan. *International Journal of Renewable Energy Resources*, 9(1), 1-5.
32. Khoharo, H., **Kumar, L.**, & Jamali, M. S. (2018, October). Modeling and Comparative Performance Analysis of Different Bladed Vertical Axis Wind Turbine (VAWT). In *2018 International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE)* (pp. 1-7). IEEE.
33. Nizamani, R. A., Shaikh, F., Nizamani, A. G., Mirjat, N. H., & **Kumar, L.** (2017). Dynamic Influences of Urbanization, Economic Expansion and Primary Energy Consumption on Carbon Dioxide Emissions in Pakistan. *International Journal on Emerging Technologies*

34. Shah, S. B., Harijan, K., Tunio, M. M., Abro, R., Shaikh, P. H., **Kumar, L.**, ... & Mubarak, N. M. (2018). Economic viability of photovoltaic power plant for Sukkur–Pakistan. *Eurasian Journal of Analytical Chemistry*, 13(5), 46.

- **Book Chapters**

1. Hasanuzzaman, M., & **Kumar, L.** (Eds.). (2019). Chapter 4. Energy Supply. *Energy for sustainable development: demand, supply, conversion and management*. Academic Press.
2. **Kumar, L.** M.A.A. Mamun & Hasanuzzaman, M., (Eds.). (2019). Chapter 7. Energy Economics. *Energy for sustainable development: demand, supply, conversion and management*. Academic Press.

- **Research Interests**

- Renewable Energy Resources and Technologies
- Socio-Economical and Environmental Aspects of Energy
- Energy Policy and Planning
- Energy Conservation and Management

MEMBERSHIP

- American society of Mechanical Engineers (ASME)
- Pakistan Engineering Council, Islamabad, Pakistan
- Pak U.S Alumni Network (PUAN)
- Mehran University Alumni Association, Jamshoro, Pakistan

MERIT AWARDS/DISTINCTIONS

- Awarded fully funded faculty development scholarship to pursue PhD. studies (Malaysia), by the Higher Education Commission (HEC), Government of Pakistan, 2018-2022.
- Awarded certificate of achievement from completion of the Pak U.S Alumni Mentorship Training Program as a Mentor from Mehran University of Engineering and Technology, Jamshoro from July to September 2017
- Awarded travel grant by HEC for Participation and Research paper Presentation in International Conferences held in Turkey.
- Fully funded exchange visit to Coventry University, UK for Higher Education Commission/British Council funded UK-Pakistan Knowledge Economy Partnership: “Biomass Resource Utilization for Clean Energy Production and Socio-economic Development in Rural Areas”
- Fully funded Exchange Program scholarship from U.S Department of State for one semester at Saginaw Valley State University, Michigan.
- Student of Month award from Saginaw Valley State University, Michigan for my outstanding work as a cultural ambassador
- Merit Scholarship for achieving Top Position throughout bachelor’s degree

COMPUTER SKILLS

- Microsoft Office™ tools
- Microsoft Project and Primavera
- Engineering Design and Modelling software's (AUTOCAD and TRNSYS)
- Engineering Analysis Tools (ANSYS and FLUENT)
- R Programming Language

TRAINING/COURSES/LECTURERS ATTENDED

- Four days indigenous Training on “Faculty Professional Development” organized by MUET, Jamshoro, from 27th to 30th March 2014.
- Two days Training on “Quality Concepts and its Application” organized by SSGCL, Karachi, from 26th to 27th May 2016.
- Certificate Course on “Managing Safely” validated by Institutional of Occupational safety and Health in association with Max Train International, 2015.
- 15 hours short course on “CATIA V6” organized by MUET, Jamshoro from 23rd to 31st October 2014.
- Three days short course on “Maintenance, Operations and Control of Boilers” organized by MUET, Jamshoro from 08th to 10th March 2013.
- 15 hours short course on “Pro-E in Part Modeling” organized by MUET, Jamshoro from 07th February to 3rd March 2012.
- 15 hours short course on “Introduction to ANSYS 10.0” organized by MUET, Jamshoro from 17th to 24th September 2012.
- 18 hours short course on “Understanding the Application of Auto Cad-2D Drafting and Designing, organized by MUET, Jamshoro from 22nd February to 09th March 2011.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED

- *International Scientific Forum* organized by University of Malaya, Malaysia from 16th to 17th December 2019.
- Three Days International workshop on Options for Energy Mix: Issues of Cost and Sustainability” organized by COMSTECH, Islamabad Pakistan, held on June 26-28, 2018.
- Three Days 3rd *International Conference on Advances in Mechanical Engineering* (ICAME 2017), Istanbul, Turkey, December 19-21, 2017.
- Two days Training Workshop on *Climate Change Projections and its impact on Water System Performance*, U.S Pakistan Center for Advanced Studies in Water, Mehran University of Engineering and Technology, Jamshoro, Pakistan, August 17-18, 2017.

- Three Days *International Conference on Sustainable Development in Civil Engineering* (ICSDC 2017), Mehran University of Engineering and Technology, Jamshoro, Pakistan, November 23-25, 2017.
- Three Days 4th International Conference on Energy, Environment and Sustainable Development, Mehran University of Engineering and Technology, Jamshoro, Pakistan, November 01-03, 2016.
- One day workshop on “Biomass Energy” at Mehran University of Engineering and Technology, Jamshoro, 04th November 2016.
- Two Days 1st International Conference & Exhibition of Chemical Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan, January 14-16, 2016.
- One day Seminar on “Biomass Resource Utilization for Clean Energy Production and Socio-Economic Development in Rural Areas” at Mehran University of Engineering and Technology, Jamshoro, 13th January 2016
- Three Days 3rd International Conference on “Energy, Environment and Sustainable Development”, organized by Mehran University of Engineering & Technology, Jamshoro, Pakistan, October 22-24, 2014.
- Three Days 1st International Coal Conference (ICC2013), Mehran University of Engineering & Technology, Jamshoro, Pakistan, November 07-09, 2013.
- Three days *District F 2019 Student Professional Development Conference* (SPDC), American Society of Mechanical Engineers, February 22-24, 2013.
- Three Days 2nd International Conference on “Energy, Environment and Sustainable Development”, organized by Mehran University of Engineering & Technology, Jamshoro, Pakistan, February 27-29, 2012.

REFERENCES

1. Prof. Dr. Khanji Harijan,

Dean (Faculty of Engineering) and Meritorious Professor,
Mehran University of Engineering and Technology, Jamshoro,
Sindh, Pakistan.

2. Prof. Dr. Syed Feroz Shah,

Director Postgraduate Studies and Professor,
Mehran University of Engineering and Technology, Jamshoro,
Sindh, Pakistan.

3. Associate Prof. Dr. Md. Hasanuzzaman,

Associate Professor
Higher Institution Centre of Excellence (HICoE)
UM Power Energy Dedicated Advanced Centre (UMPEDAC)
University of Malaya, Kuala Lumpur, Malaysia.