

Dr. KARTHIKEYAN N

Department of Mechanical Engineering
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Academic profile

Ph.D. in Mechanical Engineering (2014-2020)

Dissertation Title: **Performance augmentation studies in small scale wind turbines for low Reynolds number applications.**

National Institute of Technology, Tiruchirappalli.

M.E in Energy Engineering (2011-2013)

Dissertation Title: **Aerodynamic design of SWT Blade with Gurney Flaps**

Anna University, Chennai

B.Tech in Mechanical Engineering (2007-2011)

Dissertation Title: **Finite Element Analysis of Wind Mill Blades (NACA 4414)**

Anna University, Tiruchirappalli.

Work and Research Experience

National Institute of Technology

Adhoc Faculty

Tiruchirappalli, Tamilnadu, India.

September 2013 to August 2014

National Institute of Technology

Research Scholar (Full Time)

Tiruchirappalli, Tamilnadu, India.

August 2014 to August 2019

Course Handled: Engineering Mechanics, Fluid Mechanics, Renewable energy, Wind Engineering

Design and Analysis Software Proficiency

- Solid works (3D Modeling + Surfacing)
- **Bladed, FAST, AeroDyn, NAFNoise-2D airfoil Noise tool code**
- **MATLAB (Developed BEM Code and CFD solvers)**
- Ansys ICEM CFD, FLUENT, Xfoil, Rfoil,
- Lab View, Design Expert(DOE)

Field of interest

- Fluid Mechanics, Aerodynamics, Wind Technology, CFD, Turbo Machines
- Gas Turbines, Wind Tunnel Testing
- Product Design and Development

Internship experience

- Attended one week In-Plant training at **Valuthur Gas Turbine Power Plant** in Ramanathapuram.

Job Responsibility:

Operation and Maintenance of 200MW Combined Power Plant (HRSG and Gas Turbine) **and** Attended 15 days In-Plant Training at **TAMILNADU STATE TRANSPORT CORPORATION-TIRUNELVELI WORKSHOP.**

International journal published/communicated:

1. **Karthikeyan, N.**, Kalidasa Murugavel, K., Arun Kumar, S. and Rajakumar, S. (2015) ‘Review of aerodynamic developments on small horizontal axis wind turbine blade’, *Renewable and Sustainable Energy Reviews*, 42. Doi: 10.1016/j.rser.2014.10.086. (**SCI, Impact factor 10.556**)
2. **Karthikeyan, N.**, Anand. R.B., Suthakar, T., Shubham Barhate, ‘Materials, innovations and future research opportunities on wind turbine blades – An Insight Review’, *Environmental Progress sustainable Energy*. (**SCI, Impact factor 1.596**)
3. **Karthikeyan, N.**, Suthakar, T. and Anand, R.B.,(2016) ‘Numerical investigation of airfoils for small wind turbine applications’, *Thermal Science*, 20. (**SCI, Impact factor 1.541**)
4. **Karthikeyan, N.** and Suthakar, T. (2016) ‘Computational studies on small wind turbine performance characteristics’, *Journal of Physics: Conference Series*, 759(1). (**Scopus Indexed**)
5. Kumar, S. N., **Karthikeyan, N.**, Mathew, M. and Hossain, J. (2018) ‘Development of permanent magnet axial flux generator for small wind turbines’, in *IEEE International Conference on Circuits and Systems, ICCS 2017*.
6. **Karthikeyan N.**, Rakesh Kumaraswamy, Anand, R.B., ‘CFD analysis of flow and performance characteristics of a 90°curved rectangular diffuser: Effects of Reynolds number and Aspect ratio’, **International Journal of Turbo & Jet-Engines (SCI, 0.863)** DOI: <https://doi.org/10.1515/tjj-2019-0011>.
7. **Karthikeyan N.**, Anand. R.B., Suthakar, T., “Insight aerodynamic analysis on small-scale wind turbines airfoils at low Reynolds number”, *Journal of Energy Resources Technology (ASME) (Under Review) (SCI)*.
8. **Karthikeyan N.**, Anand, R.B., Charan, J., & Kanungo, T. (2019). The insight investigation on the performance affecting parameters of Micro wind turbines. *IOP Conference Series: Earth and Environmental Science*, 268, 012159. doi:10.1088/1755-1315/268/1/012159

International Conferences attended:

1. **Karthikeyan, N.,** Suthakar, T., Anand R.B., Numerical investigation of airfoils for small wind turbine applications, International Conference on Advances in Mechanical Engineering (ICAME-2015), **Anna university, Villupuram, India, 2015**
2. **Karthikeyan, N.,** & Suthakar, T., Computational studies on small wind turbine performance characteristics, XXVII IUPAP Conference on Computational Physics (CCP2015) 2–5 December, 2015, **IIT Guwahati, India.**
3. **Karthikeyan, N.,** Suthakar T., Numerical Investigation of low Reynolds number airfoils using laminar-turbulent transition solver for Indian wind condition, International conference on membrane technology and its application. Feb 21st- 23rd, NIT Trichy India. Ref no. 2017/2135
4. **Karthikeyan, N.,** Suthakar, T., Sai Ganesh S, Varun Prasanna R, Insight analysis of laminar turbulent transition solver performance prediction for different thick low Reynolds number airfoil. International conference on membrane technology and its application. Feb 21st- 23rd, NIT Trichy India. Ref no. 2017/2135
5. Vigneshwaran, K., Suthakar, T., **Karthikeyan, N.,** Recent advancements in performance enhancement techniques involved in the HAWT. National Conference on Waste to energy , Carbon Capture and storage, 3rd to 5th Aug, NIT R,2017, India.
6. **Karthikeyan, N.,** Anand R.B., Charan J., Kanungo T., “The Insight investigation on the performance affecting parameters of Micro wind turbines”, *International Conference of Sustainable Energy and Green Technology(SEGT 2018), Dec 11-14, 2018, Malaysia.*
7. **Karthikeyan, N.,** Anand R.B., Charan J., Kanungo T. “BEM investigation on Micro wind turbines for IoT applications”, International conference on materials for energy applications (ICME 2018), Dec 6-8,2018, S.S. Jain Subodh PG (autonomous) College, Jaipur, India.

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