Dr. KAVITA DHANAWADE

Dr. Kavita Dhanawade is a Professor of Mechanical Engineering & Associate HOD at Lokmanya Tilak College of Engineering (LTCoE). She's also Faculty Advisor at ASHRAE LTCE Student Branch. She's been teaching HVAC & R, Thermodynamics, Heat transfer to the students from past 25 years. She's also serving as the BOG member to ASHRAE MUMBAI Chapter.

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FUNDING

ASHRAE Grant $3150

PARTNERSHIPS

Mechanical Engineering Department

DURATION

12 months to design, build, and test

Experimental Analysis and Investigation of Heat Transfer Characteristics Through Aero Foil Shaped Pin- Fins with Circular Holes by Forced Convection

Lokmanya Tilak College of Engineering, Navi Mumbai, University of Mumbai.

OUR PROJECT

The heat removal is crucial to prevent equipment from burning or overheating. To achieve this, heat sinks are commonly used. Heat sinks are chosen based not only on theirthermal performance but also on other design parameters. For industrial applications, high-performance heat transfer components that are lightweight are typically required. The focusof this project is to report on an experimental analysis that investigates heat transfer enhancement using aero foil Pin-fins with circular holes through forced convection. The study will examine 12 Pin Fin sets, each with variations in parameters such as height, the number of holes, and the diameters of these holes. The aero foil-shaped fins with circular slots made of aluminum. Data from the experiment will be used to calculate the heat transfer coefficient, Nusselt number, friction factor, effectiveness of fins, and other relevant parameters. The results of this experiment will help identify the best performing Pin-fin set for industrial applications. The study will help in selecting an optimal Pin-fin set with the highest heat transfer coefficient, lowest pressure drops, and highest effectiveness.