

**ANALISIS TINGKAT KELAYAKAN PERANCANGAN
TURBIN ANGIN BERSUMBU VERTIKAL
MICRO WIND ENERGY**

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Abstrak

Penelitian ini merupakan penelitian yang bertujuan untuk menganalisis tingkat kelayakan sebuah perancangan turbin angin bersumbu *vertical micro wind energy* sebagai sumber energy terbarukan dan energy alternatif dengan menggunakan metode yaitu, *Research and Development* (R&D). Data kelayakan desain dan data kelayakan produk mesin turbin angin bersumbu *vertical micro wind energy* didapatkan dari hasil penyebaran angket. Kelayakan rancang bangun mesin turbin angin bersumbu *vertical micro wind energy* dengan bentuk bilah menggunakan geometri *National Advisory Committee for Aeronautics* (NACA) 0018 melalui beberapa tahap pengambilan data uji angket melalui uji ahli desain & manufaktur, kelompok kecil, dan kelompok besar. Pada uji manufaktur diuji oleh Dosen Pendidikan Teknik Mesin Universitas Pendidikan Ganesha dengan mendapatkan hasil sangat layak. Pada pengujian kelompok kecil yang menyasar lima mahasiswa pendidikan teknik mesin, mendapatkan hasil 95,00% dan dinyatakan sangat layak. Selanjutnya penyebaran angket kelompok besar dengan menyasar mahasiswa hasil sebesar 92,79%, dapat dinyatakan bahwa rancangan ini sangat layak. Jadi, berdasarkan hasil penyebaran angket maka rancangan mesin turbin angin bersumbu *vertical micro wind energy* sangat layak untuk di terapkan.

Kata kunci : NACA 0018, Turbin Angin Bersumbu *Vertical Micro Wind Energy*, *Research and Development*

***THE ANALYSIS OF FEASIBILITY LEVEL OF
VERTICAL-AXIS WIND TURBINE
MICRO WIND ENERGY DESIGN***

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Abstract

This research aimed to analyze the feasibility level of an axis wind turbine, vertical micro wind energy design as a source of renewable energy, and alternative energy by using a method, namely Research and Development (R&D). The design feasibility data and the product feasibility data for the axis wind turbine engine, vertical micro wind turbine were obtained from the results of the questionnaire distribution. The feasibility of designing an axis wind turbine engine, a vertical micro wind with blade shape used the geometry of National Advisory Committee for Aeronautics (NACA) 0018 through several stages of collecting questionnaire data through design & manufacturing experts' tests, small groups, and large groups. The manufacturing test was tested by Mechanical Engineering Education Lecturers at the Ganesha University of Education with very decent results. The small group test targeted five students of Mechanical Engineering Education; the result was 95.00% and was stated very feasible. Furthermore, the distribution of large group questionnaires targeted the university's students with a result of 92.79%, it could be stated that this design was very feasible. Therefore, based on the results of the questionnaire distribution, axis wind turbine engine, vertical micro wind is very feasible to apply.

Keywords: *NACA 0018, Axis Wind Turbine Vertical Micro Wind Energy, Research and Development*