

*Jurnal*  
**ASIIMETRIK**  
JURNAL ILMIAH REKAYASA DAN INOVASI

volume  
**7**  
number  
**1**  
JANUARY  
2025

Redaksi Jurnal ASIIMETRIK  
Fakultas Teknik Universitas Pancasila  
Srengseng Sawah , Jagakarsa, Jakarta Selatan, 12640  
021.789 4730 pst. 107  
asiimetrik@univpancasila.ac.id



<http://journal.univpancasila.ac.id/index.php/asiimetrik/>



*Jurnal*  
**ASIIMETRIK**  
JURNAL ILMIAH REKAYASA DAN INOVASI

volume  
**7**  
number  
**1**  
JANUARY  
2025





**SINTA 3**

SK Dirjendiktiristek, Nomor: 225/E/KPT/2022

p-ISSN 2655-1861

e-ISSN 2716-2923

*Jurnal*  
**ASIIMETRIK**  
JURNAL ILMIAH REKAYASA DAN INOVASI

Editorial Journal ASIIMETRIK  
Srengseng Sawah, Jagakarsa, Jakarta Selatan, 12640  
☎ 021.789 4730 ext. 107

🌐 <http://journal.univpancasila.ac.id/index.php/asiimetrik/>

✉ [asiimetrik@univpancasila.ac.id](mailto:asiimetrik@univpancasila.ac.id)



Volume **7** Number **1**

JANUARY

2025

**Editor-in-Chief:**

- Dr. Agri Suwandi. ST., MT., CIAR., IPM., ASEAN Eng.  
ID Sinta: 258280 ; ID Scopus: 56267780300

**Editorial Board:**

- Prof. Ir. Djoko Wahyu Karmiadji, MSME, PhD., APU.  
(Universitas Pancasila, Indonesia)  
ID Sinta: 600737 ; ID Scopus: 57191582540
- Prof. Dr. Ir. Dwi Rahmalina, MT.  
(Universitas Pancasila, Indonesia)  
ID Sinta: 5975650 ; ID Scopus: 43261707900
- Dr. Muhammad Yusro, M.T.  
(Universitas Negeri Jakarta, Indonesia)  
ID Sinta: 5988066 ; ID Scopus: 54974407500
- Dr. Januar Parlaungan Siregar, IPM.  
(Universiti Malaysia Pahang Al-Sultan Abdullah, Malaysia)  
ID Scopus: 57189757307
- Prof. Ralf Förster  
(Berliner Hochschule für Technik (BHT), Germany)  
ID Scopus : 8637446600
- Prof. Tim Pasang., Ph.D  
(Western Michigan University's College of Engineering and Applied  
Sciences, USA)  
ID Scopus : 56962784100

**Section Editor:**

- Ir. Duta Widhya Sasmojo, MT.
- Ari Wibowo, S.Kom., M.Kom.

**Assistant Editor:**





- Catur Ria Kustianti., S.Kom.
- Nurraihan Alfina Ramadhani, S.M



**Publisher:**

- Fakultas Teknik Universitas Pancasila  
UP2M (Unit Penelitian dan Pengabdian kepada Masyarakat)

**Editorial Address:**

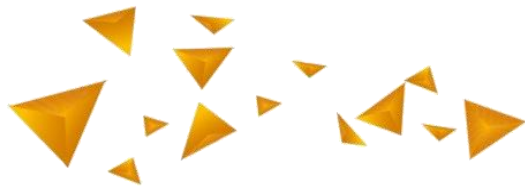
-  Srengseng Sawah, Jagakarsa, Jakarta Selatan, 12640
-  Telp. 021- 786 4730 ext. 107
-  [asiimetrik@univpancasila.ac.id](mailto:asiimetrik@univpancasila.ac.id)
-  <http://journal.univpancasila.ac.id/index.php/asiimetrik/>

© 2025 Jurnal Asimetrik: Jurnal Ilmiah Rekayasa Dan Inovasi

Copyright is protected by law. It is strictly forbidden to duplicate, reproduce and reprint without written permission from the Editorial Board of Jurnal Asimetrik: Jurnal Ilmiah Rekayasa Dan Inovasi



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



**SINTA 3**

SK Dirjendiktiristek, Nomor: 225/E/KPT/2022

p-ISSN 2655-1861

e-ISSN 2716-2923

*Jurnal* **ASIMETRIK**  
JURNAL ILMIAH REKAYASA DAN INOVASI

**EDITORIAL**



Volume **7** Number **1**

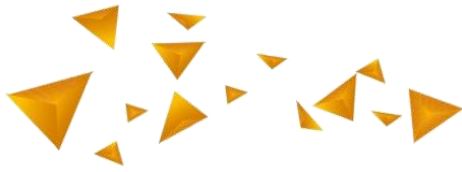
JANUARY  
2025

**Jurnal Asimetrik: Jurnal Ilmiah Rekayasa dan Inovasi** is a national journal published by Faculty of Engineering Universitas Pancasila. It has been accredited "Rank 3" or "SINTA 3" by the Decree of the Director General of Higher Education, Research and Technology Number: 225/E/KPT/2022 and is registered with p-ISSN 2655-1861 (print) and e-ISSN 2716-2923 (online) and can be accessed via the website: <http://journal.univpancasila.ac.id/index.php/asiimetrik/>.

**Jurnal Asimetrik: Jurnal Ilmiah Rekayasa dan Inovasi** is published regularly every **two times a year**, in **January** and **July**. This journal publishes research-based scientific articles, case studies, review articles, engineering and innovations that cover both theoretical and practical as well as their development. The topics of scientific articles published cover the fields of Architecture, Civil Engineering, Industrial Engineering, Informatics Engineering, Mechanical Engineering and Electrical Engineering.

**SUMMARY.** **Utama et al.** review the use of pneumatic linear transfer systems in modern manufacturing industries that focus on efficiency, productivity, and flexibility. The study employed the VDI 2221 method, a structured design approach, and pneumatic technology to design and construct a multi-speed pneumatic linear transfer system. **Purba et al.** created the Finite Element Analysis (FEA) method and the Cowper-Symonds strain rate model to study how high chromium white cast iron (HCCI) wears away at three different impact angles. They also compared it to other materials like 6061-T6 aluminum, GH4720Li superalloy, and annealed stainless steel. Meanwhile, **Natalia et al.** developed the most effective forecasting method for PT. XYZ, a manufacturing company, using the Distribution Requirement Planning (DRP) technique and a time series plot of each DC demand. **Taufiqurrohman et al.** conducted research on green open spaces as infrastructure, which significantly improves the quality of life for urban residents and contributes to the sustainability of urban growth, particularly in Nusantara Capital City. **Rahmalina et al.**, utilized the exploratory factor analysis method to specifically design wheelchairs for individuals suffering from cerebral palsy disabilities. The research findings reveal six fundamental requirements for wheelchair design: primary features, comfort, standard compliance, robust materials, ergonomics, unique features, ease of use, and design. **Surojo et al.** conducted research on the optimization of spare parts inventory for Cummins diesel engines, utilizing the min-max stock method. The objective of this research is to improve inventory control by categorizing spare parts into slow, medium, and fast-moving components and addressing maintenance issues that impact performance. Meanwhile, **Anggara et al.** investigated the flap's geometry to enhance the hydrodynamic performance of the Oscillating Wave Surge Converter (OWSC) device. The Boundary Element Method (BEM) uses numbers to model the flap in three dimensions. This makes it easier

to test the Oscillating Wave Surge Converter (OWSC) device's features and how well it works. **Prabowo et al.** conducted a study to investigate the impact of water depth variations on the performance of the seabed-installed OWSC device. The variation in depth was tested at four different depth variations using the boundary element method-based numerical method. **Naufal et al.** used computational methods to conduct research on the flow structure within pipes, utilizing single and double orifice plates. **Akmal et al.**, on the other hand, tested the performance of the banana slicer machine frame with load variations and frame materials, such as low alloy steel, structural steel, stainless steel, aluminum alloy, and cast iron, to find the best material. The results indicate that low alloy steel is the most suitable material due to its low total deformation, equivalent stress, and strain energy, which contribute to its high stiffness and load efficiency. **Susanto et al.** conducted research on vertical housing using an architectural approach and a biophilic design concept, aiming to address housing needs by incorporating a natural atmosphere into the space and creating a comfortable environment for its inhabitants.



SINTA 3

SK Dirjendiktiristek, Nomor: 225/E/KPT/2022

p-ISSN 2655-1861

e-ISSN 2716-2923

*Jurnal* **ASIMETRIK**

JURNAL ILMIAH REKAYASA DAN INOVASI

# TABLE OF CONTENTS



Volume **7** Number **1**

JANUARY

2025

<b>Design of A Multi-Speed Pneumatic Linear Transfer System</b>	1-12
<i>Didi Widya Utama*, Jason Waworuntu, Agus Halim, Agustinus Purna Irawan, Robin Averil, Satrio Tauladan, Kevin Raynaldo</i>	
<b>Erosive Wear Characteristics Analysis of High Chromium White Cast Iron using Finite Element Analysis (FEA)</b>	13-20
<i>Riki Hendra Purba*, Deva Ihsan Khoirunas, James Julian, Fitri Wahyuni</i>	
<b>Forecasting Methods Proposal and Implementation of Distribution Requirement Planning Method to Overcome Unfulfilled Stock Availability at PT. XYZ</b>	21-28
<i>Christine Natalia, Sebastian Gunawan, Yun Chia Liang, Andre Sugioko*, Wawan Tripiawan, Marcelinus Fredikson</i>	
<b>Proposing a Land Suitability Analysis Method for Green Open Space in Nusantara Capital City</b>	29-40
<i>Muhammad Taufiqurrohman*, I Nyoman Teguh Prasadha, Atie Tri Juniati</i>	
<b>Exploratory Factor Analysis for Developing Wheelchairs for Children with Cerebral Palsy</b>	41-48
<i>Dwi Rahmalina, Desinta Rahayu Ningtyas*, Nur Yulianti Hidayah, Agri Suwandi, Dede Lia Zariatin, I Gede Eka Lesmana, Dhidik Mahandika, Susanto Sudiro</i>	
<b>Inventory Management and Proactive Maintenance to Enhance Operational Efficiency in Excavators: Focus on Common Spare Parts Issues</b>	49-58
<i>Surojo*, Widia Setiawan, Harjono, Nugroho Santosa, Felixtianus Eko Wismo Winarto, Wirawan Widya Mandala</i>	
<b>Investigation of Flap Dimensional Parameters to Improve Hydrodynamic Performance of Oscillating Wave Surge Converter Device</b>	59-70
<i>Rizki Aldi Anggara, James Julian*, Fitri Wahyuni, Riki Hendra Purba, Nely Toding Bunga</i>	
<b>The Effect of Hydrostatic Pressure on the Performance of Oscillating Wave Surge Converter</b>	71-82
<i>Anton Dwi Prabowo, James Julian*, Fitri Wahyuni, Riki Hendra Purba, Nely Toding Bunga</i>	
<b>The Utilization of Single and Double Orifice Plates in Pipe Inner Flow Structure by Computational Method</b>	83-96
<i>Ridwan Daris Naufal, James Julian*, Fitri Wahyuni, Riki Hendra Purba, Nely Toding Bunga</i>	
<b>The Analysis of Banana Slices Machine Frame Using Computational Method</b>	97-106
<i>Reza Najmi Akmal, James Julian*, Fitri Wahyuni, Riki Hendra Purba, Nely Toding Bunga</i>	
<b>The Vertical Residence Based on Biophilic Architectural Design Concept (Case Study: Taman Anggrek Residence Apartment West Jakarta)</b>	107-114
<i>Fahmi Adhitya Citra Susanto, Samsu Hendra Siwi*, Titin Fatimah</i>	

\*Corresponding Author