Dear editor:

We thank the reviewers for the feedback given to our manuscript. We have modified the manuscript according to their feedback. The replies to the referee comments and the changes have been listed as follows.

Reviewer A

1. Perlu dijelaskan pada latar belakang bahwa plastik merupakan limbah yang banyak sehingga perlu pengelolaan lebih lanjut. Pyrolyser adalah alat untuk pengolah plastik menjadi .... Paper ini membahas bagaimana tata letak untuk membuat pyrolyser dan seterusnya

Thank you for the feedback. We have adjusted the Introduction section.

**Background of the problem** is the following:

Indonesia ranks among the world's major plastic waste generators, with the second-largest contribution to ocean plastic pollution after China. A significant portion of ocean plastic waste, about 16%, originates from Indonesia. The country utilizes around 182.7 billion plastic bags annually. Despite their convenience, plastics are non-recyclable and not naturally biodegradable, posing ecological threats.

**Novelty and contribution** of our paper is in the following:

Given the pressing need to address plastic waste's environmental impacts, Indonesia's waste management methods largely rely on unsustainable practices such as open dumping and landfills. The use of pyrolysis for waste management presents a promising alternative as it can convert plastic waste into oil, facilitating further product processing.

The research contributes by focusing on PT Hari Mukti Teknik (HMT), an industrial partner involved in machinery production. This company specializes in industrial scale washing machines and further expands to designing and developing pyrolyzer machines. However, the current facility layout impedes the efficient production of pyrolyzer machines due to its focus on manufacturing other products. The study aims to optimize the facility layout to improve productivity and minimize material handling costs, thus supporting effective pyrolyzer machine production.

The proposed method to redesign the facility layout is the Rank Order Clustering (ROC) Algorithm. This approach groups machines and components based on the incidence matrix, creating manufacturing cells with similar shapes and processing processes. This optimization is expected to enhance efficiency, productivity, and decrease material handling costs during the production process.

1. Mohon dijelaskan perlunya pengaturan tata letak dengan cellular manufacturing

The need for facility layout using Group Technology (GT) lies in optimizing production processes by categorizing similar components into families. This allows for standardized processes, reduced material handling, shorter lead times, efficient resource use, and cost savings. GT-driven layouts enhance productivity and flexibility while improving quality control in manufacturing operations.

We have added explanations on Group technology in the Introduction section.

1. Jelaskan kriteria yang digunakan untuk menentukan suatu tata letak adalah baik, misalnya jarak terpendek, biaya termurah, atau lainnya

The criteria used to determine the quality of a layout using the Rank Order Clustering (ROC) method depend on the specific goals and priorities of the manufacturing process. While ROC focuses on grouping machines or components to create manufacturing cells, the evaluation criteria is using the shortest material movement. In the study, the ROC method aims to minimize material movement between machines or workstations. Thus, layouts that result in the shortest distances traveled by materials or components is considered better.

We have added explanations on the evaluation criteria in the manuscript.

1. Gunakan referensi yang lebih baru

We have added newer references to the manuscript.

1. Masukkan kesimpulan pada abstrak

We have revised our abstract accordingly.

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Reviewer B:

Hasil evaluasi yang disarankan

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Diterima dengan revisi mayor

Saran untuk Penulis

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Be careful of the calculation and problem background its better to include some number or percentage rather than just word

We've provided a clearer context for the problem and made adjustment in the Introduction section.

**Background of the problem** is the following:

Indonesia ranks among the world's major plastic waste generators, with the second-largest contribution to ocean plastic pollution after China. A significant portion of ocean plastic waste, about 16%, originates from Indonesia. The country utilizes around 182.7 billion plastic bags annually. Despite their convenience, plastics are non-recyclable and not naturally biodegradable, posing ecological threats.

We have also addressed the issues in the machining process. We have revised accordingly on the manuscript.

| **Num** | **Parts** | **Machining Process** |
| --- | --- | --- |
| A | Main Reactor | M2-M3-M4-M5 |
| B | Upper Access Door | M2-M3-M1-M6-M5 |
| C | Bottom Access Door | M2-M3-M1-M6-M5 |
| D | Reactor Base Frame | M2 |
| E | Firewall/Isolator | M2-M1 |
| F | Pyrolyzer Reactor Burner | M2-M3-M4-M5 |
| G | Upper Condensor | M2-M4-M5 |
| H | Middle Condensor | M2-M3-M4-M5 |
| I | Bottom Condensor | M2-M4-M5 |
| J | Separator | M2-M4 |
| K | Condensor Frame | M2 |
| L | Gas Piping | M3-M6-M5 |
| M | Water Piping | M3-M6-M5 |
| N | Burner Case | M2-M3-M1 |
| O | Sprinkler | M3-M6-M5 |
| P | Access Ladder | M2-M3 |

To illustrate the improvement made, we've compared the machining flow of the current setup with the proposed version using the ROC method.