

HOLLIER METHOD

The **Hollier Method** is a heuristic approach used in **Computer Integrated Manufacturing (CIM)** for **line balancing** and **assembly line optimization**. It is commonly applied in **precedence diagram analysis** to minimize idle time and balance workloads across multiple workstations.

Key Aspects of the Hollier Method

1. Precedence Constraints

- The method considers the sequence in which tasks must be performed.
- Tasks cannot be assigned before their predecessors are completed.

2. Task Time Allocation

- Each task has a specific processing time that must be distributed efficiently among workstations.

3. Workstation Balancing

- The goal is to assign tasks to workstations in such a way that minimizes cycle time while maintaining a balanced load.

4. Algorithmic Approach

- The method uses a **heuristic approach** to optimize task allocation based on predefined rules, such as:
 - Selecting tasks with the **largest number of successors** first.
 - Assigning tasks with the **highest time consumption** earlier in the sequence.

5. Objective

- To achieve **high production efficiency**, reduce idle time, and maximize resource utilization.

Application in CIM

- **Automated Production Lines:** Helps in designing balanced workstation assignments.
- **Flexible Manufacturing Systems (FMS):** Assists in optimizing the allocation of automated processes.
- **Assembly Line Design:** Used for determining the best sequence and distribution of tasks in assembly operations.