

Festo Plant for Discrete Manufacturing (DM)

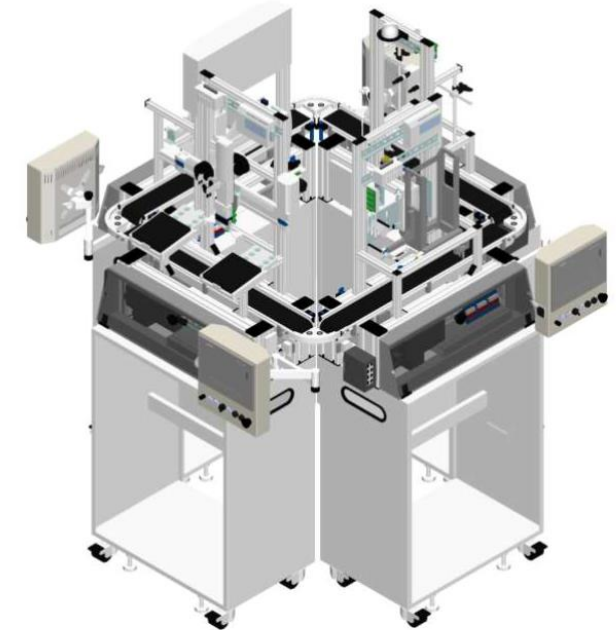
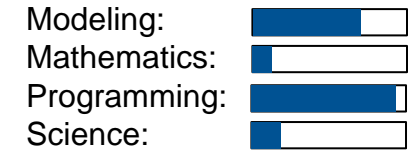
Developing Simulation Models for Industrial Copilots

Task

GENERAL INSTRUCTIONS:

- Research empirical or simplified models to estimate forces on drilling tools based on workpiece material, drill tool, drilling speed and drill depth
- Develop a logic to estimate the energy consumption of the manufacturing process
- Use LangChain to develop agentic simulation tools to be coupled with a GenAI-based industrial pilot*
- Copilot tasks: configure, execute, interact and interpret simulation results through natural language

Project Characteristics



Industrial Copilot Chat

Sample Industrial Prompts

- What is the energy required to produce this part?
- Which subcomponent is consuming the highest energy?
- Could the energy consumption be more efficient?
- The material supplier is providing a material with the following material properties {mat_properties}, how will this change the energy consumption?

Agentic Simulation Tools

Copilot Agent

Energy Simulation

Drilling Simulation

Energy Optimizer

* imagine ChatGPT but for industrial applications