

ABSTRACT

PT. Dirgantara Indonesia as a big manufacturing company has many and diverse machines for the production processes. One of processes on shop floor is surface treatment process, which is an aircraft parts dyeing process into chemical liquid in order to be more corrosion-resistant. The problem is the parts dyeing process is done by men, be it when moving crane that transporting the hanger or in the monitoring of tanks temperature and its acting. Other problem is the lack of the regular dyeing sequence each day. The hanger dyeing sequence determination becomes a critical thing because by a proper sequence, the makespan can be reduced.

Designing automation system and scheduling in parts dyeing process is conducted in order to the process can run automatically using recipe manager that set the composition of dyeing time need on tanks for each process. Tanks temperature controlling and monitoring is also conducted automatically using alarm management system so that the operator do not monitor the temperature directly in field. The hanger sequence determination is set by searching the interest weight for each hanger.

From the result of experiment conducted, concluded that scheduling for hanger sequence in surface treatment field using flowshop scheduling on serial machine approach using fuzzy logic method and designing parts dyeing process automation using recipe manager and alarm management system based on SCADA is successfully conducted. Scheduling conducted by the fuzzy logic method that sequencing the operation processing based on the interest weight by considering the precedent tanks and adding crane moving time, yielding makespan in the amount of 4336,5 minutes, or about 72,28 hours, then the makespan is decreased about 51,3 %.

Keywords : Automation, Scheduling, SCADA, Recipe manager, Alarm Management System, Fuzzy Logic