

Worasak Pitakphongmetha 2014: Application of Frequency Domain Experiments in Job Shop Scheduling. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Assistant Professor Pornthep Anussornnitisarn, Ph.D. 100 pages.

Application of Frequency Domain Experiments is dominant factor screening of response which can be selected from a spectrum of driving frequency assigned to distinct frequencies variable. If a high spectrum level can indicated that more dominant factor. This method can be applied with Job Shop Scheduling that used to Shift Bottleneck Heuristic, Is the most popular and famous in the speed of the scheduling. And can be selected important parameters. Shift Bottleneck Heuristic must to found machine problem for first scheduling. How improve speed of Shift Bottleneck Heuristic with Frequency Domain Experiments by Deterministic Model. Then adjust the parameters to makespan. And convert the time domain to frequency domain by Fourier Transform. To consider a dominant spectrum level then arrange job amount on each machine in order by uses Earliest Due Date Rule (EDD) to find the optimize solution for the production system.

The result from Application of Frequency Domain Experiments in Job Shop Scheduling is that the researcher could find the appropriate way to reduce the length of time for the solution. It is suitable for applying to other steps in the solution concerned sequencing jobs, sorting variables or dominant factors in order to apply to other production industry.

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Thesis Advisor's signature