Cyclic Sequences for Min-Max Objective in Mixed Model Just-in-Time Production System

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Recommendation

I hereby recommend that the dissertation prepared under my supervision by **Mr. Bishnu Prasad Pandey** entitled "**Cyclic Sequences for Min-Max Objective in Mixed Model Just in-Time Production System**" be accepted as a partial fulfillment of the requirement for the degree of Master of Computer Science, from Tribhuvan University, Nepal. In my best knowledge this is an original work in computer science.

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ABSTRACT

Cyclic scheduling has received considerable attention in recent years as an effective technique for repetitive manufacturing. Cyclic scheduling has been primarily studied under deterministic assumptions. In practice, stochastic variability exists and must be taken into account. The cyclic scheduling problems that arise in manufacturing are studied in this dissertation. Starting with practical Just-in-Time sequencing problem with given set of sequences as precedence constraints, efficient algorithm which obtains an optimal solution for the maximum deviation objective in the single level is studied. From this study, formulation for solving min-max-absolute-chain problem in cyclic paradigm is introduced. Moreover, the study purposes algorithms for implementation of cyclic version of min-max-absolute-chain problem. With its implementation, repetitive manufacturing industry could benefit.

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ABBREVIATIONS

AGV	Automated Guided Vehicles
EDD	Earliest Due Date
FCFS	First Come First Serve
FMS	Flexible Manufacturing Systems
GSM	Goal Chasing Method
JIT	Just-in-Time
MPS	Minimal Part Set
ORV	Output Rate Variation
OS	Operating System
PRV	Product Rate Variation
SJF	Shortest Job First
SP	Sequencing Problem

SPT	Shortest Processing Time
SRTN	Shortest Remaining Time Next
WIP	Work-in-Process