Study of coordinated scheduling and transportation based on serial-batching

Jun Pei

School of Management, Hefei University of Technology, Hefei City, China

Abstract. We systematically analyze the multi-period production and transportation collaborative scheduling problems under several circumstances, which are abstracted from the processing procedures on the serial-batching machine of extrusion factory. These different circumstances are including the cases of limited vehicles, dynamically jobs arrival, machine breakdown, and collaborative scheduling of multiple manufacturers distributed in different locations. Since that all these problems are NP-Hard, we analyze the properties of optimal scheduling plans, based on which efficient heuristics and intelligent algorithms can be developed. On the other hand, the lower bounds of these problems are also derived, which can be used to assess the accuracy of the developed algorithms.