



Università
di Brescia



SEMINARIO DI RICERCA

ORDER BATCHING AND PICKER ROUTING IN WAREHOUSES

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ore 11,00

Aula A6

C.da Santa Chiara, 50 - Brescia

Abstract:

In today's logistics environment, warehouses play a central role as strategic hubs within increasingly dynamic and customer-oriented supply chains. In warehouse operations, order picking stands out as one of the most critical processes, with its primary objective being the preparation of customer orders. This talk focuses on a classic picker-to-parts system, where human pickers push a trolley around the warehouse to collect different items. From an operational point of view, two main decisions must be taken: order batching and picker routing.

The Order Batching Problem (OBP) deals with assigning customer orders to pickers, while the Picker Routing Problem (PRP) consists in determining, for a single picker, the sequence in which the products are collected.

The integration of both decisions defines the Joint Order Batching and Picker Routing Problem (JOBPRP). We will present how to solve the JOBPRP with a column generation based algorithm. More specifically, we will discuss different algorithms to solve the pricing problem. These algorithms take advantage of the particular rectangular layout of warehouses, and are based on different classical techniques of operations research: Linear Programming, Branch-and-Bound, cutting planes, dynamic programming.