

# A novel approach for flow shop scheduling problem by using the fuzzy pentagonal number

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## Abstract:

In this article, we discuss fuzzy processing time for the flow-shop scheduling problem (FSSP). The uncertain processing times are characterized by fuzzy pentagonal numbers. A new fuzzy ranking concept is used to determine the optimal job sequence for FSSPs with the goal of minimizing the make-span. Extensive experiments were conducted to test the parameters of the new algorithm and compared with the existing algorithms. The computational results show that the new algorithm is effective and outperforms the existing algorithms.

**Keywords:** Pentagonal fuzzy processing time, Fuzzy flow shop, Idle time, make-span.

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