

Interactive Solutions for the Multi-Objective Capacitated Transportation Problem with Mixed Constraints under Fuzziness

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Abstract : In this paper, we study a multi-objective capacitated transportation problem (MOCTP) with mixed constraints. This paper is comprised of the modelling and optimisation of an MOCTP in a fuzzy environment in which some goals are fractional and some are linear. In real life application of the fuzzy goal programming (FGP) problem with multiple objectives, it is difficult for the decision maker(s) to determine the goal value of each objective precisely as the goal values are imprecise or uncertain. Also, we developed the concept of linearization of fractional goal for solving the MOCTP. In this paper, imprecision of the parameter is handled by the concept of fuzzy set theory by considering these parameters as a trapezoidal fuzzy number. α -cut approach is used to get the crisp value of the parameters. Numerical examples are used to illustrate the method for solving MOCTP.

Keywords : capacitated transportation problem, multi objective linear programming, multi-objective fractional programming, fuzzy goal programming, fuzzy sets, trapezoidal fuzzy number

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