A NEW ITERATIVE METHOD FOR TAYLOR SERIES SOLUTION OF MULTIOBJECTIVE NONLINEAR PROGRAMMING PROBLEM WITH LINEAR CONSTRAINTS

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Abstract

In the paper, we present a new iterative method for solving multiobjective programming problem with nonlinear objective functions and linear constraints. In the first phase of the method we approximate the considered problem with multiobjective linear programming problem by using the first order Taylor polynomial series for linearization of nonlinear objective functions. In the second phase, we use the new efficient method from Matejaš, Peric [J. Matejaš and T. Peric, A new iterative method for solving multiobjective linear programming problem, Applied Mathematics and Computation 243 (2014), 746-754] for solving the linear problem. We explain how the solution can be iterated using principles of game theory and respecting the aspirations of decision makers. The method is illustrated through numerical examples.