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   Titolo   Advanced Multiresponse Process Optimisation [[electronic resource]] :
                      An Intelligent and Integrated Approach / / by Tatjana V. Šibalija,
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   Disciplina   620

   Soggetti   Manufactures
                      Artificial intelligence
                      Robotics
                      Automation
                      Computational intelligence
                      Operations research
                      Decision making
                      Manufacturing, Machines, Tools, Processes
                      Artificial Intelligence
                      Robotics and Automation
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   Lingua di pubblicazione Inglese

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   Livello bibliografico Monografia

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   Nota di bibliografia Includes bibliographical references.

   Nota di contenuto Introduction -- Review of multiresponse optimisation approaches --
                      An intelligent, integrated, problem-independent method for
                      multiresponse process optimisation -- Implementation of an
                      intelligent, integrated, problem-independent method to multiresponse
                      process optimisation -- Case studies -- Conclusion.

   Sommario/riassunto This book presents an intelligent, integrated, problem-independent
                      method for multiresponse process optimization. In contrast to
                      traditional approaches, the idea of this method is to provide a unique
                      model for the optimization of various processes, without imposition of

assumptions relating to the type of process, the type and number of process parameters and responses, or interdependences among them. The presented method for experimental design of processes with multiple correlated responses is composed of three modules: an expert system that selects the experimental plan based on the orthogonal arrays; the factor effects approach, which performs processing of experimental data based on Taguchi's quality loss function and multivariate statistical methods; and process modeling and optimization based on artificial neural networks and metaheuristic optimization algorithms. The implementation is demonstrated using four case studies relating to high-tech industries and advanced, non-conventional processes.